

The London School of Economics and Political Science

**Abundance and Scarcity: classical theories of money, bank
balance sheets and business models, and the British
Restriction of 1797-1818.**

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Abstract

The thesis looks through the lens of bank balance sheet accounting to investigate the structural change in the British banking system between 1780 and 1832, and how classical quantity theorists of money attempted to respond to the ensuing financialisation of the wartime economy with its growing reliance on credit funded with paper-based instruments (the ‘Vansittart system’ of war finance).

The thesis combines contributions to three separate fields to construct a holistic historical example of the challenges faced by monetary economists when ‘modelling’ financial innovation, credit growth, ‘fringe’ banking, and agent incentives – at a time of radical experimentation: the suspension of the 80-year-old gold standard (“the Restriction”).

First, critical text analysis of the history of economics argues that the 1809-10 debate between Ricardo and Bosanquet at the peak of the credit boom, bifurcated classical theory into two timeless competing policy paradigms advocating the ‘Scarcity’ or ‘Abundance’ of money relative to exchange transactions. The competing hypotheses regarding the role of money and credit are identified and the rest of the thesis examines the archival evidence for each.

Second, the core of the thesis contributes to the historical literature on banking in relation to money by reconstructing a taxonomy of bank business models, their relationships with the London inter-bank settlement system, and their responses to the Restriction - drawing on some 17,000 mostly new data points collected from the financial records of London and Country banks.

The final section contributes to the economic history of money by constructing aggregated views of total bank liabilities from the firm-level data, scaled to recently available British GDP estimates. These are examined to establish (with hindsight) the relative merits and *lacuna* of the competing theoretical hypotheses postulated by political economists. It was the period of deleveraging after 1810 that revealed the *lacuna* of both paradigms.

INDEX

<u>Chapter</u>	<i>page</i>
1 Introduction: research question, contribution, definitions, structure	11
Part I The Restriction and monetary theory	
2 The classical theories of Hume and Smith	37
3 The bifurcation of monetary policy	64
Part II Bank business model innovation: A taxonomy and typology	
4 The 'Goldsmith' and the 'Discounter'	90
5 Business model clusters and cognitive frames	118
Part III Case studies of Country banks	
Preface and historiography	161
6 The Bank of Scotland and Coutts	165
7 The North Midlands and the Smith group	202
8 The South and South West (Old Bank, Bristol and Barnard & Co)	227
9 Leyland & Bullins and the North West	239
Part IV The Restriction, the banking system, and monetary theory	
10 The Bank of England and the Restriction	248
11 The London banks and the Restriction	263
12 Approximating the behaviour of 'the money supply'	290
CONCLUSION	326
Appendices	340
Bibliography	358

LIST of EXHIBITS

<u>Chapter 1</u>	<i>page</i>
Exhibit 1.1 – “Shaking the nerves of John Bull and his wife”	12
Exhibit 1.2 – British government debt, 1780-1844: nominal, and as % of nominal GDP	19
Exhibit 1.3 – The implied real interest rate and its volatility, 1710-1832	19
Exhibit 1.4 – Summary of surviving archival records of London banks, 1770-1845	28
<u>Chapter 3</u>	
Exhibit 3.1 – The bifurcation of classical theory during the Restriction debate	68
<u>Chapter 4</u>	
Exhibit 4.1 – Prescott’s: asset composition of a pure Discounter, 1780-1845	108
Exhibit 4.2 – BHHB: Country Ledger deposits, by location of depositor 1798-1818	112
Exhibit 4.3 – Balance sheets of the 4 Goldsmiths and 4 Discounters in 1796-9	117
<u>Chapter 5</u>	
Exhibit 5.1 – The turnover in Hoare’s mortgage book, 1775-1823	123
Exhibit 5.2 – Maturity profile of a Discounter’s discount book, Dec 1775	127
Exhibit 5.3 – Cash reserves of Discounters and Goldsmiths compared, before the Restriction, 1771 – 1797	128
Exhibit 5.4 – London banks: balance sheet totals before the Restriction, 1770-1797	131
Exhibit 5.5 – Bank balance sheet growth rates, by business model ideal-type, before the Restriction Act, and for the period thereafter coinciding with the expansion in Bank of England’s discounting.	135
Exhibit 5.6 – Annual balance sheet growth patterns and the business model clusters	136
Exhibit 5.7 – London Bank liabilities and nominal GDP: Goldsmiths vs. Discounters, 1776-1811	138
Exhibit 5.8 - Example of bank trading in Exchequer Bills: Childs, fiscal year 1796-7	140
Exhibit 5.9 – Gross margin on non-cash assets of Goldsmith and Discounter	141
Exhibit 5.10 – London banks: operating costs as percentage of total assets, 1789-1827	145
Exhibit 5.11 – Return on Assets of London banks, 1781-1845	147
Exhibit 5.12 – Goldsmith vs. Discounter: Return on Assets, experience during the Restriction period, 1782 - 1818	147
<u>Part III – Preface</u>	
Exhibit P.1 – example of a chart showing a bank’s asset and liability matching strategy	163

LIST of EXHIBITS (cont.)

<u>Chapter 6</u>	<i>page</i>
Exhibit 6.1 – Coutts & Co: a hybrid balance sheet structure, 1796	174
Exhibit 6.2 – New bank formations in Scotland, 1695-1832	176
Exhibit 6.3 – Bank of Scotland deposits with Coutts, as a % of Coutts’ total liabilities	178
Exhibit 6.4 – Growth of the Bank of Scotland and Coutts, 1774 - 1822	178
Exhibit 6.5 – Bank of Scotland gross and net lending to the private sector, 1796-1822	180
Exhibit 6.6 – Bank of Scotland: total net lending to private sector vs. non-equity funding, 1796-1822	181
Exhibit 6.7 - Bank of Scotland: asset and liability matching, <u>reported gross view</u> 1796-1822	185
Exhibit 6.8 - Bank of Scotland: asset and liability matching, <u>net view</u> 1796-1822	186
Exhibit 6.9 – Bank of Scotland note circulation: total, composition and importance, 1796-1822	188
Exhibit 6.10 - Comparing the cash reserve ratios of Bank of Scotland and Coutts, 1796-1822	190
Exhibit 6.11 – Analysis of Bank of Scotland’s account at Coutts, as kept by the former, 1812-16	193
Exhibit 6.12 – Bank of Scotland view of their account at Coutts, and net securities trades, 1812-1816	194
Exhibit 6.13 – Bank of Scotland: revealed liquidity management function, May 1813 – Mar 1816	196
Exhibit 6.14 – Coutts’ net credit exposure to the Bank of Scotland credit risk, 1805-1815	199
 <u>Chapter 7</u>	
Exhibit 7.1 – Smith group banks: total assets, 1795 – 1832	204
Exhibit 7.2 – The Smith Group: balance sheet growth rates, 1797-1821	205
Exhibit 7.3 – Asset and liability strategy: Smith Ellison, Lincoln, 1808-1832	219
Exhibit 7.4 – Smith Lincoln: deposits and net notes in circulation, 1799 and 1808-1832	220
Exhibit 7.5 – Smith Ellison, Lincoln: “excess funding” vs. lending flows back to London, 1808-32	221
Exhibit 7.6 – The Smith Group: inter-group lending	226
 <u>Chapter 8</u>	
Exhibit 8.1 – Old Bank, Bristol: asset and liability composition, 1779 - 1820	229
Exhibit 8.2 – Old Bank, Bristol: total lending and how it was funded, 1773 - 1820	230
Exhibit 8.3 – Old Bank, Bristol: profit and loss components, 1783 - 1820	233
Exhibit 8.4 – Old Bank, Bristol: proxy test for the Real Bills Doctrine	235
Exhibit 8.5 – Barnard & Co, Bedford: asset and liability management, 1800 - 1844	237

LIST of EXHIBITS (cont.)

<u>Chapter 9</u>	<i>page</i>
Exhibit 9.1 – Leyland & Bullins, Liverpool: deposits and lending, 1812 -1832	242
Exhibit 9.2 – Leyland & Bullins: cash ratios, 1812 - 1832	244
Exhibit 9.3 – Leyland & Bullins: correlations with London business model clusters, 1812-32	245
<u>Chapter 10</u>	
Exhibit 10.1 – Bank of England balance sheet, scaled to real GDP, 1720-1842	254
Exhibit 10.2 – Bank of England: composition of assets and liabilities, five-year averages, 1781-1810	257
Exhibit 10.3 – Bank of England assets: total and composition, 1780-1840	258
Exhibit 10.4 – Bank of England: total (notes in) circulation, composite estimate, 1775-1840	260
Exhibit 10.5 – Bank of England reserve ratio of bullion to circulation, 1775-1840	262
<u>Chapter 11</u>	
Exhibit 11.1 – Use of Bank of England discount window: Goldsmiths v Discounters, 1809-1826	266
Exhibit 11.2 – Discounters v. Goldsmiths: Bank of England discounts as source of funding, 1809-1823	268
Exhibit 11.3 – Total Bank of England quarter-end balance of acceptances, 1809-26	269
Exhibit 11.4 – Bank of England: gross interest earned on discounts vs. bond yields, 1800-1819	271
Exhibit 11.5 – London banks: lowest, highest and average cash/total assets ratio, 1771 – 1844	273
Exhibit 11.6 – Discounters v. Goldsmiths: asset gearing to cash, 1774 – 1844 [A]	275
Exhibit 11.7 – Discounters v Goldsmiths: asset gearing to cash, 1770 - 1843 [B]	275
Exhibit 11.8 – London banks: government securities and cash holdings, 1778-1821	278
Exhibit 11.9 – Barclays Bevan Tritton: government securities and cash holdings, 1781-1821	278
Exhibit 11.10 – London banks: growth rates before, during, and after the Restriction	280
Exhibit 11.11 – Individual London bank balance sheet growth rates (where available), 1786-1797	281
Exhibit 11.12 – London bank growth rates, 1797 to 1818	283
Exhibit 11.13 – London bank growth rates, 1818 to 1828	283
Exhibit 11.14 – Goldsmiths’ balance sheets (4 banks): changes in composition	288
Exhibit 11.15 – Discounters’ balance sheets (3 banks): changes in composition	289

LIST of EXHIBITS (cont.)

<u>Chapter 12</u>	<i>Page</i>
Exhibit 12.1 – Contemporary estimates of the “circulating media, 1798-1811	292
Exhibit 12.2 – Cameron (1967) point estimates for the Stock of Money and Means of Payment	294
Exhibit 12.3 – Comparison with Cameron (1967) estimates of income velocity of total bank liabilities	295
Exhibit 12.4 – Two alternative consolidated series for London bank balance sheets, 1780 – 1845	297
Exhibit 12.5 – Estimate of the aggregate London bank liabilities, compared; 1780-1844	299
Exhibit 12.6 – Number of Country banks, 1775 – 1850	301
Exhibit 12.7 – Number of Country banks stopping operations, 1780 – 1842	303
Exhibit 12.8 – Net formation of Country banks, 1780-1842	304
Exhibit 12.9 – Country banks: aggregate balance sheet, various data series, 1780 - 1845	306
Exhibit 12.10 – Correlation of Country bank balance sheets with London balance sheets, 1801-1832	307
Exhibit 12.11 – Country banks: comparison of estimates of balance sheets and banknotes, 1811-18	310
Exhibit 12.12 – Estimated total liabilities: Bank of England, London banks, and Country banks	311
Exhibit 12.13 - Annual estimates of total British bank liabilities, 1780-1832	313
Exhibit 12.14 – The income velocity of British bank balance sheet liabilities, 1780-1844	315
Exhibit 12.15 – British bank liabilities and Royal Mint output of new coin, 1780-1844	317
Exhibit 12.16 – Country bank holdings of government securities, 1812-1832	319
Exhibit 12.17 – London Goldsmith banks: expansion invested in government securities, 1797 - 1817	321
Exhibit 12.18 – Goslings and Coutts: holdings of government securities, 1775 - 1845	322

LIST of APPENDICES

- A Summary of archival records of London banks
- B (1) Archival data collected and contribution: London banks
- B (2) Archival data collected and contribution: London banks (cont.)
- B (3) Archival data collected and contribution: London banks (cont.)
- B (4) Archival data collected and contribution: Country banks
- C Smith group banks: lending to non-group entities
- D Smith group banks: cash and SPS nostro accounts
- E Smith group banks: notes outstanding as % of total balance sheet
- F Lincoln bank: cash reserves and note issuance
- G Lincoln bank: cash reserves to total customer lending
- H Smith group: cash ratio to total balance sheet
- I Barnard & Co, Bedford: correlation with London banks
- J Comparison of estimates of Bank of England banknotes in circulation
- K Net government borrowing, in nominal and cash terms: 1797-1816
- L London banks: balance sheet totals, 1770 - 1844
- M London bank liabilities: % of Country bank balances, 1780-1844
- N Case study of Locke, Hughes, Saunders & Co, Devizes

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Chapter 1. Introduction

1. *Introduction*
2. *The Restriction Act: impact on the economy and economists*
3. *Approach: Research question, methods and contribution*
4. *Data contribution*
5. *Definitions, concepts, and terminology of 'money'*
6. *Structure of thesis*

1.1 Introduction

On the 19th Sept 1792, two days before the French Revolutionary forces declared the First Republic and war raged across Europe, a bank clerk working at Child & Co in London, possessing both artistic skills and a sense of humour, sat down to sketch the telling caricature below (Exhibit 1.1). In the sketch we observe a senior cashier (with his back to us) behind the bank counter saying to a colleague or one of the partners, “upon my honor, Sir, we run very low in Caish”. While this is going on, a younger clerk (watched by a monkey with hat!) is handing John Bull a five-pound note to the evident disgust of the latter, who says: “Pounds, Sir, not five pounds in money”. The sketch neatly captures the monetary system of the day – a system that was to be totally transformed in the subsequent twenty-five years in ways that disturbed the theoretical understanding of political economists who viewed ‘money’ as only ‘caish’ and based their views of its role in the economy upon the headline classical quantity theories passed down from Hume and Smith.

Two key features of the pre-Restriction monetary system stand out in the sketch. Firstly, that what we call ‘money’ today, in 1792 was considered to be only cash, meaning metallic coin (“Caish”). It referred principally to guinea coins (21 shillings) minted from gold, and did not include banknotes. Banknotes were “pounds in money”, and in 1792 John Bull, as a caricature of the typical Englishman, did not like to be paid in paper banknotes. “Pounds in money” were resisted, being seen as a less trustworthy surrogate for true “caish”, also referred to as “specie”.

Monetary theory and banking practice reflected this perception of ‘money’ between themselves. Before 1797 classical analysis of the functioning of the monetary system was conducted as a series of comparative statics¹, where any paper-based monetary instrument employed as ‘circulating media’ was seen merely as a temporary substitute for commodity-based specie, between sequential points in time. The institutional framework reflected this notion insofar as neither Bank of England banknotes nor Country banknotes were legal tender. Furthermore, for the previous twenty years the minimum denomination of banknotes at this time was £5 (outside Scotland), approximately equivalent to £500 today: banknotes may have been familiar to the wealthy clients of Childs, but “Englishmen of the rank and file – wage-earners and small traders – knew little of paper money” (Clapham, 1970: II, 2) and were relegated to using mostly poor quality debased silver and copper coins.

Exhibit 1.1 – “Shaking the nerves of John Bull and his wife”



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¹ Alvin Hansen used this term to describe J.M.Keynes' General Theory; see Hansen, Alvin (1953: 39-54).

The second feature captured by the sketch is the shortage of gold coin within the banking system. Although both gold and silver coin were legal tender (until 1816), Britain had been on a *de facto* gold standard since 1717 when the gold-silver mint parity had over-valued silver. Gold coin was the high-powered money – the monetary base. Gold coin was the ‘money’ that could not legally be refused when tendered in the discharge of a debt. Hence, in theory, gold coin was viewed as the principal means of exchange, and the only monetary instrument that the banking system would hold as its liquidity reserve against future calls to redeem deposits or banknotes. Banknotes were contingent claims on the Bank of England and Country banks that were allowed to issue them, and they were under the obligation to redeem them upon the request of the bearer by paying out the equivalent sum in specie. The London banking system operated with a high ratio of such specie reserves relative to their lending activities, typically around one-third of the total balance sheet (Chapter 5). In 1750-1775, although living in Scotland where banknotes already circulated to a greater extent than in England, Hume and Smith constructed their ‘models’ with specie at the centre of the monetary system and perceived as the main component of the circulating media.

By the time the Child clerk drew his humoristic sketch in 1792 there was a growing tension between, on the one hand, this perception within monetary theory that ‘money’ was only gold coin and, on the other hand, the practical aspects of how a growing private banking sector was meeting the needs of the nominal economy, accentuated by years of government borrowing to finance war-related exports of specie to pay for British and allied troops fighting the American War of Independence (1778-1783) and the French Revolutionary Wars in Europe (1793-1802). By early 1797, when the Bank of England was the largest in England with a balance sheet of £20 million, ten times the size of the two chartered banks in Scotland and twenty times that of the next largest London bank (Chapters 10 & 11), its bullion reserve fell below £2 million, less than it had been two decades earlier in 1778 (£2.6 million). Writing in 1809, David Ricardo noted that by 1797: “the currency of the country was reduced particularly low; the amount of banknotes in circulation being less than it had been for ten years preceding” (Ricardo, 1810a: 169-172).

Yet by 1815, less than a generation later, the monetary economy had been transformed. Paper instruments had become accepted as the main part of the circulating media; London bank balance sheets gearing to “caish” had risen significantly and a new bank business

model had become dominant; the ‘fringe’ banking system outside London had mushroomed; and monetary theory had evolved into two competing paradigms that have defined monetary policy lobbies for the past two centuries. How did all this happen?

1.2 The Restriction Act: impact on the economy and economists

The Restriction Acts of 1797 suspended the obligation of banks to redeem their banknotes with specie, bringing to an end eighty years during which Britain had operated on a *de facto* gold standard.

By comparison to financial life after the 1770s, the British monetary system in the prior century was relatively under-developed, with transactions often non-monetary and credit existing as an inter-personal contract. Founded a century earlier in 1694, the Bank of England was a for-profit entity with a large shareholder group and publicly traded shares, and as yet without a modern mandate to act as a central bank or lender of last resort, but *de facto* operating with some of the same characteristics by virtue of its size and certain privileges granted to it under its original mandate: e.g. in return for lending to the government it could issue banknotes partially backed by government securities rather than gold. The creation of the Bank of England had served more to stabilize and modernize the government bond market - as evidenced by the gradual elimination over the subsequent fifty years of the large yield premium of British government bonds (Consols) relative to Dutch government bonds (Stasavage, 2003) - than to encourage the development of broad-based banking in Britain. Until 1826, in England only the Bank was entitled to take the form of joint-stock limited-liability company, with all other banks restricted to unlimited-liability partnerships of no more than six partners. Within a radius of 65 miles around London, the Bank also had a monopoly of banknote issuance, and this right was restricted to large denomination notes until 1797.

These limitations on the formation and reach of British banks as compared to Scottish banks (as described by Adam Smith – see Chapter 2) during the first two-thirds of the eighteenth-century are the most likely explanation for the slow financial deepening in Britain (Cameron, 1967; Parnell, 1827: 25-37). In the years 1750-1765 just after Hume wrote *Of Money* (1752), it is estimated there were still only twenty to thirty banks operating

in London (Clapham, 1970: Vol. I, 158), the majority of which had originated from goldsmith businesses that followed conservative balance sheet practices with high cash reserves (Temin and Voth, 2013: 46). This made banks akin to their conceptual description within classical monetary theory, namely intermediaries of real resources. Outside London, where banks were notionally allowed to more flexibly respond to the demand for credit and circulating media by issuing their own banknotes, scholars have often quoted Edmund Burke's estimate that no more than a dozen such 'bankers' shops' existed there (Clapham, 1970: 157).

From the 1770s the banking landscape began to change and there was rapid growth in the number of banks, especially in the 'fringe banking' sector outside London. By 1795, the Bank of England balance sheet had grown to £22.5 million. Nearly half of its liabilities were banknotes in circulation and on the asset side it now held one-quarter in bullion reserves, with the rest mostly in government debt securities and a small amount of discounted private sector bills (Mitchell and Deane, 1962: 441-3). In London, the number of banks grew from some 50 to 69 in 1797. The largest London bank balance sheets had reached approximately £1 million (Child & Co, Coutts & Co, and Drummonds), but the more typical size was still only a quarter to half a million (Chapter 4). Outside London, with the exception of Scotland (Chapter 6), only a few of the largest Country banks reached half a million in balance sheet, such as the Old Bristol Bank and Heywood & Sons in Liverpool (Part III), and most are estimated to have been less than £100,000, supported by equity capital of £10,000 or less (Pressnell, 1956). In Scotland, the two large quasi-state joint stock banks (limited liability), the Bank of Scotland (balance sheet of £2 million, supported by £0.75 million of equity and reserves, and funded for an other £1 million by issuing their own banknotes – Chapter 6) and the Royal Bank of Scotland had been re-capitalised following Scotland's earlier financial crisis of 1772 and the country had for some time operated with a greater degree of paper money.

Subsequently, between 1797 and 1814, the average London bank nearly doubled in size and the number and size of Country banks also grew rapidly (Chapter 11). Already in the twenty years prior to the Restriction Act, the number of Country banks had nearly tripled to 276 from approximately one hundred in the early 1780s. Then, after 1797, their number nearly tripled again, and in half the time, to an estimated peak of 740 in 1810, before beginning a long decline back to under 400 by 1850. What did the Restriction Act change?

The Restriction Act of 1797

On the 23rd February 1797 rumours began to circulate that the French army had landed near Fishguard on the Pembrokeshire coast, causing a run on the Bank of England banknotes with people wishing to exchange them for gold coin. Three days later, the Privy Council hurriedly issued an order dispensing the Bank of England from the obligation to pay the bearer of its banknotes upon demand the equivalent sum in specie. On 3rd May 1797 Parliament confirmed the order with the objective of “maintaining the Means of Circulation and supporting the Public and Continental Credit of the Kingdom” (Act of Parliament, 1797: 1) (i.e. the financing of the war against France) and passed two further statutes specifying that:

1. “it shall not be lawful for the Governor and Company of the Bank of England to issue any Cash [i.e. gold & silver coin] in Payment of any Debt or Demand whatsoever” (Act of Parliament, 1797a: paragraph II) except for amounts of 20 shillings or less (paragraph III); and even when specie was deposited with the Bank it was to be returned to its depositor only for three-quarters in specie and the rest in banknotes
2. The Bank of England at its discretion may “advance for the Accommodation of the Persons dealing as Bankers in London, Westminster and the Borough of Southwark, in Cash [i.e. “sums of money in gold and silver”], any Sums of Money not exceeding £100,000 in the whole” and not more than £25,000 to each of the two leading Scottish banks
3. “it shall and may be lawful to and for ... the Bank of England upon application being made to them by and on behalf of the Treasurer of the Bank called The Bank of Scotland or ... The Royal Bank of Scotland to issue and pay ... for the sole use of the said banks such sum or sums of money in gold and silver as may be required not exceeding the sum of £25,000 for each of the said bank banks (paragraphs VI and VII).

Furthermore, the Act allowed the banks to print banknotes with denominations of £1 and £2, and the note-issuing Country banks quickly followed, thereby bringing banknotes – and the attendant conceptual dilemmas - into the daily experience of a larger portion of the population.

The Restriction was considered a monetary experiment initially intended to last six months. In the event it was extended throughout the Napoleonic Wars. Aware of the public's fears that the pound might collapse like the French *assignat* five years earlier (Dickson White, 1912) and conscious that these fears could hinder its ability to refinance the ever-larger public debt, the government was keen to manage expectations by insisting the Restriction was temporary. The continuing Act of 30th November 1797 capitulated and made the Restriction open ended “until One Month after the Conclusion of the present War” (Act of Parliament, 1797b: 1). It was not until 1818 that the decision was finally taken to return to the gold standard – and it took three more years to be fully implemented.

Whether commentators welcomed the Restriction as a long overdue unshackling of the monetary constraints upon the real economy (the “Abundance-of-broad-money lobby”, see Chapter 3), or as a threat to the long-run stability of the real exchange value of the monetary unit of account (“Scarcity-of-base-money lobby”), all commentators agreed that it was an experiment previously untested in Britain – and one which had been recently tried in France with disastrous consequences. This experiment was perceived differently by political economists, merchants, politicians, landowners and other pamphleteers – a favourite way to lobby Parliament at the time. Merchants such as Bosanquet welcomed the experiment as bringing succour to the state of trade; others such as Ricardo saw it as a dangerous experiment that placed the Chancellor of the Exchequer and the Bank of England in effective control of the supply of money without restraint or regard to maintaining its parity to a standard of value determined in the real world of commodities.

Over the following generation this political and cognitive tug-of-war between money as a lubricant to exchange transactions versus money as a standard of value exploded into the open. Was the role of money that of a *means of exchange*, whose primary function was to oil the economic adjustments required during wartime, with its supply always responding to the needs of debtors in commerce who sought to have their bills of exchange discounted, such borrowers being assumed to never suffer from myopic expectations, and with the nominal money unit of account ‘carried’ by whatever financial instruments were available in the most abundant supply? Or was the role of money that of a *store of value*, with the money unit of account affixed to the best available standard of (real) value, gold,

even when the latter was too scarce to prevent painful deflationary adjustment of the general price level to the supply of that commodity?

Over the following twenty years the British economy underwent unprecedented events that ignited this theoretical debate about ‘money’. While observers at the time did not have today’s national statistics available to them, they perceived these changes through more immediate means such as the price of corn, the price of bullion, sterling’s exchange rate in foreign markets, the frequency of government debt issues, the demand for the products they manufactured, and the rare disclosures to Parliament by the Bank of England. As Bosanquet (1810: 49) tells us, until 1797 “it was deemed a sort of sacrilege to pry into [the Bank’s] secrets [but] At that period many leading facts were made known, and information has since been annually communicated to Parliament [and] much additional light was thrown on the nature of their dealings, by the Finance Committee, in 1807”. In the previous eighty years the Bank of England’s balance sheet had barely doubled, compounding at 1.3% p.a. (Mitchell and Deane, 1962: 441-3), growing 0.8% p.a. faster than real GDP (Broadberry et al, 2015: 240-4), and there had been almost no inflation in consumer goods – a trend rate of 0.25% p.a (Mitchell and Deane, 1962; 468-9). After the Restriction Act of 1797, the Bank of England balance sheet more than doubled by 1814, growing at an annual compound rate of 5.1%, nearly four times faster than the previous centennial trend and 3% p.a. faster than real GDP (Chapter 10). This balance sheet expansion was the result of a tripling of private sector discounts to their peak in 1810 (9% p.a. compound), funded by an unprecedented increase in its banknotes in circulation, from £10 million in 1796 to £26.6 million in 1814 (Chapter 10). This was accompanied by a tripling of consumer price inflation to 3.7% p.a. from 1797 to 1814 (Mitchell and Deane, 1962; 468-9). For the first twelve years of the Restriction the trade account was in deficit every year except 1802 and 1809 (Bank of England, 2016: tab A24) and there were unusually large depreciations of sterling on the foreign exchanges against Hamburg (Ricardo, 1810a: 121) and later also against the Dollar (Bank of England, 2016: tab A21). Government debt (funded and unfunded) nearly tripled in nominal terms, rising to a peak of 250% of nominal GDP (Exhibit 1.2).

Exhibit 1.2 – British government debt, 1780-1844: nominal, and as % of nominal GDP

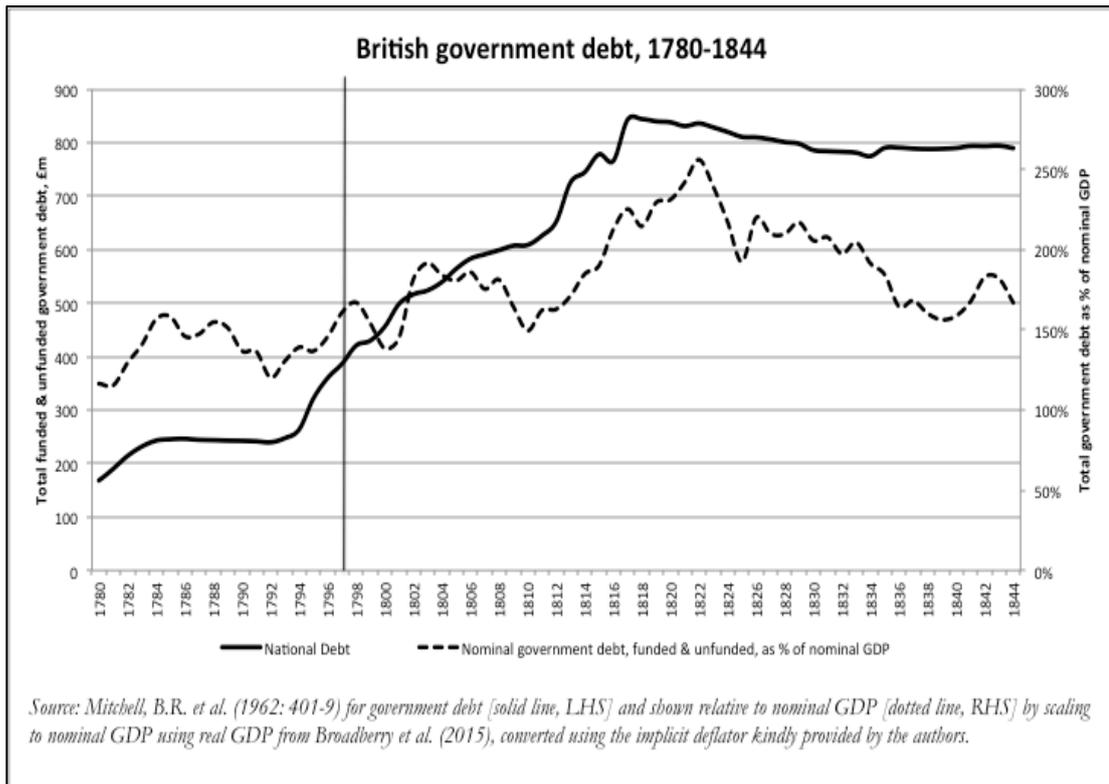
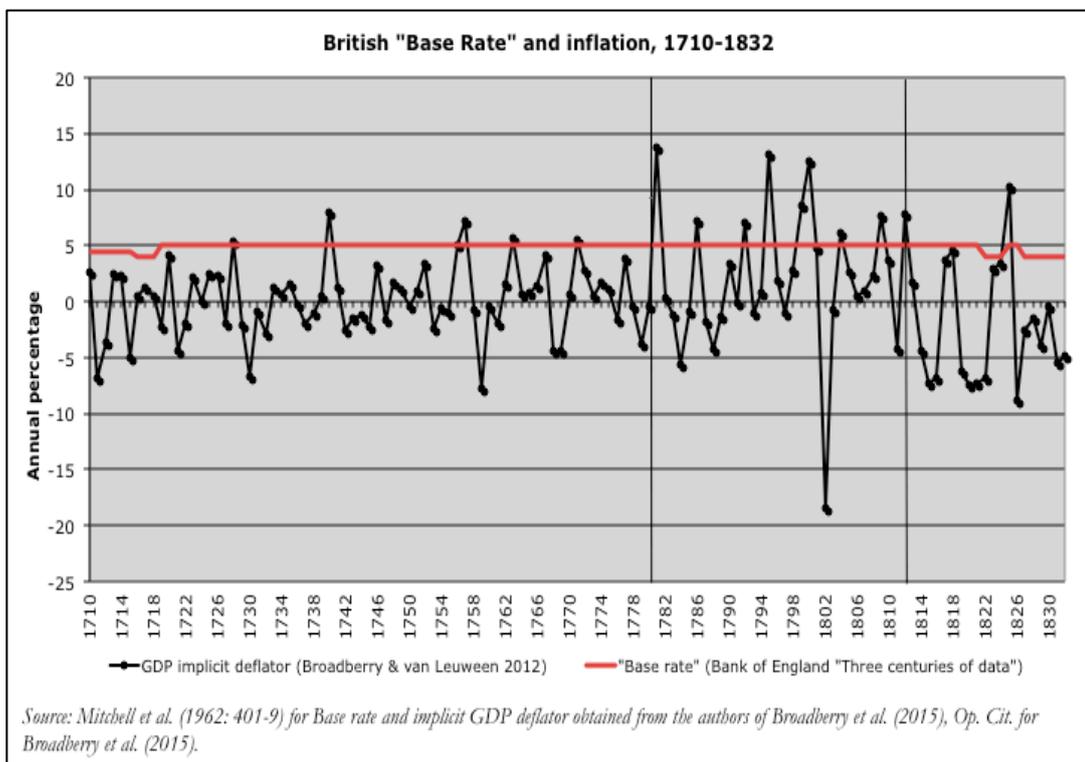


Exhibit 1.3 – The implied real interest rate and its volatility, 1710-1832



In 1717 the usury laws had set a maximum lending rate of 5%, and for the next eighty years this had become the *de facto* reference rate for all but the most prestigious borrowers: inflation had exceeded it only once every 10 years. Since 1780, this had already begun to change: inflation exceeded that reference lending-rate once every *three* years, and on three of those occasions the effective real rate was below -7%, while it had never previously been less than -3% (Exhibit 1.3). Whether consciously or unconsciously, for over half a century prior to 1780, lenders and borrowers had internalised a zero-bound medium-term *real* interest rate of 5%, calculated and earned on a money *unit of account* carried equally by both metallic and paper-based money instruments that had a fixed parity to gold as the *money standard*; and that money standard in turn was characterised by scarcity relative to the real economy.

The radical departure in monetary policy represented by the Restriction Act, together with these subsequent extreme changes in the economy, both altered the British banking system and acted as a catalyst for the theoretical debate over which parts of classical theory should be retained and which should be thrown away. Focusing on the changes in banking, Clapham (1970, Vol. II: 1) states:

“It is not easy to exaggerate the changes in the British banking system and currency systems during the first decade of suspended cash payments at the Bank.”

More recently, Arnon (2011: 95) focused on the changes in monetary theorising, and similarly states:

“The Restriction is one of those sudden events that changes the way things are done and forces people to rethink the obvious.”

For twenty years after 1797, Britain’s total supply of the means of exchange no longer had a legally assured contingent link to the physical world of commodities. No longer was there a fixed parity between the pound as a unit of account and the value of a gold pound coin.² The removal of this legally-enshrined arbitrage exposed more clearly how a

² Before 1816 the main gold coin was the guinea (21 shillings), but communication of this point is made easier by refereeing to a pound as the unit of account and the coin.

banknote was not a temporary substitute for gold coin, as Hume and Smith had generally supposed, but instead was a potentially permanent yet derivative representation of gold coin, able to ‘snatch’ the money unit of account away from gold coin. It revealed the money unit of account to be more a unit of “circulating individual credit” (Heywood, 1812: 78) that came into existence only with the simultaneous creation of a debt.

By the end of the Napoleonic Wars in 1815, Britain had experienced a *financialization* of the economy: the banking system and its clients had learned to go about their economic life with a proportionally much smaller stock of what, in 1792, “John Bull” had considered to be the only acceptable ‘money’. Eighteen years after the Restriction Act of 1797, the bank balance sheet gearing to the reserve asset “caish” had more than doubled. Nominal GDP had doubled to £403 million, while real GDP rose only 37% (Broadberry et al, 2015: 242-3)³; the nominal outstanding national debt had increased more than threefold to £744 million (Mitchell and Deane, 1962: 402-3); the Bank of England’s balance sheet had grown two-and-half times larger to £47 million (Mitchell and Deane, 1962: 442-3); the typical balance sheet of one of the London banks had also doubled in size (Chapter 11); and three times more Country banks were registered as operating, with the typical balance sheet also doubling (Chapter 12). And yet – the stock of that much desired ‘specie’ inside the banking system had barely changed. By 1814 the bullion reserves of the Bank of England stood at £2.2 million, little changed from the start of the Restriction and less than half what they had been in 1792 (£5.9 million). The stock of “caish” reserves held by the London banks in our sample had risen only 16% since 1792 (Chapters 4 and 11) which, given their relative size, was insufficient to match the fall in the Bank of England reserves, leaving a net reduction in the stock of gold coin inside the London banking system. In the typical Country bank balance sheet, specie accounted for no more than 1% of assets (Part III).

This thesis examines how the monetary system achieved this structural transformation in the banking system’s gearing to specie reserves, and how this impacted the way money was perceived and ‘modelled’ by political economists. For the first time, this thesis explores how this change came about through the lens of an empirical analysis of bank business models and their respective balance sheets. In doing so, it seeks to expose any time-invariant lessons from juxtaposing contemporary early nineteenth century theoretical

³ Converted to nominal GDP using the GDP deflator kindly provided by the authors.

monetary arguments with actual bank balance sheet behaviour observed with the full benefit of hindsight.

1.3 Approach: Research question, methods and contribution

The Restriction has caught the attention of many illustrious scholars during the past century, all in some part attracted by the discovery of a theoretical debate that resonates with the monetary policy issues of their respective times. This thesis adopts a similar intent, but pursues it with a novel approach.

This thesis poses the following question: How did the bifurcated response of political economists in the way they sought to adapt classical theories of money to the events they observed after the Restriction Act, compare to actual concurrent behaviour of the banking system when analysed with the benefit of hindsight?

In order to answer this question, I have drawn from three different strands of the literature, which explains why the thesis contains three historiographies (in Chapters 2, 5 and the preface to Part III). The existing literature from the history of economics beginning, as many do, with the seminal account by Viner (1937), is interested in the scientific genesis of different monetary theories and provides rich accounts of the theoretical ideas that emerged during the monetary debate as it evolved from the pre-Restriction writings of David Hume and Adam Smith (see historiography, Chapter 2). This literature mostly relies on the occasional citing of others' empirical work in order to provide historical context, and does not attempt any comprehensive quantification of the British monetary system beyond the more widely available Bank of England data. This approach has left scholars free to focus on their preferred comparison of Ricardo with Thornton, whose 1802 work they most rightly praise as the more sophisticated. They pay less attention to the more revealing and antithetical debate - explored here in Chapter 3 - between Ricardo and Bosanquet in 1809-10 at the height of the boom in private sector credit. While some of this work recognises the pivotal importance of the London money market during the Restriction, as we conclude here, it invariably treats the London banks as opaque heterogeneous components of it. If this literature explores the Country banks, quantification is limited to their total number or, at best, top-down estimates of their total

banknote issuance extracted from parliamentary papers, with no deep quantification of their internal ledgers.

Conversely, the historical and empirical literature on banking as it relates to money beginning, as all must do, with the seminal work of Pressnell (1956) on Country banks, is rich with detail of monetary and banking practices, and treats the theoretical debate on monetary policy in tangential manner (see historiography, Chapter 4 and Part III). More striking is how much of the empirical work by economic historians has focused on the Bank of England or the Country banks, and has seemingly bypassed attempts to quantify the aggregate behaviour of the London banks and its relations with correspondent banks in the country. A recent paper analyses micro lending practices and the rationing of credit (Temin and Voth, 2005), but is based on a single bank and a business model that I show is no longer representative of the whole banking system at this time. Alongside this work, biographical works by historians of banking during the Restriction (prior to the formation of joint-stock banking after 1832) recount the history of an individual bank or a group of banks in a single provincial city. These works (with one notable exception) focus on the story of individual bankers, and have been less interested in relating this to the conduct of the business revealed by a comprehensive quantification of balance sheet data.

Economic historians have focused on the relationship between, on the one hand, the Bank of England's issuance of more banknotes and, on the other, both the unprecedented inflation, as well as the financing made available to the government debt during the Napoleonic Wars in relation to that available to the private sector Industrial Revolution (Chapter 12). They have typically analysed how to allocate blame to either the Bank or the Country banks for any perceived welfare costs generated by the inflationary boom and bust, rather than unpick the underlying functioning of the banking and monetary system.

This thesis draws upon the strengths of all three approaches described above, but aims to bring them together in order to fill some of the *lacuna* – most especially the absence of a comprehensive analysis of London banks and their practices. This thesis' primary contribution is the comprehensive quantification of the business conduct of London banks from 1770 to 1832 as revealed by the changes in their balance sheets, which for different reasons has been a *lacuna* in both the history of banking in relation to money and in the history of economics literature. The thesis then explores case studies of Country

bank balance sheets with a focus on quantifying the relationship with their correspondent in London, as well as their cash reserve management practices. In the final part of the thesis this research is used to construct aggregated continuous data to contribute to the economic history of money at the time of the Restriction. The thesis combines these contributions in order to better situate the competing theory building by political economists at the start of the nineteenth-century as they sought to adapt the classical ‘modelling’ of money. As such, the thesis is not solely a ‘cliometric’ exercise in providing economists with data, or solely an examination of the history of economic ideas, with its traditional focus on the cultural and scientific context in preference to the economic and monetary. If Rosselli (2013: 866) is correct in saying that “historians of economic thought and economic historians often appeal to economists, urging the relevance of their work to developments in economic science, [but] they never appeal to each other, stressing the importance of collaboration”, then this thesis is both an organisational expression of that partnership (within the LSE) and a blending of the two types of intellectual curiosity.

I am interested in the historically observed aftermath, present in both the monetary system and monetary theorising, when the perceived boundaries to agent actions are swept away by a radical new experiment. In looking for answers, I am mostly “looking for big things in small places” (Joyner, 1999 in Vaara and Lamberg, 2014: 20): analysing details of balance sheets and correspondence in order to infer insights into the operation of the wider monetary system. This is done with the objective, not of allocating blame for the macro-economic outcomes, but to understand how major monetary experiments such as the Restriction period can lead monetary theoreticians of all policy persuasions to err and misjudge the fluid yet unruly nature of money. The micro-economic examination of this historical period reveals how such monetary experiments can lead to structural change in the banking system that was inconceivable by the mainstream theoretical framing of the role of money prevalent prior to the events that motivated that experiment; and how the full consequences of that structural change can be misunderstood or misjudged for many years, leading to the inability or unwillingness of the executive to demarcate and act upon the soft boundary between Bosanquet’s goal of Abundance, and Ricardo’s goal of Scarcity of money relative to the (realistically anticipated) volume of output.

The Restriction was an event that forced people to review their consensus view of what money was, and what they thought was obvious about the role it played in the economy.

The classical theories of Hume and Smith viewed money as a real resource with an important deadweight cost that had to be set aside from the current production cycle in order to act as both circulating medium and as representative of the real inputs required to begin the next cycle. Although banks were already playing a more important role in the creation of ‘circulating media’, they were not yet considered as central to the theoretical modelling of the monetary process. At most, banks were viewed as conduits for issuing lower-cost paper-based substitutes for the quantity of gold-money that would otherwise ‘naturally circulate in the economy’, with each of these paper-based liabilities being extinguished by their redemption back into specie at the end of each notional production cycle. The Restriction changed all this.

There are (obvious) similarities between the modelling of money in the economics of the pre-Restriction period and recent neo-Keynesian dynamic stochastic general equilibrium (DSGE) models employed in mainstream economic theory. A recent Bank of England working paper by Jakab and Kumhof (2015) lucidly explains how the typical DSGE models were constructed around real variables, with little role for money other than as a neutral unit of account, and there was no separate role for the banking system. Banks were not viewed as independent ‘manufacturers’ of loanable funds, but as passive conduits, with bank lending viewed as mere intermediation of real savings between non-bank savers and non-bank borrowers, occurring in semi-instantaneous ways between one state of equilibrium and the next in reaction to changes in the real interest rate.

By contrast, in practice, by the ‘magic’ of double entry bookkeeping, banks can expand their balance sheet – and thereby also the broad supply of money - by the simultaneous booking of an asset (the loan) and a liability (e.g. a deposit by the borrower). In 1797 banks could do this by extending loans paid out with their own banknotes. By the act of making loans or purchasing assets (e.g. discounting bills), banks can and did ‘manufacture’ new transferable liabilities, and hence new monetary purchasing power. This is so as long as the instrument thereby created is accepted as a means of payment by participants – and accepted by other banks as an instrument eligible for the offsetting of assets and liabilities in their accounting.

The essential nature of the constraints on this endogenous credit creation has not changed: good quality matching – in time; in contractual redemption terms; and in

‘currency’ of denomination – between assets and liabilities in order to manage liquidity risk, plus sufficient equity to confront unexpected credit losses when the offsetting and netting mechanisms fail. This can be interpreted as a suitable operational definition of the Real Bills Doctrine espoused by the Anti-Bullionists, and one that motivates the analytical method used in this thesis.

Political economists during the financialisation of Britain in period 1770-1832 marked by the Restriction had to adapt their models accordingly. The accelerated structural change in the monetary system and the behaviour of bank balance sheets, both during the long monetary expansion up to 1814 and the subsequent de-leveraging and retrenchment of the “fringe banking sector” of Country banks, caused political economists of the day to reconsider three important aspects of established theories of ‘money’:

- (i) *The effects of innovation – in instruments and methods – upon the monetary transmission mechanisms*, a role played at the end of the eighteenth century by the bill of exchange and banknotes, in terms of the instruments; and as methods, by the developing *London Transfer and Set Off* (Heywood, 1812) machinery permitting a greater netting of monetary transactions within the banking system, as well as the enhanced use of Exchequer bills for smoothing out liquidity cycles as a substitute to holding reserves of “caish”.
- (ii) *The role of credit, and the role of non-core financial institutions - i.e.. “fringe banking” - in the supply of credit-based money*, a role played after at the end of the eighteenth century by the London banks that adopted the Discounter business model, as well as many Country banks “pushing out notes”.
- (iii) *The true rationales underlying the actions of economic agents, and especially decision-makers inside banks*, which after 1797 involved questioning the belief in the ‘headline’ version of Adam Smith’s Real Bills Doctrine, and instead re-learning the numerous practical impediments to its functioning in the real world that he had carefully enumerated already in 1772

For the past two centuries these same three aspects of the monetary system have been central to monetary policy debates, and represent the main concerns being addressed by monetary economists today as they attempt to learn from the most recent financial crisis.

This thesis identifies how these same three factors impacted the re-shaping of the classical theory of money after 1797.

1.4 Data contribution

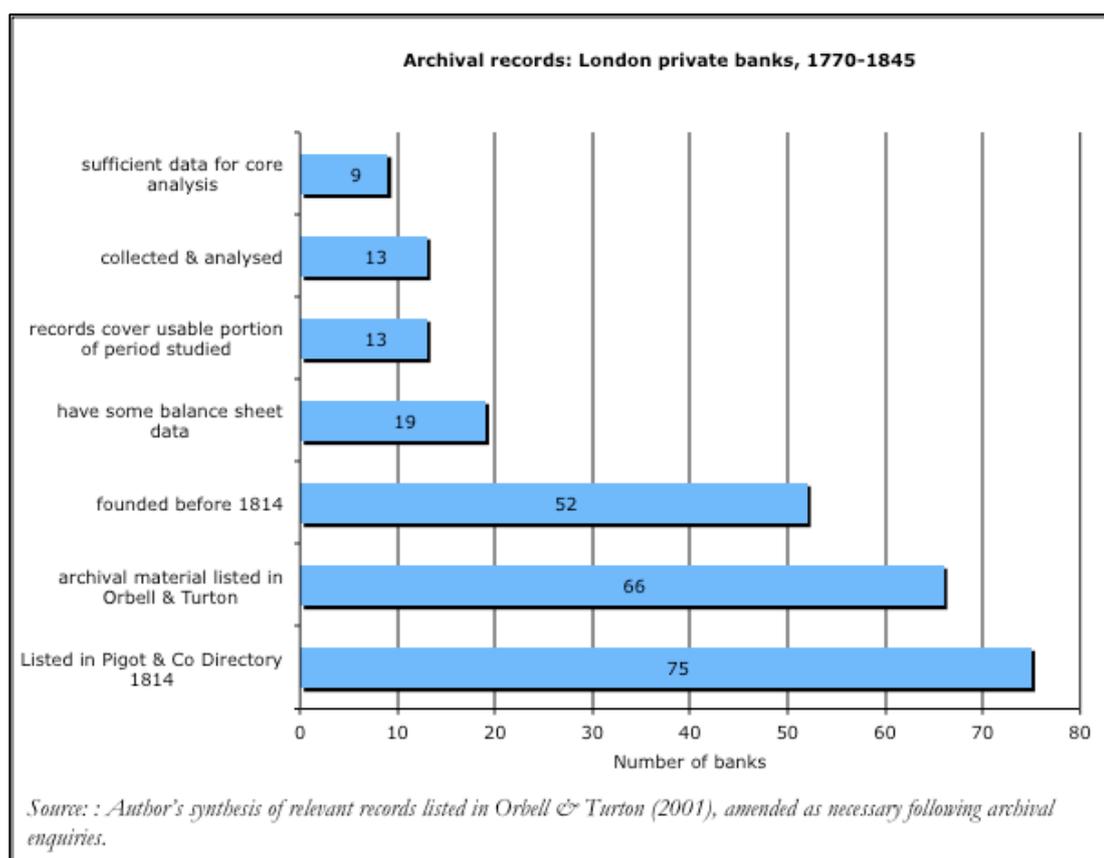
I have collected all annual balance sheet data that survive for London banks between 1770 and 1845, constituting approximately 11,000 data points, only 10% of which was previously available. Nine of these banks account for most of the data. I have also collected approximately 6,000 data points for 12 Country banks drawn from more dissipated records on the basis of regional diversification, of which less than 30% were previously available.

Exhibit 1.4 summarise the available records of London bank balance sheets for the period under investigation. The investigation would have been impossible in the time available without the invaluable work of Orbell & Turton (2001), sponsored by the Business Archives Council, which (as Pressnell puts it in the Foreword) lists the “scant documentation [...] of long defunct banks [as well as a most welcome] brief histories which ease the often bewildering path through numerous name changes” (2001: foreword). They list surviving records of 66 London banks for all periods, 14 of which were formed after 1814. Of the 52 banks operating in 1814 or earlier, records for 19 contain some balance sheet records. Upon inspection, only 13 of those proved sufficient in scope to allow some comparative analysis relevant to the Restriction period (shown in bold in the detailed table in Appendix A). Of these, 9 banks have sufficient continuous data to form the basis of my core analysis.

Thanks to the kind assistance of the archivists at Lloyds Bank and The Royal Bank of Scotland I was able to locate additional records not listed by Orbell & Turton that outline the draft balance sheet summary of, respectively, Willis Percival & Co (one of the original goldsmith firms founded in 1677) for the years 1806, 1819 and 1838; and the same for the

major bank of Smith, Payne & Smith for the years 1812-3, 1815-17, 1820-24 and 1829. The latter provide a valuable complement to the two earlier years available to the bank's biographer, allowing me to complete a reasonably comprehensive picture of the entire Smith group (Chapter 7). More typical of the research was disappointment in finding partial records covering only a small set of sub-ledgers and for limited periods or, as in the case of Curries & Co, finding detailed records, but for only three and half years.

Exhibit 1.4 – Summary of surviving archival records of London banks, 1770-1845



Where available, I have focused on the year-to-year changes in the composition of the assets and the liabilities, but also analysed some information about the profit and loss. On the asset side, where possible, data was collected for positions in cash (including the amount of Bank of England notes and a bank's own banknotes held "in the chest"), government securities (broken out in the different types of bills and bonds), other listed securities (typically East India Co. bonds, company shares, American securities), secured lending (sometimes broken up into the type of collateral), bills discounted, and finally overdrafts granted to correspondents. On the liability side, typically less detail is available, and was collected on total client deposits (rarely separating out partner deposits), deposits

by correspondents, notes and bills outstanding, paid-up capital and capital shares. Data on the profit and loss is typically limited to profit before and after distributions, but sometimes includes gross interest received, operating expenses (“shop expenses”) and allocation to reserves or bad debt write-offs. Other data collected include articles of partnership, examples of client accounts and correspondence, and any supporting working papers.

Appendix B summarises the contribution made by the new data. I highlight how the data complement that collected previously by other scholars by shading the data points they analysed. I estimate the maximum overlap to be less than 10% for London banks and less than 30% for Country banks. The data contribution for London banks has only a small overlap with previous work and is almost entirely related to the data for Hoare’s Bank collected by Temin and Voth (2013). Because they focused on the emergence of goldsmith banks during C18, most of the data they worked with covered the earlier period 1650 to 1790. Only for Hoare’s and Goslings is the data taken as far forward as 1820; and in the final chapter on the financing of the Industrial Revolution they use data exclusively from Hoares’ total lending and holdings in government securities, which they take up to 1860. In addition to these overlaps, Bolitho and Peel (1967) collected data for Drummonds as an appendix to their biography of the family. For Country bank data I have partly relied on approximately 1,000 data points collected for two banks by Pressnell (1956) and the Leighton-Boyce (1958) biography of the Smith bankers; he collected 700 data points for the Smith banks in London, Nottingham, Lincoln, Hull and Derby, which I was able to complete with more than a 1,000 additional data points from archival records.

Not all banks have records allowing comparative work on all topics. Following Temin and Voth (2013), I proceed by analysing each topic using the maximum number of banks whose records allow comment on the relevant balance sheet behaviour. However, in contrast to Temin & Voth (2013), because the focus of this analysis is on a later period, I have been able to collect, analyse and aggregate data for more banks than the four available to them, and for some comparisons I am able to use data from most of the 13 banks. While this remains a relatively small sample, that is not fully stratified, it is the first comprehensive aggregation of the London bank records that survive. This allows the construction of a continuous series for the aggregated balance sheet series that triangulation with a set of newly discovered data from the Bank of England (Chapter 11)

indicatives is representative of the two main business models and sufficient to draw some robust inferences therefrom.

Country bank records are notoriously scant, but instead of circumventing this difficulty, I have complemented a review of previous scholars estimates of the breadth of such banks with a deep analysis of case studies chosen for their diverse regional dispersion (Part III).

Where the analytical gains appear sufficiently worthwhile and are likely to strengthen the reader's persuasion of a particular conclusion, the period used for the analysis is defined less by the need to reflect the timing of known events, but rather by the need to match the dates for which data are available for a maximum number of banks.

1.5 Definitions, concepts, and terminology of 'money'

Throughout the thesis I distinguish between various categories of 'money'. Some of these categories of money are defined by technical material distinctions between monetary *instruments*; others are categories used to highlight different *functions* and *concepts* of 'money'. I make no apology for this multiplication of terms, as this interplay between the material/legal and the conceptual/perceptual definitions of money lies at the heart of the blending of different research streams (and helps to identify where misunderstanding arose amongst political economists during the Restriction debate).

1. Money instruments. 'Specie' and 'cash' are used interchangeably – as they were in the historical context – to signify the stock of metallic coins minted mostly from gold (but also silver). 'Notes' and 'banknotes' are used interchangeably to signify an IOU issued by a bank, generally for a round number of pounds, without a fixed maturity, not bearing interest, and promising to pay the bearer the equivalent sum in 'cash'. A 'Banknote' refers to the notes issued by the Bank of England; a 'banknote' to those issued by all other banks. Notes bearing interest are 'promissory notes'. 'Bills', 'bills of exchange' and the modern term of (private sector) 'commercial paper' are used interchangeably to refer to a different type of IOU drawn (usually) by a merchant for a given amount (usually corresponding to a specific transaction in goods) and promising settlement (i.e. payment in 'cash' or 'banknotes') to a named counterparty at a fixed future date (usually 1 to 6

months) and at a particular location. Unlike banknotes, each counterparty involved in a transfer of ownership of a bill – the “discounting” of the bill – would become jointly liable for its redemption at maturity. The above dividing line was not always so clear cut at the time of the Restriction, but serves to identify the main distinction between (a) notes issued as paper-based bearer liabilities of a bank and (b) commercial bills that were held by banks as an asset. Occasionally bank asset ledgers refer to the term ‘bills and notes’: this could variously refer to the banknotes of other banks, or the personal notes given by individuals as evidence of (senior) indebtedness – the text will specify which in each case.

2. The functional categories of money. By ‘*high-powered money*’ I refer to the money instrument that acts as the liquidity reserve for the banking system (e.g. because it is legal tender) and the highest ranked form of money in the hierarchy of types of circulating media, and hence legally able to extinguish all forms of credit-based monies. Under the gold standard system prior to the Restriction this meant specie, as Bank of England notes were not made legal tender until 1833. By ‘*broad money*’ or simply ‘money’, I refer to the stock of all monetary instruments that at any given point in time are acting at least partially as money in its broad role as the means to intermediate the exchange of goods and services across geographical space and/or across time periods, or to effect the transfer of purchasing power between individuals. At the time of the Restriction this meant specie plus Bank of England banknotes plus Country banknotes plus, increasingly, bills and drafts of all kinds.

3. The conceptual representations of money. The terms ‘commodity money’ and ‘paper money’ are mutually exclusive conceptual categories. ‘*Commodity money*’ is used as a conceptual description of all money forms whose value in exchange derives from the intrinsic value of their physical commodity content, typically metals. During this historical period, this conceptual term happens to contain the same set of instruments as ‘cash’ above. Similarly, the conceptual term ‘*paper money*’ refers to the same set of instruments as ‘banknotes’ and ‘notes’. The additional term ‘*quasi-money*’ or ‘paper-based quasi-monies’ is a broader one that refers to all other forms of (credit-based) monies, such as bills and drafts. Hence, at the conceptual level the total ‘broad money supply’ consists of the sum of ‘commodity money’ and ‘banknotes’ and ‘quasi-monies’. By the term ‘*intrinsic value*’ of money I refer to the market value of its material content, e.g. the gold contained in gold coins when melted down and sold as bullion. By contrast, the term ‘*extrinsic value*’ or

‘exchange value’ is used to refer to – according to the context - either the value of a money instrument when exchanged for goods and services at a single point in time or, as Adam Smith defines it, the value of the aggregate stock of a given money type calculated cumulatively over multiple time points. The latter concept is essentially referring to the income velocity of money, and this requires additional clarity.

Definitions of velocity

Morgan (2007), building on a Federal Reserve paper by Axilrod (1983), explains that in the history of economics there are *three* main interpretations given to the term V in Irving Fisher’s accounting identity, also known as the ‘equation of exchange’ (Fisher, 1911: Chapter 2):

$$MV = PQ$$

Fisher states this equation is valid for a given ‘community’ over a given time period, where M is the supply of ‘money’, V is the velocity of ‘money’ measured over a fixed unit of time, Q is the total quantities transacted over the same time period, and P is the volume-weighted average price level.

“At one extreme, velocity might be considered as no more than the arithmetic by-product of forces acting independently on the supply of money [i.e. M] and other forces acting independently on GNP [i.e. PQ]” (Axilrod, 1983 in Morgan, 2007: 125). In other words, “it is simply the measured ratio between two things, each of which are determined elsewhere than the equation of exchange [and therefore] velocity has no autonomous causal connections” (Morgan, 2007: 125). A second, and alternative interpretation at the opposite extreme, views velocity as “an independent concept and its measurements might exhibit its own (autonomous) trend growth rate (though sometimes unreliably so)” (Morgan, 2007: 125). Or, thirdly, as a middle ground, “velocity can be considered as the inverse of the demand for money relative to GNP” (Axilrod, 1983 in Morgan 2007: 125); this leads to velocity as having “a relationship to the behaviour of money demand, a relationship which is both potentially reliable and potentially analyzable” (Morgan, 2007: 125).

In this thesis I interpret V as being in the second category. V is neither a passively derived ratio (first category) nor solely reflecting a stable demand for money (third category). I am

interested in V as the *GDP-based income velocity of high-powered money* (I frequently refer to it in short form as the income velocity of specie.), which this work analyses through the lens of bank business-model innovation and its impact on *bank balance sheet velocity of specie*. This GDP-based velocity of specie is not to be interpreted as the physical turnover of gold coin in people's pockets. Instead, it is the value of annual economic transactions supported by each gold pound: the ratio of total nominal incomes divided by the total stock of specie (the same definition given by Adam Smith – Chapter 2). In this work it is assimilated to aggregate 'bank balance sheet velocity of specie', which is to say the degree to which the banking system is able and willing to create credit-based money to support the sum total of economic activity, for any given stock of high-powered money (specie) held within it. At the level of the individual bank, the 'balance sheet velocity of specie' is a bank's asset-side gearing to specie reserves: the ratio of a bank's total assets divided by the reserve stock of specie. At the level of the whole banking system, the two notions would only be the same if all specie was held inside the banking system; naturally this was not the case, and we discuss this in Chapter 12.

In summary, I treat the income velocity of high-powered money (specie) as an independent factor, capable of exhibiting its own variable behaviour around a trend, representing the waxing and waning of the banking system's appetite for credit creation as measured by aggregate bank liabilities. As such, this view of velocity can be compared to a numerical proxy for the inverse of what Akerlof and Shiller (2010: 16) called the "confidence multiplier". Conceived as in this thesis, velocity is amenable to being observed and measured *ex post*, if not predicted *ex ante*.

1.6 Structure of thesis

The thesis is organised as follows. In **Part I**, I summarise the key tenets of the classical monetary theory of Hume and Smith prior to the Restriction (Chapter 2). I then use the Fisher accounting identity to define two antithetical monetary policy paradigms (Chapter 3), respectively advocating for Scarcity or Abundance in the supply of 'money' relative to the growth in the real economy, and use critical text analysis to trace the roots of each of these paradigms to the bifurcated theoretical treatment by Bullionists (Ricardo) and Anti-Bullionists (Bosanquet) at the time of the Bullion Report of 1809. I show how they each

chose to adapt classical theory to the new institutional environment, and identify the differing assumptions they made regarding the role of specie in the economy and the functioning of the banking system.

In **Part II** I use the pre-1797 portion of the newly collected data points from London bank balance sheets to identify a taxonomy of business models employed on the eve of the Restriction in their attempts to profitably intermediate financial flows (Chapter 4). I show how the business model of the ‘Goldsmith bank’, better known through the work of Temin and Voth (2013), was not the only one, nor even the main one, as an increasing number of new (or recently re-articled) banks adopted the ‘Discounter’ business model. I then show (Chapter 5) how banks increasingly clustered around one or the other business model types; and infer a typology of their cognitive framing of commercial strategy and money that resonates with the theoretical debate, and lays the groundwork for explaining the different reactions to the Restriction Act.

In **Part III** I explore detailed case studies of Country banks, taken from the different regions of Britain, paying special attention to the Coutts-Bank of Scotland relationship (Chapter 6) and the consolidated picture of the Smith group of banks (Chapter 7). Both of these allow the financial historian to observe ‘from both ends of the pipe’ the monetary flows generated by the key correspondent banking relationships between Country and London banks, and the consequences for the locus of credit risk. I complement these with case studies of other note-issuing Country banks in the South and South-West (Chapter 8) which allow a proxy test for the Real Bills hypothesis; and contrast these with banks in the North West which did not issue banknotes (Chapter 9). Some of these case studies were relegated to the Appendices to minimize word count.

In the final **Part IV** I contribute to the history of money by constructing aggregated views of the data previously presented for the individual banks. After briefly review the better-known role of the Bank of England (Chapter 10), in Chapter 11 I quantify how the London banks reacted to the changing institutional environment of the Restriction depending on which business model they followed, and identify three paths by which how they acted as accelerants to the Bank of England’s monetary expansion. In Chapter 12 I construct aggregated data series of total bank liabilities and draw implications for the two monetary policy paradigms and their respective hypotheses, and add a codicil in respect to

the 'crowding out' debate over government borrowing. I conclude with a summary of the findings.

PART I

The Restriction and monetary theory

PART I

The Restriction and monetary theory

Chapter 2. The classical theories of Hume and Smith

1. *Introduction and section design*
2. *Historiography and contribution*
3. *The classical theories of money before the Restriction: Hume*
4. *The classical theories of money before the Restriction: Smith*
5. *The Real Bills Doctrine*
6. *The Law of (micro) Reflux – the balance sheet liquidity axiom*
7. *Smith on the anomalies and constraints of classical theory*

2.1 Introduction and section design

The Restriction and the attendant debate has caught the attention of many illustrious scholars during the past century, all in some part attracted by the discovery of a theoretical debate that resonates with the monetary policy issues of their respective times. Different authors have focused on different stages of the debate depending on the issues most urgently felt at the time of their own writing. This thesis compares the views expressed by Ricardo and Bosanquet because they express best the polarisation of theoretical views on the role of money and banking at precisely the time when the data suggests the expansion in Bank of England discounting of private sector commercial paper was reaching a peak relative to real GDP.

The Restriction period saw Britain transition from a monetary system perceived as being based on a commodity-money standard to one in practice based predominantly on paper-based circulating IOUs. The shock of the Restriction Act led to profound changes in both the practical workings of the banking system as well as the way political economists thought about money and monetary policy. The Restriction Act of 1797 suspended the right of holders of Bank of England banknotes to exchange them for gold coin at a fixed parity, and other note-issuing banks soon followed. This was a momentous change for Britain's monetary system that had been on a *de facto* gold standard since 1717 and dominated by a central note-issuing bank (the Bank of England) at the centre of an embryonic set of entities

(London and Country banks) with only a limited capacity to endogenously expand the supply of credit. Prior to the Restriction, classical theory of money similarly reflected assumptions about bank balance sheets that had been shaped by a century of operating on a gold standard. Banks were viewed as merely intermediating the flow of real resources from savers to ‘projectors’, or as the agency through which an appropriate quantity of banknotes were substituted into the circulating media for an equal quantity of metallic money that would rightfully circulate within the real economy. After 1797, political economists had to contend with money potentially being printed without limit because no longer constrained by the contingent requirement for the Bank of England and other banks to redeem banknotes into precious metals (“cash”/“specie”) at a fixed parity.

During the Restriction, the question as to whether the expansion in the supply of banknotes was deficient, excessive, or just right relative to the needs of Britain’s war economy became the subject of a heated debate amongst political economists divided into Bullionist and anti-Bullionist camps, respectively opposed to or in favour of the Restriction, as they reacted to the unusual economic and financial events they observed, enumerated in the previous chapter (section 2). The central argument amongst political economists was whether the depreciation of the pound was caused solely by a monetary disturbance in the form of excessive issuance of paper money or by a real-economy disruption to international trade patterns due to the war with France. In debating the merits of these two opposing causal directions, political economists exposed a number of unresolved aspects of classical monetary theory that previously had been hidden from view by the gold standard’s binding together of the extrinsic exchange value of money and its intrinsic value, conceptually associated with its gold content, gold being seen as the standard of value.

This section employs the analysis of original texts of classical economists in order to investigate the challenges they faced in applying classical quantity theory of money to the new environment ushered in by the Restriction. While assuming the reader is broadly familiar with the original texts of David Hume and Adam Smith, in this chapter I first provide a critical summary of the key components of the classical quantity theory of money handed down by them prior to the Restriction. In the next Chapter I focus on the 1809-10 texts of David Ricardo (for the Bullionist lobby) and Charles Bosanquet (for the Anti-Bullionist lobby) in order to explore the key aspects of the theoretical debate around the time of the Bullion Report produced by the Parliamentary Committee of 1809. I explain

how the theoretical debate ignited by the Restriction led to a bifurcation of classical theory into two competing paradigms each supporting antithetical policy goals, respectively for the relative abundance or scarcity of money relative to the volume of exchange transactions (real GDP). I show that, in their attempts to make sense of the monetary economy during the Restriction, the two new lobbies variously adopted or rejected the different potential anomalies to this body of theory already identified by Smith a generation earlier, but which had been lost from the ‘headline’ summaries handed down by political economists. I find their challenges lay within the same three areas that have caused problems for contemporary monetary theorists: innovation in financial products and processes; the role of credit and ‘fringe’ banking entities; and the precise rationales behind banker actions. In subsequent sections of the thesis I investigate the empirical evidence to analyse how accurately their respective choice of assumptions reflected actual events in the monetary system.

2.2 Historiography and contribution

The Restriction constitutes what Rosselli (2013) called the dividing line marking the end of the peaceful coexistence under the *ancien regime* of a ‘heavy money’ (specie) used for cross-border trade and exchanged for its *intrinsic* value, and a ‘light money’ (paper-based instruments) used for domestic trade and exchanged at its socially-defined *extrinsic* value measured in terms of the unit of account. In subsequent chapters I investigate the presence of this dividing line in the empirical evidence from bank balance sheets, but in this section I focus on the dividing line in the development of monetary theory. I do this so as to frame the questions to be asked of the empirical data, and to better juxtapose how contemporary political economists were ‘modelling’ monetary policy with what was actually happening within the banking system.

I set the dividing line in the development of monetary theory between, on the one hand, classical monetary theories that ignored the role of banks (because they were of relatively little importance before the 1770s) or at best viewed them as mere intermediaries of real resources and, on the other hand, monetary theories after 1797 that were forced to recognise the banking system’s potential capacity to endogenously create money. Hume’s classic quantity theory of money forms part of the first category. Smith’s writings in the 1770s evidence a period of transition based on his observation of Scotland’s earlier

adoption of a paper-based money and the Ayr Bank crisis. And finally in 1809 Ricardo and Bosanquet form part of the second category, obliged to address the rapid expansion in the number of British banks and their balance sheets, and the growing understanding of their influence on real economic outcomes -- although the two writers reacted to events in markedly different ways.

Most historians of economics begin with the seminal work of Jacob Viner (1937) who provided the first comprehensive review of 'the English currency and tariff controversies of the nineteenth century' that he situated on the path of the historical evolution in the theory of international trade beginning with seventeenth-century mercantilism. Viner (1937: 125) believed the key question raised by the debate was: 'what is the proper amount of currency a country should have?' This question was echoed thirty years later by Cameron (1967: Chpts II and III) who, from the perspective of an economic historian asked: 'what is the optimal growth of bank balance sheets?' and made the only known attempt to answer it with a comprehensive, albeit not continuous quantitative evidence specific to the period examined here. While this thesis often implicitly asks the same question, its focus is on understanding how financial innovation, the growth in fringe banking, and private incentives can make it difficult for economists to answer that question with any degree of accuracy as it pertains to the times they live in.

Viner divides his exposition into two chapters respectively called 'The Inflation Phase', which includes the period of the Ricardo-Bosanquet debate, and a subsequent 'Deflation Phase' after 1816. In reviewing the Bullionist and Anti-Bullionist arguments during the Inflationary Phase, Viner's (1937: 130) interest (like that of this thesis) is focused on the banks' freedom to alter their cash reserve ratio and the consequent effect on the velocity of high-powered money. However, Viner did not quantify these ratios from archival evidence. Furthermore, Viner takes his cue from the historical literature, which is mostly concerned with the attribution of blame for the high price of gold to either the Bank of England or the Country banks (because they were the sole issuers of banknotes), and as a result most of the discussion on the reserve ratio refers to that of the Country banks, and is largely silent on the London banks.

Viner (1937: 158) is alive to the possibility of banks varying their gearing to high-powered money, and makes the important criticism that "It is this assumption of constancy in the

country bank reserve ratios [...] which is the vulnerable point in the Bullionist argument”. Viner (137: 168) is aware of the possible differences in the velocities of money, and identifies that “It is likely ... that the funds resulting from the commercial discounts had a greater velocity of circulation, and consequently, pro rata, a greater influence on the level of prices, than advances to the government.” Viner’s (137: 168) underlying agenda is to question the accepted notion that a wartime economy needs monetary inflation in order to achieve the required reallocation of resources, and states that “... business had developed during this period [before the Restriction] outside the Bank of England both in London and in the provinces, and its by no means clear that there was any longer any urgent need, as far as the nation’s commerce and industry were concerned, for the Bank to grant any genuinely ‘commercial’ discounts at all.” However, he does not provide any data on London or Country bank lending. This thesis adopts the same focus, but in contrast to Viner, after examining the data available, is less critical of this channelling of the monetary expansion via the London and Country banks, rather than directly to the Treasury, the effect of which probably ensured private sector demands for credit were satisfied, if not before, then in parallel with those of the government for war financing – at least at first.

Silberling (1924b)⁴ was the first to attempt to construct continuous annual estimates of monetary data for 1792-1830. These were limited to the Bank of England’s balance sheet and the value of Country banknotes in circulation from 1805-30, based on figures for the amount of stamp duty paid. However, he chose to include only £1 and £5 notes and, curiously, treated the annual issuance numbers as the equivalent to the total in circulation, when accounts from that time explain that notes had an average life of three years. This attracts Viner’s criticism, who offers alternative estimates drawn from the appendices to the *Report by the Lords Committee on the resumption of cash payments* of 1819 (which I also use in Chapter 12). Viner (1937: 158) is also sceptical of the author’s apologist conclusions exonerating the Bank of England of any blame for the weakness of the pound, and prefers to focus on the Bank’s lack of temperance in discounting of private sector bills.

Over a decade prior to Viner’s book, Acworth (1925) discussed the monetary debate as part of his book describing what he called the financial reconstruction of England. Acworth sees this ‘reconstruction’ as synonymous with the belaboured process of achieving the return to

⁴ Viner (1937) references Silberling (1923) and Silberling (1924a) that do not appear to include the data he refers to, but it is in the paper Silberling (1924b).

a full gold standard between the end of the war and 1821/2, which he believes was needed to rebuild confidence in the holders of the greatly enlarged government debt. Perhaps influenced by the contemporary experiences of hyper-inflation after the first World War, but not yet the deflationary consequences of clinging to a gold standard at the wrong parity that Viner would observe later, Acworth (1925: Chpt VI) argues that “With the [Napoleonic] war over, the need for a credit-system, the only merit of which was its extreme elasticity, was gone [...]”. He argued the return to gold could have been achieved earlier in 1816 were it not for the government ‘meekly’ agreeing to withdraw the income tax, (imposed in 1798 to help fund the war), as well as the Bank’s partially bungled efforts to respond to the public outcry against “austerity” and the resistance to it provided by “the new movement of credit [that was now] carried forward by the Country Bankers” (Ackworth, 1925: 76-8).

Six years later Feavearyear (1931) published his history of English money. Feavearyear organises his account into two chapters, like Viner broadly divided into an inflationary and deflationary phase separated by the Bullion Report, and an additional chapter on the aftermath of the 1825 crisis that he calls the development of credit control - terminology that resonated with his contemporaries. His book reflects an interest in interweaving the debate on policy with monetary events. However, at a time when national statistics were not yet common, the only continuous quantified evidence is once again only of the Bank of England, and he bases his analysis of the theoretical debate predominantly on that occurring within Parliament. He was kinder to the Bank than Acworth, but shared the latter’s criticism of Vansittart, and went so far as to argue that the failure to return to convertibility sooner had been entirely due to Vansittart’s large borrowing requirement to meet the government’s obligations under the Sinking Fund.

Feavearyear’s book is filled with legal and practical explanations of what circulated as currency at any point. His approach helps to highlight how legislation and social habituation intertwine to alter the character of the money unit of account during three distinct phases in this period of financialisation of the British economy: a money unit of account viewed as affixed to, either a nominal artefact used in exchange (the banknote), or to a metallic substance employed as a store of (real) value (the guinea coin). During the first phase, before the Restriction, the 1775 and 1777 Acts had prohibited the issue of banknotes under £1 and required those below £5 to be endorsed and payable to order (and not to the

bearer), effectively “destroying for all practical purposes their negotiability and therefore their character as currency” (Feavearyear, 1931: 162). Combined with the re-coinage of gold coin in 1773-7, which brought the coin in circulation back to its full legal bullion content, the Acts had the effect of pushing the monetary system back to operating with ‘money’ as a unit of account affixed to a physical artefact, containing metal of intrinsic value equivalent to the legal standard of value. Then, in a second phase beginning a generation later, the series of Restriction Acts of 1797 unwound this *status quo ante*. Sequentially, the Acts permitted the Bank of England to issue bearer banknotes under £5; then allowed any bank to do so; then all banks to issue notes for less than 20 shillings. Then in 1811 Lord Stanhope’s Act enshrines in law the principle that “no one should pay more for guineas than their face value, that no one should receive or pay Bank notes at less than their face value” (Feavearyear, 1931: 191-2) – effectively making Banknotes legal tender in all but name.

In the first phase, one pound was Locke’s ‘one pound in gold’; in the second phase, one pound was a banknote with a nominal face value of one pound. Stanhope’s Act redefined money as the product of a contract struck between consenting adults, not an immutable lump of metal. Feavearyear (1931: 171) adds: “[...] the public accepted the notes because there was nothing else and because they served the purposes of trade for the time being as well as gold.”

The third and final phase is that of the gradual return to a gold standard in 1816-21: another generation had passed, and a series of legal provisions restored the fixed parity between the extrinsic value of the money unit of account and its intrinsic value at the Mint. However, habits had changed (Chapter 12) and the Bank’s first attempt in 1816-7 to buy back notes under £5 in exchange for gold coin largely fails: “their customers would not have it. They took the [new] guineas back to the banks and asked for notes, which they found much more convenient” (Feavearyear, 1931: 200-1).

Before all these publications, Ludwig Von Mises (1934)⁵ penned the core tenets of the so-called Austrian theories of ‘sound’ money and credit. His book did not focus on the Restriction debate *per se*, but is of interest because he traces the origins of his theories to the classical theory of the Banking (Anti-Bullionist) and Currency (Bullionist) Schools of the

⁵ The book was first published in 1912 in German.

1820s and 1830s, and places his views of money within an antithetical framework similar to the Abundance-Scarcity framework used here (see Chapter 3). He is both aware of the ephemeral, socially constructed nature of what is ‘money’, making the drivers of the demand and supply of money interdependent; and simultaneously he advocates for not allowing its unfettered creation. “The process, by which supply and demand [for money] are accommodated to each other until a position of equilibrium is established and both are brought into quantitative and qualitative coincidence, is the haggling of the market. But supply and demand are only the links in a chain of phenomena, one end of which has this visible manifestation in the market, while the other is anchored deep in the human mind” (Von Mises, 1934: 153). Because ‘money’ is whatever the collective human mind decides it is, financial innovation within the banking sector means “None of the many systems of limiting the note circulation has proved ultimately capable of interposing an insurmountable obstacle in the way of further creation of fiduciary media” (Von Mises, 1934: 410). A nation can always expand the supply of money by creating new contingent claims over the stock of high-powered money, however previously defined, and then treating those claims as new reserves within the fractional banking system (Von Mises, 1934: 430).

Von Mises’ best-known follower, Fredrik Hayek (1929) wrote an account of the Restriction just before the Depression. Hayek’s paper is predominantly a historical account of events, which he begins with an account of the theories of Hume and Smith, followed by contrasting Ricardo to Thornton. It distinguishes itself by placing relatively more focus on the earlier Parliamentary investigation of the excess issue of banknotes by the Bank of Ireland, which occurred six years earlier and during which its directors had been more forthright in stating that the Restriction had led them to use entirely different principles when deciding how much to discount. Given his ‘sound money’ preferences, Hayek (1929: 181) refers to “The development of the so-called country banks [as] the most noteworthy event of that time” which he contrasts to Boyd’s and Thornton’s ‘doctrine’, later taken up by Ricardo, that “the country banks could not possibly have indulged in an over-issue of notes” based on Smith’s early version of the Law of Reflux (Hayek, 1929: 192). Hayek (1929: 194) lauds Thornton’s rebuttal of the Real Bills Doctrine as exploring “more fully than any previous author or any author many decades after him, what circumstances determine the differences in velocity of circulation of the various types of money and the fluctuations therein.”

More recently, Thomas Humphrey (1993) published a collection of essays in the history of monetary thought, a number of which reach all the way back to the eighteenth-century when searching for the roots of theories current during the 1980s. In the essay on the Real Bills Doctrine, Humphrey (1993: 29) echoes Blaug (1978: 56) in calling it one of the “longest-lived economic fallacies of all times”. If John Law was the originator of the idea of an “output-governed currency secured by claims to real property and [thus] responding to the needs of trade” (Humphrey, 1993: 23), then Adam Smith re-applied this notion to a currency secured on short-term, self-liquidating bills of exchange. For Humphrey (1993: 27), Thornton provided the best explanation of “the error ... of imagining that a proper limitation of bank notes may be sufficiently secured by attending merely to the nature of the security for which they are given.” Bosanquet is not mentioned, and his Law of Reflux is described by Humphrey (in my opinion, incorrectly: see Chapter 3) as a mere ‘renaming’ of the Real Bills Doctrine, the use of which by Bosanquet would presumably tar him with the same brush as Law and Smith (Humphrey, 1993: 29).

In a separate essay, Humphrey juxtaposes Ricardo to Thornton on the issue of what is the appropriate monetary response to a supply shock, at a time when this was a burning question for policy makers following the OPEC oil price shock. Humphrey describes the choice as pivoting around beliefs regarding money’s neutrality. Ricardo, being a strict believer in money’s long- and short-run neutrality with respect to output and employment, argued that the external drain of gold should be allowed to contract the money stock so as to reverse the price rise caused by the supply shock (in his case, the capital outflows required to pay for the Napoleonic Wars). By contrast, “Thornton, a believer in money’s short-run non-neutrality, opposed monetary contraction and argued instead that the money stock should be held constant” [rather than] “put the economy through the wringer of monetary contraction” (Humphrey, 1993: 265, 267). Whether it was in the power of the body politic to actually determine ‘the money stock’ was rarely fully discussed (before the Banking and Currency School debates a generation later; a definitive answer remains open to this day, as pointed out by Goodhart (2015) below). The issue contained two different questions: is the ‘money stock’ intended as all instruments acting as circulating media, and if so, did its quantity move in a stable relationship to what the body politic considered ‘high-powered money’? And secondly, was the banking system able to independently shift the dividing line between official ‘high-powered money’ and what was actually operating as their balance sheet liquidity reserve?

As Hayek had pointed out, from Boyd to Thornton to Ricardo, the ‘Bullionists’ simply took it that the balance sheet policy of the Bank of England determined the overall stock of money. For the Anti-Bullionists it was a moot point since the money stock was viewed as endogenously adjusting to the demand for money. This they based on what Humphrey, in a third essay, described as Adam Smith’s ‘monetary approach to the balance of payments’. Humphrey attributes the ‘major mystery’ of why Smith did not incorporate Hume’s Price-Specie-Flow Mechanism into his theories to Smith’s proposition that “the monetary authorities can determine the composition but not the total of the money stock. [As] prices are determined in world markets by the world money supply [...] money flows in through the balance of payments to support or validate the given price level” (Humphrey, 1993: 348-9). This was somewhat different from the quantity theory as postulated by Bullionists, whereby [as Humphrey explains in a fourth essay] “the nominal stock of money [is] non-demand determined [and the] nominal M[oney stock] is the independent causal factor governing P[rices]” (Humphrey, 1993: 79). As explained later in this chapter, the implicit assumption of the Bullionists, and one that was largely operative amongst central banks in the post-WW2 era, was that it was possible to pin down at any time what was functioning as ‘the money stock’, and that its gearing to the stock of ‘high-powered money’ was stable, which implied a stable income-based velocity of the ‘money stock’ - however one wished to define it.

In 1797 such considerations of the banking system’s gearing to the stock of high-powered money were not yet fully debated. Both Clapham (1970) and Fetter (1965) speak of a recognition beginning to emerge only after the 1793 crisis that the banking system, and the country banks’ note issue in particular, could act as an accelerant to an internal monetary contraction. In fact, Humphrey (1993: 4-6) argues that even the simpler notion of the deposit multiplier in a system of fractional banking was only fully explained in 1826 by James Pennington, “a British currency expert [...] in a memorandum to the English statesman and financier William Huskisson”.

David Laidler (1991) published *The Golden Age of the Quantity Theory* which allows students of the 1809-10 debate to ‘pick up the story’ in the 1870s and observe how it travelled forward, but does not explore the genesis of the argument during the Restriction. Laidler (1999) returned to the Restriction debate with a succinct paper that extends through to the subsequent phases up to the Bank Act of 1844. In it, he acknowledges a heavy reliance on

the work of Viner and Fetter and, like them, primarily juxtaposes Ricardo to Thornton, with no mention of Bosanquet. In a perspective later shared by Arnon (2010), Laidler highlights how Thornton, being more pragmatic and centrist in his views, evolved his preferred policy in light of how actual events unfolded in a way that acts as a barometer of how the monetary environment was perceived during the Restriction period. For Laidler (1999: 16), Thornton “always regarded the maintenance of the gold price of sterling as the ultimate goal of monetary policy.” More conscious of the costs of deflationary adjustments, Thornton favoured monetary accommodation in 1802, trusting the Bank of England to achieve the right amount, but “by 1810 he and his colleagues could have no such confidence in the Bank” (Laidler, 1999: 16),

Laidler (1999: 2-3) describes “a single British monetary system, centred on the Bank of England, which in turn held its reserves mainly in the form of gold bullion” while English country banks and Scottish joint-stock banks “held a substantial part of their reserves in claims on deposit-taking private banks located in London”, but provides no primary or secondary evidence of either, and does not distinguish between the behaviour during and after the Restriction period. Perhaps with an eye to the deregulation espoused at the time he was writing, Laidler notes how the Real Bills doctrine is a rule that has proved seductive to central banks ever since (he cites the Reichbank during the Weimar Republic and the Federal Reserve during the Great Depression), despite this theory having been convincingly rebutted already by Thornton. Laidler (1999: 13) makes regular links between the Restriction debate and subsequent economic thinking, pointing out how Ricardo’s ‘hard-money’ view of the balance sheet adjustment to supply shocks has “never quite disappeared from the literature” and that Thornton’s discussion of the impact of the expected rate of (nominal) profit relative to the (capped, usury) borrowing rate (on discounted bills) was “the genesis of all those ‘two-interest rate’ models, which has ever since been appearing, disappearing and reappearing in monetary economics” (Laidler, 1999: 10). Chapter 11 provides quantified evidence of how this ‘two interest-rate’ environment acted as an incentive for newer London banks to expand their off-balance-sheet lending.

Ricardo’s work on monetary matters was more considerable than Bosanquet’s single pamphlet, and has been thoroughly studied, in no small part thanks to Sraffa (1951) work compiling it into an easily accessible format. More recently, the *Cahiers d’économie politique* (1994) devoted a whole volume to a fascinating set of papers on the subject of “Monnaie et

Étalon Chez David Ricardo” (Money and the Standard in David Ricardo) and a further set of papers are due to be published from this year’s SOAS Conference to commemorate *Two Hundred Years of an Economical and Secure Currency*. As the title suggests, and perhaps stimulated by the growing discussions at the time over the ECU and the possibility of creating the EURO, the 1994 papers focus more on the question of the money standard, which leads them to be less concerned with the role of the banking system. As described by Deleplace (1994) in his introduction, these papers privilege the role of money as the unit of account, and the money standard as a normative guide to monetary policy, both notions that have largely disappeared from, respectively, general equilibrium modelling and monetary theory. These distinctions, I believe echo the passage in Adam Smith that analyses the need for long-term (rental) contracts to be indexed to price changes to ensure equitable treatment of creditor and debtor, and how corn would make a better standard of money because it is the key staple for most of the population – were it not subject to such volatile exchange price relative to other goods.

The distinctions may not be directly related to the banking system, but they help understand how there can co-exist differentiated cognitive perspective of what money is or should be; and how the banking system is the agent by which the money unit of account attaches itself to the preferred means of payment. As discussed in Chapter 5, in 1797 these differentiated cognitive views were reflected in both the theoretical writings of political economists and in the business models adopted by banks. One view of the money unit of account saw it as inseparable from the standard of value, taken to be gold; the alternative view saw the money unit of account as affixed to whatever money instruments are acting as the means of payment. In a perceptive article, Courbois (1994) argues, in an echo of Heywood (1812), that the true unalterable relationship exists between the unit of account and debt, making the unit of account principally the ‘standard of deferred payments’. For Courbois, confusion arises because the ‘unit of account’ is both a socially constructed concept *and* something ‘carried’ by whatever is the means of exchange preferred by the society of users. Deleplace (1994: 14-5) notes the difficulty in unpicking Ricardo’s treatment of the unit of account. By investigating Ricardo’s writings, Courbois argues that the unit of account is the attribute of ‘money’ that is the true circulating element, and that it is always carried by whatever instrument is most used as the means of payment, even if it trades at a discount to the standard of value. Before 1797, the convertibility of the paper pound into a gold pound hid this basic truth.

Deleplace (1994:15) identifies how this important interpretation of the Restriction debate raises the question (equally topical today) of what, if any, is the role of the standard of value in the ‘formation of the social consensus around the acceptability of the unit of account’, and whether such a role is necessary for monetary stability? This question has been skilfully taken up mostly by sociologists of money. Although not central to its remit, this thesis provides evidence that already during the Restriction the faster growing part of the banking system was active in the higher-speed short-term trading of money as ‘the unit of account for deferred payments’ and that banks have the capacity to fabricate such money in the form of transferable bank liabilities as long as the public absorb them, which often required communal public expressions by local merchants of the social consensus supporting such paper monies. By inference, the thesis also suggests that the existence of a ‘social consensus around the acceptability of the unit of account’ is not synonymous with long-term monetary stability.

Most recently, Goodhart and Jensen (2015) remind us how the current debate over the appropriate way for banking regulation to respond to the most recent financial crisis, and whether and how to ring-fence pure deposit-taking banks, can trace its origins to the debates in the 1930s between the Currency (Bullionist) and Banking (Anti-Bullionist) Schools that followed those of Ricardo and Bosanquet. “In so far as there is a current analogue to the 1930s failure of the ‘real bill’ doctrine, it probably lies in the failure of bank regulation to prevent the prior boom and subsequent [...] bust in 2008/9” (Goodhart and Jensen, 2015: 11). The new and old ‘Currency School’ propose separating credit creation from the creation of (high-powered) money, and imposing rules upon the latter so as to constrain its supply to some fixed definition of what is appropriate. The new and old Banking School propose a more passive approach to the supply of money, perceived as endogenous, combined with some form of Thornton’s flexible control over credit creation that ‘leans against the wind’. Goodhart and Jensen (2015: 5-6) neatly highlight how the never-resolved problem for the Currency (Bullionist) School is the assumption that there is always a “hard and fast, distinction between ‘money’ and ‘near-money’.” During the Restriction, this meant the distinction between, on the one hand, gold coin and on the other Banknotes, London bank deposits, and perhaps Country banknotes. The evidence offered in this thesis shows this distinction was far from ‘hard and fast’. Similarly, the never-fully resolved problem of the Banking (Anti-Bullionist) School is that the market rate of interest, being a nominal rate, is insufficient to ensure that only the appropriate quantity of credit is

afforded to the economy if “borrowers and banks tend to behave pro-cyclically, getting over-excited and over-optimistic in booms and too risk averse in busts” (Goodhart and Jensen, 2015: 10). The thesis examines the interest rate incentive for banks to expand their bill discounting (Chapter 11) and its methodology highlights the asset and liability matching of the banks, recognising that for “the Banking School the essential requirement [for a stable endogenous response of the supply of money to the demand for it] is that the quality, i.e. maturity, risk, etc., of an intermediary’s assets should match that of its liabilities” (Goodhart and Jensen, 2015: 12).

Set against the considerable insights of previous scholars of the history of economics during the Restriction, I make only the modest claim to offer a new classification of the arguments expressed during the debate, tightly framed by a focus on the antithetical 1809-10 views of Ricardo and Bosanquet regarding the functioning of the banking system – specifically regarding the three critical areas of change: financial innovation, the role of credit, and private incentive mechanisms. This classification of the analytical differences amongst political economists enables their views to be tested against the empirical evidence of bank balance sheet behaviour that is the main contribution of the thesis. In the next chapter I offer a logical Genus for classifying the arguments over ‘money’ that is located within a political economy framework, arguably closer to the traditions of its original participants⁶. I argue that this two-paradigm framework makes more explicit the underlying (normative) objective of each side of the argument and is better suited to allow the implications to ‘travel’ forward in time.

More recently Arnie Arnon (2011) reviewed some of the same material in the excellent *Monetary Theory and Policy from Hume and Smith to Wicksell* and eloquently demonstrated that examining the history of economic thought structured around time-insensitive labels is both possible and useful. Arnon prefers to use three labels that classify the arguments in relation to the monetary policy-setting process and its organization, whereas in this thesis I prefer to use the more antithetical structure of two labels that describe the polarization of the monetary debate around the consequences and outcomes they seek. This has the further advantage of being more readily matched to a quantifiable variable measured by the rate of growth of total bank balance sheet liabilities relative to that of nominal GDP (Chapter 12),

⁶ Fetter (1978: 23) also stated that the ‘emerging controversy’ strictly speaking “falls within the field of political science rather than economics. But politics and economics never can be completely separate in practice”

thus making it possible to match the epistemic debate against the empirical evidence of the concurrent changes in the banking system.

The two categories of monetary theorising are best viewed as political lobbies, seeking to influence monetary policy in order to promote different economic interests and achieve their respective preferred *ends*, i.e. their respective desired state of affairs in the monetary economy, rather than differences over the *means* of pursuing them, believing the former to be the primary influence shaping participants' argumentation. The two political lobbies go beyond representing different academic paradigms about monetary policy, being promoters (overtly or not) of the primacy of one or other role of 'money' in preference over another – 'money' as a means of exchange or as a standard of value. The two lobbies are informed by different theories regarding (1) the role played in credit creation by innovation in instruments, processes and bank business models; (2) the endogeneity of credit; and (3) private incentives.

2.3 The classical theories of money before the Restriction: Hume

At the end of the eighteenth-century, monetary theory was arranged around two foundational tenets: the Price-Specie-Flow mechanism of David Hume (1711-1776) and the Real Bills Doctrine ascribed to Adam Smith (1723-1790). It is beyond the scope of this thesis to review the entire body of classical thought of Hume and Smith, but here I provide a critical summary of the key aspects as they pertain to the quantity theory of money and how they were subsequently debated during the Restriction. Compared to Hayek (1929), Viner (1937), and Arnon (2011), my main contribution is to highlight Smith's subtle early opening to the possibility of a variable income velocity of specie, as well as the qualifications he made to the Real Bills Doctrine, both frequently lost in accounts of this period.

Hume's **Price-Specie-Flow** theory is an early expression of the quantity theory of money that he adapts to an open economy incorporating Say's Law of One Price. Shaped by an economy consisting of agriculture and small-scale manufacture, economic analysis was conducted in real terms. All goods including gold have a 'natural price' equating to their

long-term factor costs, the largest component of which is labour⁷. Money is the means of exchange and unit of account operating neutrally to the real economy, but it is also a commodity subject to the same self-equilibrating process as all other goods. An exogenous increase in the supply of specie in a country would raise the domestic price of goods relative to gold, causing gold to be exported in search of cheaper goods abroad, until the resulting shrinkage in the domestic gold stock caused all relative prices to revert to their ‘natural’ long term factor costs of production. Economic agents do not suffer from money illusion except in the very short term, and so in the long-term changes in the supply of money are neutral to the real economy, causing no change in the underlying network of production and consumption relations defined by ‘natural’ long term average factor costs of production. An active monetary policy was unnecessary and potentially counter-productive and, by the same argument, the banking system was best left to compete freely.

“we find, that, in every kingdom, into which money begins to flow in greater abundance than formerly, every thing takes a new face; labour and industry gain life; the merchant becomes more enterprising; ...”. But after some time “... the money circulates thorough the whole state, and makes its effect be felt on all ranks of people” eventually returning all activity to “a just proportion with the new quantity of specie [i.e. metallic coin] which is in the kingdom. In my opinion, it is only in this interval or intermediate situation, between the acquisition of money and rise of prices, that the encreasing quantity of gold and silver is favourable to industry” (Hume, 1752: 37-8).

Hume did not consider possible self-reinforcing feedback effects during the period the economy adjusts nominal prices to the new quantity of money. Hence, such effects were not allowed to influence the state of confidence, such that would have brought about changes in the broad money supply by encouraging banks to expand their balance sheet gearing to the stock of specie. This was a reasonable ‘model’ assumption to make at the time given the small size of the banking sector. Hume also did not consider the possible permanent distributional effects left behind by different short-run price elasticities of supply and demand of individual goods – what is today referred to as the Cantillon Effect in honour of Richard Cantillon (1734) who had already treated the issue.

⁷ The others are the rent of land, costs of transporting to market, and the natural rate of profit for the producer and distributor.

“It is indeed evident, that money is nothing but the representation of labour and commodities, and serves only as a method of rating or estimating them. When coin is in greater plenty; as a greater quantity of it is required to represent the same quantity of goods; it can have no effect, either good or bad, taking the nation within itself” (Hume, 1752: 36-37).

Writing a generation later, Smith (1776: 382) would include a near-verbatim re-statement of Hume’s quantity theory, only this time extended to expressly include paper money:

“The whole paper money of every kind which can easily circulate in any country never can exceed the value of the gold and silver, of which it supplies the place, or which (the commerce being supposed the same) would circulate there, if there was no paper money.”

In Hume (1752: 35-6) ‘money’ is only specie; banknotes are “counterfeit money”. Hume was *a priori* sceptical of banks and all paper money, “entertainin[ing] a doubt concerning the benefit of banks and paper-credit” because nations that grew wealthier already had the “inconvenience” of needing to work harder to remain competitive, and “there appears no reason for encreasing that inconvenience by a counterfeit money, which foreigners will not accept of in any payment, and which any great disorder in the state will reduce to nothing”. To Hume, the best kind of bank was the bank that “locked up all the money it received, and never augmented the circulating coin, as is usual, by returning part of its treasure into commerce” via the discounting of bills or establishing lines of credit. A strict reading of this passage would have Hume saying that the best form of bank was a bank that acted a mere purveyor of safe-deposit boxes, and not an institution conducting financial intermediation between lenders and borrowers. It was tantamount to recommending the end of all fractional banking and a return to the early goldsmith ‘banks’ that acted as mere custodians of people’s valuables.

In summary, in the strong form classical theory there is no separate role for changes in the availability of credit, and no endogenous capacity for the monetary system to create or destroy the supply of broad money. Hume’s mechanism assumed that, in the medium- to long-run (over a vaguely defined full production cycle), both the demand for transaction balances in gold coin was stable and that the public’s marginal rate of substitution of paper banknotes for gold was zero. ‘Money’ is only specie; it has evolved as the *primus inter pares*

commodity to be used as the means-of-exchange because of its qualities (durability, divisibility and portability) in order for the economy to escape the inefficiencies of barter and the problems created by the double coincidence of wants. This is essentially the idealised anthropology of money still used in today's undergraduate economic textbooks. Like those textbooks, political economists during the Restriction subsequently struggled to take adequate account of money created endogenously via changes in the banks' lending and influenced by the 'state of confidence'.⁸

2.4 The classical theories of money before the Restriction: Smith

Smith (1776: 378-9) is writing a generation later from his home in Scotland, where the introduction of paper money had been successfully – but not painlessly - accomplished during the previous 25 to 30 years “by the erection of new banking companies in almost every considerable town, and even in some country villages”, and he is less inclined than the older Hume to ignore paper money or to dismiss its advantages. Smith devotes six pages to expounding the advantages that Scotland gained from introducing paper money, albeit with evident qualifications regarding the possible ‘unexceptionable conduct’ that might arise:

“The business of [Scotland] is almost entirely carried out by means of the paper of those different banking companies, with which purchases and payments of all kinds are commonly made. Silver very seldom appears except in the change of a twenty shillings bank note, and gold still seldomer [*sic*]. But though the conduct of all those different companies has not been unexceptionable, and has accordingly required an act of parliament to regulate it; the country, notwithstanding, has evidently derived great benefit from their trade. That the trade and industry of Scotland, however, have increased very considerably during this period, and that the banks have contributed a good deal to this increase, cannot be doubted.”

Evidently the long-term marginal rate of substitution of banknotes for specie amongst the Scottish public was not zero.

⁸ E.g. Mankiw, G. (2007: 646-7, 655, 663-4 and 779-81) and then contrast that to (2007: 643-5).

Smith locates the starting point for his discussion on money within his earlier description of a micro-economy of production where goods have a natural supply-side price set (in all but the short-term) by the sum of three factors of production: the labour content, the rent of land, and the natural rate of profit for the producer (and distributor, where relevant). In the workshop economy of the ‘pin-factory’ prior to the Industrial Revolution, economic activity is driven by the self-interested pursuit of personal comparative advantage (e.g. in making arrows rather than breeding cows) by individuals engaged in atomized artisanal tasks that have been broken down into distinct specializations. Compared to Hume, in Smith (1776: 365) the combination of money and new technologies allow the capture of something closer to what today we recognise as productivity improvements: “The intention of the fixed capital is to increase the production powers of labour, or to enable the same number of labourers to perform a much greater quantity of work.” For Smith (1776: 19) these processes naturally aggregate up to produce, not an optimal allocation of resources, but a “universal opulence that extends itself to the lowest ranks of people” (akin to today’s ‘trickle down’ effect) and a matrix of market prices that equate to the long-term natural prices of commodities, defined as their respective unit costs of production including a profit for its producer (and distributor). Lastly, this move away from barter shrinks distances between economic agents, leading to the dilution of local monopolies and the emergence of a wider marketplace⁹ exposed to what Smith called “*a* competition”, signifying free entry and exit of participants (and not the theoretical preconditions of *perfect* competition, as this notion has since been idealized by economists). All the above implies the existence of an equally atomized means-of-exchange that embodies the unit of account. A monetary economy was a necessary precondition for Smith’s economic system to escape the inefficiencies of barter and the problems created by the double coincidence of wants.

Smith on velocity

Smith has sometimes been interpreted as reaching the superficially similar conclusion that paper money is merely a temporary substitute for specie over the production cycle (see citation on p.34), but a deeper reading reveals how he identified a crucial distinction in the concept of money, as well as numerous potential constraints on the assumed self-equilibrating nature of classical theory.

⁹ It is unlikely that Smith conceived the British economy of 1770s as yet representing a unified *national* marketplace.

In Smith's careful micro-economic analysis he makes the crucial distinction that money is both a 'stock' and a 'flow', and therefore has both an intrinsic-value (as a commodity) and an extrinsic-value (as a nominal unit of measurement and a means of payment in market exchange). By using these two distinct contrast backgrounds, when Smith equates (commodity) money to a 'stock' just like any other fixed capital investment, money has an associated annual deadweight cost – which provides a much stronger case than Hume for using some paper money. Conversely, when Smith identifies money as an unusual type of 'stock' with a special role to play within the *flow* mechanisms of the economy, Smith's description goes to the heart of the concept of monetary velocity. An individual perceives the money he receives for his work (or produce) as 'his', but at the aggregate level of society more than one person will have perceived that money as 'theirs' over any set period of time. Even in an economy utilizing only metallic coin, we need to make the distinction between the *use-value* of a specific stock of metallic coin at a single instant in time and the total *exchange-value* or "purchasing power" that the same stock of metallic coin can represent over a series of moments in time.

A corollary of Smith's analysis is that, even in a pure specie system, changes in the velocity of gold coin, e.g. as a result of an increase in the banks' loan-to-cash gearing, would create changes in the total exchange-value that each unit of specie could represent during a year. In other words, Smith's analysis already opens up the possibility of variations in the income-based velocity of specie. By extension, this perspective leads Smith to qualify Hume's Price-Specie-Flow by identifying two important ways in which paper money may usefully increase the GDP-based velocity of a given stock of specie. Firstly, banknotes could function as a substitute for gold that is being exported to finance the purchase of foreign goods intended for re-export, in which case the net profit thereby generated would add to national income. Secondly, the exported gold may not be entirely spent to "purchase goods that are likely to be consumed by idle people who produce nothing", i.e. consumption goods, but might instead go to import investment goods that will make the country more productive:

"[to] purchase additional stock of materials, tools and provisions, in order to maintain and employ an additional number of people ... [which] promotes industry; and although it increases the consumption of society, it provides a permanent fund for supporting that consumption ... The gross revenue of the society ... is increased by the whole value which

the labour of those workmen adds to the materials upon which they are employed” (Smith, 1776:374-5).

2.5 The Real Bills Doctrine

In spite of Smith’s more nuanced theories of money and its income-based velocity, it is the ‘headline’ form of his Real Bills Doctrine that found the greatest longevity during the Restriction (and to this day) as an argument for allowing the banking system to self-regulate, based on the assumption that the rational exercise of self-interest by individual merchants and bankers would bring the supply of money to endogenously and appropriately adjust to its demand emanating from the real economy. This was indeed a most optimistic view of human nature and the socio-economic system. Rational bankers looking after their own self-interest and benefitting from all the necessary information, would not knowingly act in ways that would endanger the solvency and liquidity of their bank. The Real Bills Doctrine was an *ex ante* and *asset-side constraint* on banks’ balance sheets, acting upon their selection of loans in such a manner as to prevent the excess supply of money. A banker would only want to lend to a venture that he believed had good prospects of generating an excess return over its costs sufficient to enable its promoter to pay both the interest and the capital. Hence the supply of money – whether metallic coin or paper – could not exceed the rightful quantity of money demand as long as banks only discounted bills that represented a genuine transaction in the real economy. In Smith’s original formulation, banks would lend only for working capital purposes, ensuring that the borrower had invested in the business adequate equity capital from his own resources to cover the fixed capital requirements of the enterprise; this ensured his account was consistent with the notion that any paper-based credit had a life cycle that matched the production cycle before it was extinguished and returned to its gold form. Hence, if banks exercise responsible behaviour, there can be no excess money in circulation. In the often-quoted passage, Smith (1776: 387-8) says:

[Assuming that] “What a bank can with propriety advance to a merchant or undertaker of any kind, is not either the whole capital with which he trades, or even any considerable part of the capital; but that part of it only, which he would otherwise be obliged to keep by him unemployed, and in ready money for answering occasional demands [... then] “When a bank discounts to a merchant a real bill of exchange drawn by a real creditor upon a real debtor, and which, as soon as it comes due, is really paid by that debtor; ... The payment of

the bill, when it becomes due, replaces to the bank the value of what it had advanced, together with interest. The coffers of the bank, so far as its dealings are confined to such customers, resemble a water pond, from which, though a stream is continually running out, yet another is continually running in, fully equal to that which runs out; so that, without any further care or attention, the pond keeps always equally, or very nearly equally full. Little or no expence [*sic*] can ever be necessary for replenishing the coffers of such a bank.”

The assumption was that a bank would never be induced (by the incentive of a higher marginal return) to expand its gearing to cash, funded by an increase in its note issuance, in order to extract a ‘rent’ from the public’s willingness to hold its notes.

2.6 The Law of (micro) Reflux – the balance sheet liquidity axiom

In the often-cited quote above, Smith extends the Real Bills Doctrine to its logical implications for the management of bank balance sheet liquidity and its implications for the overall banking system. Smith hypothesised that, under a classical gold standard regime, *at the aggregate level*, if there was an excess supply of paper money it would automatically flow back to the issuing banks in the form of requests to be exchanged for specie. In 1810, Bosanquet was to elaborate on this assumed mechanism of flow-back, in what became known (in a rather unhappy choice of words) as the Law of Reflux (see next chapter). Smith’s hypothesis postulated two incentives that operated to balance the monetary system by encouraging bankers to prudently restrict the supply of banknotes to match the demand from the real economy. These incentives operated *ex post* to the act of lending, in contrast to the Real Bills Doctrine that acted *ex ante* to it. The incentives were formulated in relation to the bank’s entire balance sheet and its profit and loss, rather than in terms of the merits of the individual loan. They are described here because subsequent chapters will show evidence of how practices amongst banks for the retention of specie reserves and general liquidity management changed during the Restriction.

The first *ex post* incentive acted via the profit and loss account: a bank had a profit incentive to react to even a mild acceleration in the flow back of their banknotes if this was sustained for a period of time. This was because, in order to satisfy the bearer of the returning banknotes, the bank would be obliged to repeatedly buy-in additional gold coin, typically

from their London correspondent bank, by paying with a bill of exchange or draft, which involved high transaction costs in the form of a deduction of interest on the discounted bill, plus the costs of transporting and insuring the coins sent to it from London. The longer a bank insisted on issuing the same excessive amounts of banknotes, so the assumption went, the greater the number of times it would find itself buying gold coins only to immediately hand them out to customers, and hence the greater the loss of profitability. Smith (1776: 384-5) provides an example:

“Let us suppose that all the paper of a particular bank, which the circulation of the country can easily absorb and employ, amounts exactly to forty thousand pounds; and that for answering occasional demands, this bank is obliged to keep at all times in its coffers ten thousand pounds in gold and silver. Should this bank attempt to circulate forty-four thousand pounds, the four thousand pounds which are over and above what the circulation can easily absorb and employ, will return upon it almost as fast as they are issued. For answering occasional demands, therefore, this bank ought to keep at all times in its coffers, not ten thousand pounds only, but fourteen thousand pounds. It will thus gain nothing by the interest of the four thousand pounds excessive circulation; and it will lose the whole expence of continually collecting four thousand pounds in gold and silver, which will be continually going out of its coffers as fast as they are brought in to them.”

The second *ex post* balance sheet incentive postulated that bankers would not want to risk a run on the bank:

“Should the circulating paper at any time exceed that sum [of gold and silver which would be necessary to transact the annual exchanges] There would immediately, therefore, be a run upon the banks to the whole extent of this superfluous paper, and, if they shewed any difficulty or backwardness in payment, to a much greater extent; the alarm, which this would occasion, necessarily increasing the run” (Smith, 1776: 383).

2.7 Smith: the anomalies and constraints of classical theory

During the Restriction, Bank of England directors and political economists opposed to a return to the gold standard paraphrased Smith as having hypothesised that banks and

bankers had a set of incentives to limit the velocity of their own banknotes relative to their stock of gold coin, and that the resulting behaviour would ensure that the aggregate supply of ‘broad money’ (coin plus banknotes) did not exceed the demand for *real* money balances emanating from a *real* economy consisting of ‘*real*’ ventures. During the Restriction, simplified versions of Smith’s two axioms became the central tenets of the Anti-Bullionist lobby that employed them to strengthen the assumed self-equilibrating nature of the classical quantity theory and to deny the possibility of an over-issuance of paper money. This subsequent idealization of the monetary system contrasted with Smith’s attention to the practical functioning of the micro-economy of banks that led him to describe a number of potential frictions that impeded the smooth functioning of the classical quantity theory. Had his younger colleagues paid more attention to these, they might have been more circumspect in their interpretations of subsequent events and policy recommendations during the Restriction.¹⁰

Although Smith’s (1776) Book II, Chapter II *Of Money considered as a particular Branch of the general Stock of the Society, or of the Expence of maintaining the National Capital* can be criticised as three different and un-reconciled formulations, a proper reading reveals a quite different message that is far from simplistic or naïve. Of the 58 pages, Smith devotes little more than a paragraph to the Real Bills Doctrine and over 20 pages to describing examples of where the Doctrine might not work in practice. He illustrates many of these with a detailed account of the catastrophic failure of Scotland’s Ayr Bank in the 1770s.¹¹

During the Restriction, the (Bullionist-leaning) *Report from the Select Committee on the High Price of Bullion* (1810: 50) rejected the Real Bills Doctrine:

“That this doctrine is a very fallacious one, Your Committee cannot entertain a doubt. The fallacy, upon which it is founded, lies in not distinguishing between an advance of capital to Merchants, and an additional supply of currency to the general mass of circulating medium”

¹⁰ Lest we should think ourselves to be beyond such mistakes, this argument was still widely used to justify the wave of bank deregulation in the 1980s, only to be retroactively rejected by its chief implementer: see Alan Greenspan, cited in Radia (2011) in my Conclusion.

¹¹ For an interesting recent account, see Kosmetatos (2014).

Bosanquet's anti-Bullionist lobby countered with the market clearing mechanism of the Law of Reflux, but this never fully explain how Smith's limitations to the doctrine might cause it to be less effective during the Restriction and the absence of a fixed convertibility into gold.

Smith's qualifications of the Real Bills Doctrine can be grouped into six key constraints. Firstly, Smith (1776: 396) identified the key point that the bankers' willingness to lend is sensitive to the state of confidence shaping expectations over the future. Bankers and entrepreneurs alike may suffer from *over-confidence when formulating expectations* as to the prospects of the economy and/or the venture being financed by the banker's loan.

"The projectors [i.e. the entrepreneurs], no doubt, had in their golden dreams the most distinct vision of this great profit. Upon their awakening, however, either at the end of their projects, or when they were no longer able to carry them on, they very seldom, I believe, had the good fortune to find it."

The issue of how the state of confidence might affect the broad supply of money was still causing problems for Ricardo's 'model' forty years later (see next chapter). Smith points to how the willingness to lend is sensitive to the state of confidence shaping expectations over the future (a theme taken up by J.M.Keynes (1936: Chpt. 12)), but Smith does not extend the analysis to its natural conclusion that the balance sheet velocity of specie will likely be volatile and cyclical. No attempt was made to link this potential source of instability to occasions when there was a temporary excess supply of paper money, as permitted by classic theory. Smith, like more recent DSGE models, does not consider the potential for self-reinforcing feedback effects whenever an initial increase in lending leads to an increase in economic activity, and how the associated perceptions of easy availability of the means of exchange could cause a further round of increased optimism. It was assumed that these potential sources of "over-shooting" would never prevented the economy stabilizing or 're-equilibrating'. The possibility that these micro-economic forces might in certain circumstances become self-reinforcing accelerators of macro-economic instability was not fully considered except in the context of the third point below.

Secondly, bankers may suffer from a combination of *time-horizon myopia* and willingness to play the 'greater fool' game. Because bills of exchange were of short duration and endorsed on a joint and several basis by each trader through whose hand it passes, the banker may at times be induced to relax the credit criteria he applied to the triage of bills to discount. This

would become a more serious problem the greater the role played by banks specialising in the discounting of bills of exchange relative to the traditional banks specialising on secured term lending [respectively, the ‘Discounter’ and the ‘Goldsmith’ business model – see Part II]. In Smith’s (1776: 395) wonderful analogy, the over-confident risk-seeking banker is like a weary traveller who may say to himself:

“The house is crazy, ... and will not stand very long; but it is a chance if it falls to-night, and I will venture, therefore, to sleep in it to-night.”¹²

Thirdly, there may be *information asymmetries*. Collusion between borrowers in the form of artificial issuance of bills may further aggravate both the asymmetries and the over-confidence in the ability to rollover existing borrowings. Information asymmetries might be further aggravated, Smith notes, by any cyclical changes in the perceived ease with which existing debts could be refinanced. A borrower may redeem a loan, not by using real cash flows from the real sale of goods produced by real ventures, as the Real Bills Doctrine supposed, but by taking out a new loan from another bank, which the first bank may be unaware of, thereby permitting the renewal of the first loan (“this expedient was no other than the well-know shift of drawing and re-drawing; the shift to which unfortunate traders have sometimes recourse when they are upon the brink of bankruptcy” (Smith, 1776: 393)). If a borrower uses only one bank, that bank is able to glean good information in regard to his creditworthiness by observing the overall pattern of the borrower’s cash flows over time:

“But this discovery [process] is not altogether so easy when [the borrowers] discount their bills sometimes with one banker, and sometimes with another, and when the same two persons do not constantly draw and re-draw upon one another, but occasionally run the round of a great circle of projectors, who find it for their interest to [...] render it, upon that account, as difficult as possible to distinguish between a real and a fictitious bill of exchange” (Smith, 1776: 398).

¹² Compare this with the often-quoted statement by Chuck Prince (2007) shortly before the most recent financial crisis: “When the music stops, in terms of liquidity, things will be complicated. But as long as the music’s playing, you’ve got to get up and dance. We’re still dancing”.

Smith's warning is illustrated by the pattern of losses suffered by the Old Bank, Bristol on the credit extended to O'Keefe & Sons – described in Chapter 8. Any such 're-drawing upon one another' will mean that:

“though the bills upon which this paper had been advanced, were all of them repaid The value which had been really advanced upon the first bill, was never really returned to the banks which advanced it” (Smith, 1776: 397).

Fourthly, bankers might come under *political pressure* to loosen their lending criteria. As with the Ayr Bank, this might cause bankers to lend against less liquid assets:

“The banks, [the traders] seem to have thought, could extend their credits to whatever sum might be wanted, without incurring any other expence [*sic*] besides that of a few reams of paper” (Smith, 1776: 393).

To this day, this form of lobbying succeeds by conflating the problems faced by companies - the lack of demand for their goods - with the mantle of society-wide concerns. Smith was likely well informed about the Ayr Bank debacle from his protégé, the Duke of Buccleuch who he had taken on a grand tour of Europe and who was caught up in the bankruptcy. Smith perceptively and sarcastically describes the issue as follows:

“Their own distress ... they call the distress of the country; and this distress of the country, [the merchants] said, was altogether owing to the ignorance, pusillamity, and bad conduct of the banks, which did not give a sufficiently liberal aid to the spiritual undertakings of those who exerted themselves in order to beautify, improve, and enrich the country” (Smith, 1776: 399).

Fifth, *the borrower may become too big to fail*. And lastly, bank balance sheets may display *asset-and-liability mismatches*.

PART I

The Restriction and monetary theory

Chapter 3. The bifurcation of monetary policy

1. *The historical context*
2. *The debate of 1809-10*
3. *Credit money and the “gold mine” analogy*
4. *The bifurcation through the lens of Fisher’s equation of exchange*
5. *Conclusion*

The Restriction caused a bifurcation of classical theory into the two competing antithetical paradigms representing different desired outcomes of monetary policy, and subsequently labelled ‘Bullionist’ and ‘Anti-Bullionist’ after the widespread adoption of the gold standard after 1870. Bullionists emphasised the need for a stable *standard of value* limited by scarcity and who lobbied for a return to the gold standard, and Anti-Bullionists emphasised the need for an abundant *means of exchange* and supported the Restriction (depicted in Exhibit 3.1) – because, in spite of the Act being labelled the ‘Restriction’, in practice it called for more (paper) money to be created and circulated. Each lobby adopted and rejected different axioms of classical monetary theory. Which assumptions each political economist chose to retain, and hence which lobby he joined, reflected the way their personal experience led them to differently fashion the data selection and analysis.

In this chapter, using the 1809-10 texts of Ricardo (Bullionist) and Bosanquet (Anti-Bullionist), I give an overview of the bifurcation within a Fisherian conceptual framework, and identify how the two writers differed in their approaches to the three key issues: (1) the role of innovation in financial instruments, processes and the business models that support them, namely paper-based quasi-monies and the new bank business models that had emerged to service them; (2) the role of credit and ‘fringe’ banking, neatly encapsulated in the debate over Ricardo’s “gold mine” analogy; and (3) the rationales and incentives acting upon economic agents, particular when deciding how to regulate their note issuance. These are the very same issues debated by monetary economists following the latest financial crisis of 2008, and this chapter contributes to the ultimate purpose of the thesis to show how simplistic modelling of these three factors has been a regular source of policy errors at times when the institutional context is changing. In the final Section V of the thesis I contrast the

empirical evidence with the competing arguments over the continuing validity of the Price-Specie-Flow, the Real Bills Doctrine, and classical views of GDP-based velocity of specie.

In the previous chapter I examined the axioms and assumptions central to how the classical quantity theory of money ‘modelled’ the monetary system: Hume’s Price-Specie-Flow that synthesized the pre-Restriction monetary system as using only gold coin as *numeraire* and permitting no endogenous creation of broad money; and the ‘headline’ version of Smith’s Real Bills Doctrine, which assumed that the private incentives acting upon bankers would render any endogenous expansion in the supply of credit (such as that already seen in Scotland) to be always appropriately sized to the money-demand from the real economy. The Restriction, by suspending the fixed parity between money as banknotes and money as bullion, created problems for the classical monetary theory arranged around these axioms. The Restriction meant that banks were no longer legally obliged to redeem balance sheet liabilities (deposits, banknotes) with high-powered money (specie) – defined as monetary instruments that are legal tender or otherwise accepted in the payment of taxes. In the conceptual space of monetary theory, political economists faced the possibility that money was no longer necessarily a one-to-one representative of real resources. As a corollary, banks could no longer be treated as merely the passive conduit for the transfer of real resources between savers and borrowers. Instead, like theoretical economists today, political economists during the Restriction were obliged to explicitly confront the possibility that banks could be independent manufacturers of loanable resources, and hence that both the balance sheet velocity of ‘high-powered money’ and the supply of broad money could be volatile in the response to changes in the state of confidence.

Smith had already expressed many a cautionary note in regard to the implicit assumptions required for the classical theory to hold in practice, but it was only after the Restriction that events became sufficiently dissonant with theory to cause political economists to address the anomalies. Crucially, Smith had already distinguished the use-value of gold coin from the notion of the total exchange-value it could represent during the course of a year, but this distinction only came to the fore after the Restriction broke apart the fixed link between the two notions. In an economy using paper money, specie still acted as a reserve within the banking system, but issuing banknotes could more readily finance additional lending, and hence the GDP-based velocity ratio of gold coin could become considerably greater than its physical velocity when used in exchange transactions. To the extent that the

state of confidence caused the banking system's lending to vary for any given stock of gold coin reserves, then the GDP-based velocity of gold coin could also be unstable.

3.1 Historical context

The *Bullionist paradigm* has its earliest roots in the pamphlets of the banker Walter Boyd (1801) (1754-1837) and the Whig politician Lord King (1804) (1776-1833) during the early rounds of the debate conducted in 1800-1804. In 1802-7 Henry Thornton (1760-1815) contributed three editions of his masterly but poorly organised *An Inquiry into The Nature and Effects of The Paper Credit of Great Britain*. Early in 1809 the government appointed a Parliamentary Committee to "Inquire into the cause of the high price of bullion, and to take into consideration the state of the circulating medium, and of the exchanges between Great Britain and foreign parts" (cited in Bosanquet (1818:2-3)). The same year David Ricardo (1772 – 1823) entered the debate on money with three letters to the Morning Chronicle newspaper written between August and November, stimulated by the ripostes of his friend Hutches Tower. The latter chaired the said Committee, which in June 1810 published its Bullionist-leaning conclusions in the *Report of The Select Committee on the High Price of Bullion* (1810), known as the "Bullion Report". Ricardo followed with a full pamphlet probably written during the last quarter of 1809 and published in four editions through to 1811, *The High Price of Bullion, a Proof of the Depreciation of Bank Notes*. Following the publication of the Bullion Report, Ricardo published further letters, this time stimulated by the anti-Bullionist arguments put forward by Bosanquet and Malthus (Sraffa (1951)).

In November 1810 Charles Bosanquet (1769-1850) published what can be considered a manifesto for the *Anti-Bullionist paradigm*: a 110-page critique of the Bullion Report that was also a response to Ricardo's letters. It was widely accepted as the most effective argumentation of the anti-Bullionist views, and Ricardo himself acknowledged this in his *Reply to Mr. Bosanquet's Practical Observations on the Report of the Bullion Committee* (1811) in which he states, "Of all the attacks on the report of the Committee, however, that of Mr. Bosanquet has appeared to me the most formidable. He has not, as his predecessors have done, confined himself to declamation alone; and though he disclaims all reasoning and argument, he has brought forward, what he thought were irrefragable proofs of the discordance of the theory with former practice." Both authors published second editions in

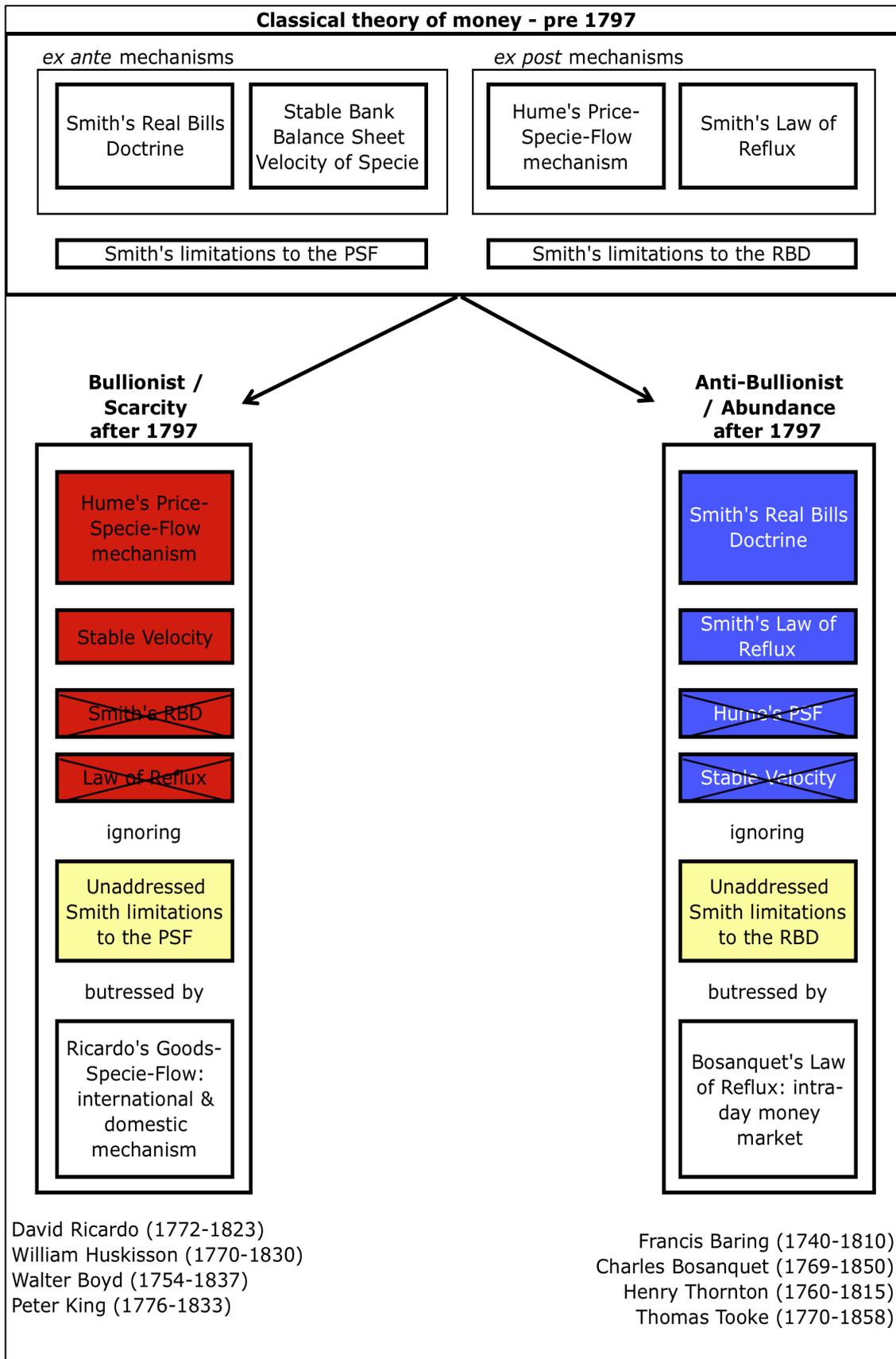
an attempt to address some of each other's more valid points, but Bosanquet appears to have tired first. In spite of Ricardo's compliment, Bosanquet's text is often bypassed by historians of economics who prefer to delve into the greater material offered by Thornton.

3.2 The debate of 1809-10

In the Introduction I showed the various symptoms of economic and monetary disruption observed during the Restriction when compared to the previous century – albeit mostly via proxy measures rather than our retrospective statistics. Boyd (1801) had put all of the blame on the Bank of England: the total money in circulation “must be greater or smaller, in proportion to the abundance or scarcity of Bank of England notes or specie, at any particular time.” In other words, it was the Bank of England's balance sheet expansion that was entirely to blame for the growth in broad money. In this chapter I focus on the second round of the debate in 1809-10 which revolved around what had caused the weakness of the pound on foreign exchanges and its mirror image, the high price of gold – both indicators being the most visible to contemporary observers. Was the wartime disruption to Britain's cross-border trade to blame or was it the excessive issuance of banknotes by the Bank of England? Was it a disruption in the real economy, or a misalignment of the monetary system to the real economy? Did economic disruptions always and only clear through the flows of gold, or did the banking system endogenously supply other forms of non-gold money in order to clear real-economy disruptions to the supply of gold-money?

As Fetter (1978: 27) identified, the debate spilled over into new questions about the functioning of the monetary system, the role of banks and credit creation, and the money standard. In this chapter I distil how Ricardo for the Bullionist view and Bosanquet for the Anti-Bullionist view adopted and rejected different components of classical theory as their core hypothesis, and reached different conclusions as to the cause of the weakness in the pound. In doing so, they exposed different perspectives of the role of the banking system and the objective to be set for monetary policy. In [Part IV](#) I contrast the position taken by these two lobbies to the empirical evidence and conclude that both lobbies relied on assumptions that were only partial representations of what was actually occurring in the banking system.

Exhibit 3.1 – The bifurcation of classical theory during the Restriction debate



Ricardo: the Bullionist arguments

The Bullionist lobby (Ricardo) adopted Hume's Price-Specie-Flow as a core hypothesis and rejected the Real Bills Doctrine as unrepresentative of banking practices in the absence of the constraints imposed by the gold standard. In essence this lobby upheld many of Smith's limitations of the Real Bills Doctrine, but rejected those pertaining to the Price-Specie-Flow and the possibility of paper money playing a useful role in providing bridge financing for structural wartime current account deficits. This lobby continued to assume that the marginal rate of substitution between gold coin and paper money was zero in the medium to long-term, and that the liabilities of the whole banking system (London and Country banks) would automatically move in lock step with changes in the Bank of England balance sheet. This combination of assumptions allowed the Bullionists to view the economy *as if* it were still on the gold standard. Hence, the observed depreciation of the pound on the foreign exchanges was to be entirely blamed on an excess supply of Bank of England banknotes.

Bullionists retained the assumption implicit in the Price-Specie-Flow that, over some vaguely defined complete cycle of production and trade, banknotes and other quasi-monies such as the bill of exchange are first issued and then fully redeemed out of the cash flows generated at the end of that cycle, and during that period of their existence they represent a mere temporary proxy in paper form for the high-powered commodity money they replace.

“The Bank [of England ...] while their notes were payable in specie on demand [...] could never issue more notes than the value of the coin which would have circulated had there been no bank. If they attempted to exceed this amount, the excess would be immediately returned to them in specie” (Ricardo, 1810: 57).

Ricardo follows Hume and Smith classical theory in assuming that the price of goods are based on long-run factor costs and the proportion of the global supply of specie allocated to each nation to be based on relative differences in their growth rates as determined by exogenous factor endowments. In such equilibrium:

“the exports and imports of all countries would balance each other; bills of exchange would make the necessary payments, but no money [i.e. specie] would pass, because it would have the same value in all countries” (Ricardo, 1810: 54).

Buttressing his arguments with numerous quotes from Smith, Ricardo (1810: 53-4) re-states the classical arguments based on a world economic system using commodity-money (gold) where flows would react so as to bring about its equilibrium distribution across countries, thereby equating money’s (i.e. gold’s) *extrinsic* purchasing power over other goods to its *intrinsic* value as a commodity. A country’s share of the total gold supply depends on its “progress towards wealth”, by which he meant three factors: its resource endowment; its capacity to withhold part of its annual produce to act as fixed and working capital for the next cycle of production; and the “liveliness” of its international trade. In this classical gold standard regime, changes in the total supply of gold in the world only affect the exchange ratio between gold and other commodities, but have no impact on the underlying production relations in the real economy. Unlike Smith, Ricardo addresses the potential problem of the total global supply of gold, but only to dismiss it as irrelevant:

“If the quantity of gold and silver in the world employed as money were exceedingly small, or abundantly great, it would not in the least affect the proportions in which they be divided among the different nations – the variation in their quantity would have produced no other effect than to make the commodities for which they were exchanged comparatively dear or cheap” (Ricardo, 1810: 53).

The main difference in Ricardo’s reasoning compared to Hume and Smith was that the initiating catalyst for the equilibrating flows was not the desire to export or import gold, but rather the incentive to export or import more goods. As identified by Arnon (2011: Chpt. 8), Ricardo used a Goods-Flow mechanism. Ricardo articulated this as a protective add-on to the cross-border version of classical theory: he hypothesised a domestic form of the Goods-Flow that operated across regional markets inside Britain. Excessive banknote issuance in any one region would raise nominal prices in that region, causing economic agents to transfer their purchases to other regions where prices were cheaper, thereby causing a reflux of the excess Country banknotes back to the banks in the region with higher prices.

“The money of a particular country is divided amongst its different provinces by the same rules as the money of the world is divided amongst the different nations of which it is composed. Each district will retain in its circulation such a proportionate share of the currency of the country, as its trade, and consequently its payments, may require, compared to the trade of the whole; and no increase can take place in the circulating medium of one district, without being generally diffused, or calling forth a proportionate quantity in every other district. It is this which keeps a country bank note always the same value as a Bank of England note” (Ricardo, 1810: 87).

The result, however, was the same: as long as banknotes were convertible into gold, an over-issue of banknotes would cause domestic prices in Britain and/or one of its regions to rise relative to overseas and/or other regions, encouraging imports of goods and exports of gold, both between Britain and overseas and/or between regions within Britain. A number of assumptions were made in the above citation: that the demand for money was entirely for transaction balances, and this demand bore a stable and similar ratio to total (real) transactions both for the country and for individual regions. For Ricardo and the Bullionist lobby, there could not be any real-economy factors causing an increased demand for broad money; there was only monetary mismanagement causing an excess supply of broad money. The Bullionist lobby retained the *a priori* assumptions that money *should* act as the time-invariant ideal standard of value, and that only commodity money (gold) *could and would* act as a sufficiently close proxy for that ideal standard. Specie was always the *vix mediatrix* by which the economic and monetary systems were brought back to their long-run balance dictated by long-run factor costs.

Bosanquet: the Anti-Bullionist argument

In contrast, the Anti-Bullionist (Bosanquet) lobby rejected the Price-Specie-Flow mechanism as invalid at times of war and Napoleon’s blockade of British trade, and relied for its core hypothesis on Smith’s Real Bills Doctrine plus a reinforcing *ex post* incentive mechanisms that came to be called the Law of Reflux. This combination allowed the Abundance lobby to reject *both* the Price-Specie-Flow *and* the stable-velocity assumption, but still retain the overall ‘model’ of a self-equilibrating monetary system even during the Restriction. In essence this lobby upheld many of Smith’s arguments that paper money

could play a productive role in some circumstances, but set aside Smith's "Ayr Bank warnings" that the incentive mechanisms underlying the Real Bills Doctrine could fail and become destabilizing. The empirical validity of the Real Bills Doctrine acted as a focal point of the debate during the Restriction: its validity was a necessary and sufficient condition for the Anti-Bullionist paradigm, its rejection a necessary condition for the Bullionist paradigm. The 1809 Bullion Committee rejected its validity, leading Bosanquet to accuse it of having adopted the Bullionist views as a "syllabus".

In contrast to the Bullionist lobby that viewed frictional costs and financial innovations as temporary anomalies, Bosanquet and the Anti-Bullionist lobby saw these as sufficient reason to abandon the policy implications of the classical Price-Specie-Flow and embraced Smith's examples of how paper money could have beneficial welfare effects. Bosanquet's (1810: 86) main argument was that if, like Ricardo, one defines the appropriate (broad) money supply as that which has the right proportion to the value of commodities, you have a definition that is of no practical use in differentiating between an endogenous rise in the demand for money and an exogenous increase in its supply (caused by the Bank of England's mismanagement).

If Ricardo used his domestic inter-regional Goods-Flow mechanism to buttress the Bullionist adoption of the Price-Specie-Flow, then similarly Bosanquet (1810: 63-7) articulated the Law of Reflux to buttress the Anti-Bullionist adoption of the Real Bills Doctrine. Bosanquet's Law of Reflux extended the type of micro-economic analysis that Smith had applied to a *single* bank's circulation of its banknotes, and applied it to the *aggregate circulation* of paper quasi-monies. For Smith, private incentives were such that if an excess of banknotes were put into circulation, it would soon be returned to the issuing bank, generating high transaction costs that would dissuade the issuer from persisting. Bosanquet (1810: 54-7) argues that evolving practices and "other improvements in banking" ensure that similar processes operate *across* banks. Bosanquet lists four such improvements: (i) the intra-day netting of inter-bank payments (allowing average daily volumes of £4.7M to clear with just £220,000 of notes changing hands); (ii) London banks having repo-style accounts with the Bank of England giving access to emergency overnight liquidity¹³; (iii) the emergence of inter-bank brokers for intra-day funds; and (iv) the Bank of England now pre-

¹³ See Chapter 11 for a full analysis of this facility, which clearly some London banks used as more of a permanent source of additional balance sheet funding.

announcing at the start of the day the bills it expects to present for payment at each bank at 4pm, and also accepting in “part-payment any draft on the Bank for discount, or otherwise, which the bankers may happen to hold instead of bank-notes.”

“I have already shewn [*sic*] with what degree of rapidity money finds its level amongst the bankers in London, and it results, therefore, as a general inference, that, whilst there is money unemployed and to spare in the city, discounters of the first class will not present themselves at the Bank [of England]....So long as the amount of [bank]notes in the hands of the public is not more than the parties holding them are willing to retain in their hands unemployed, for the purpose of making their daily payments, *there is obviously no excess of that description which influences the price of commodities*” (Ricardo, 1810: 58) [my italics].

If Ricardo postulated that the medium-term marginal rate of substitution between banknotes and specie was zero, Bosanquet postulated the short-term marginal rate of substitution between all forms of circulating media was one.

Bosanquet was not alone in viewing the Restriction Act as having unshackled the monetary system, allowing its natural inventiveness to respond flexibly to the demand for means of exchange by creating mechanisms that enabled the newly created IOUs to be netted off in the accounts of the banks. Heywood (1812)¹⁴ repeats the same data regarding the volumes of intra-day netting of London inter-bank payments cited by Bosanquet, and goes further in highlighting how inland bills of exchange have become an important part of the circulating media. Heywood (1812: 10-1) believes that “less than 1-4th of the sum of existing bills of exchange, would at all times exceed the sum of all existing bankers’ notes” and that “the bulk of the amount of these bills of exchange is commuted and discharged without being paid in cash or bank notes.” As we show in Chapter 11 and 12, Heywood (1810: 12) correctly foresaw that thanks to these netting mechanisms, “The whole sum of this private circulation may become, in fact, wholly independent of the Bank of England notes”. In a section added to Heywood’s pamphlet (1812: 77-96), written “by a friend of the author”, the argument is made even clearer: the Restriction Act “has proved to be the most efficient measure on record” for establishing a sensible currency system in Britain consisting in “the

¹⁴ This is most likely to be the same Arthur Heywood who held a 50% stake in the prominent Liverpool bank of A. Heywood & Sons (Chapter 9).

general use of ‘circulating individual credit’”. While admitting that paper instruments comport certain costs, the writer states:

“The loss sustained by the community in the interest, excess, forgery, and casualties of notes, is however evanescent compared with the amount which it would have been, if the “fifteen hundred millions” annually “paid on the counters of the London bankers” had been notes circulated; in other words, if the system of *Transfer and Set Off*, introduced by Bills of Exchange, had not spared their use. It may be assumed as a certain fact, that three-fourths of the business and money transactions of this greatest of all mercantile communities, are settled, that is, paid and discharged, without the use either of notes or gold” (Heywood, 1812: 79-80) [*my underline*]

The monetary system, according to Bosanquet, already possessed efficient (intra-day) mechanisms that permit transactions to occur that cleared the market across the different quasi-monies. These process innovations render the monetary system efficient in both absorbing banknotes where they are needed, and returning any net overall excess, either (a) back to the Treasury for the payment of taxes, which effectively extinguishes the excess, or (b) back to the Bank of England in the form of a lower demand for discounts the following day. Bosanquet is describing a monetary system with a hierarchy of instruments arranged according to the ease with which they can be liquidated for specie or swapped into a higher-ranked instrument, e.g. a private sector bill of exchange into a government Exchequer Bill; an Exchequer Bill into Bank of England notes; Bank of England notes into specie. According to Bosanquet, this *Transfer and Set Off* machinery represented by the London money market allows the various marginal rates of substitution between different forms of money to equilibrate the supply and demand for each, and simultaneously allows the aggregate supply of broad money (in all its forms) to equilibrate to the demand for money from the real economy (the latter implicitly assumed to be exogenous). By the “ingenuity of artificers operating on things invented [... R]eceipts and payments are discharged by assignment or transfer [... such that all] will, by this medium, generally balance each other, leaving only such small differences as may be discharged by a comparatively trifling use of extraneous currency” (Heywood, 1812: 80-1).

The Humean lakes and Smithian ponds have become interconnected micro-economic cisterns representing a more granular view of the monetary system; but the analogy remains

that of a self-equilibrating waterworks – albeit one that now functions using banknotes and bills. The analogy allows Bosanquet (1810: 57-8) to make his core argument that this “... results, therefore, as a general inference, that, whilst there is money unemployed and to spare in the city, discounters of the first class will not present themselves at the Bank [of England]” and instead their bills will be bought up by the London banks, thereby absorbing the spare money.

Bosanquet is making the quintessential ‘post-Keynesian horizontalist’ argument that the supply of money is a flat line in the credit-money and interest-rate space,¹⁵ responding endogenously and fully to the demand for loans from creditworthy would-be borrowers:

“So long as the amount of notes in the hands of the public is not more than the parties holding them are willing to retain in their hands unemployed, for the purpose of making their daily payments, there is obviously no excess of that description which influences the price of commodities. When the amount goes beyond this, the surplus instantly fastens on the best bills and most eligible government securities, chiefly on the first” (Bosanquet, 1810: 58-9).

This enhanced Law of Reflux operating at the level of the aggregate economy serves the Anti-Bullionist argument by buttressing the normative prescriptions of the Real Bills Doctrine operating at the micro-economic level: there can be no excess supply of money relative to the demand for money, for any such excess will “instantly” be used either by a discounter who owes money to a government department of the Bank of England, or travels intra-day from bank to bank, each receiving it in return for swapping out some of its bills; the bank that is ‘last in line’ to sell the bill at the end of the day will experience a net augmenting of ‘cash’ in the balance sheet, such that the following day that bank will proportionally reduce their demands upon the Bank of England to discount bills.

Note how these arguments contain two implicit assumptions: firstly, that each bank targeted a stable gearing ratio of total assets to reserves of ‘cash’ and, secondly, that this target ratio was not impacted, in pro-cyclical manner, by bankers’ experiencing those very same changes in the ready availability of ‘cash’ and the perceived saleability (or ‘shiftability’) of their less liquid assets. Any absence of the first factor was problematic for the Bullionist hypothesis

¹⁵ For an excellent summary, see Lavoie (2006).

of a stable balance sheet velocity of specie; but not a serious problem for the Anti-Bullionist paradigm because they believed the supply of the different alternative forms of money would endogenously adjust accordingly to the banking system's desired composition of reserve assets. However, any failure of the second factor would be problematic for Anti-Bullionists because it would negate the assumption that the demand for broad money was independent of its supply, and of its composition.

In conclusion, Bosanquet's position was diametrically opposed to that of Ricardo. For Bosanquet, at the margin, any excess supply of banknotes would be swapped for other financial instruments (bills) and so serve to extinguish lower-quality forms of credit-based quasi-monies. Bosanquet assumed the short- and long-run marginal rate of substitution of any excess supply of banknotes for goods was zero, and argued that the marginal rate of substitution of banknotes for specie was equal to one - with the total supply of specie and banknotes being determined by the demand for (real) transaction balances which, it was accepted, was not necessarily a stable ratio to total transactions (especially at a time of war). For Ricardo, by contrast, the (long-run) marginal rate of substitution of banknotes for specie was zero, and any excess supply of banknotes would be exchanged (first) for commodities, causing the nominal price of commodities (including bullion) to rise. For Ricardo specie was the sole *vix mediatrix* of the economic and monetary system, but he had to assume that the demand for specie was a stable function of real GDP; for Bosanquet, the demand for money was satisfied by a more fluid mixture of nominal monetary instruments, supplied via an efficient and flexible monetary system, but he had to assume that in the markets for money there were no feedback loops between the supply and demand for money, via changes in expectations or the real cost of borrowing.

These differentiated views of the role of money can be matched to the different approaches taken in recent years. Drawing upon Mehrling (2011), post-war economic discussion has been dominated first by the economics and then the finance view of money: both assumed that liquidity was a free good and this distracted attention from the older "money view" that emphasised nominal cash flow constraints and a policy aimed at a balance between disciplined scarcity (Ricardo) and flexible abundance (Bosanquet). "On the one hand, we have the view of *economics*, which resolutely looks through the veil of money to see how the prospects for the present generation depend on investments in real capital goods that were made by generations past. On the other hand, we have the view of *finance*, which focuses on

the present valuations of capital assets, seeing them as dependent entirely on imagined *future* cash flows projected back into the present. The economics view and the finance view meet in the present, where cash flows emerging from the past real investments meet cash commitments entered into in anticipation of an imagined future. This *present* is the natural sphere of the *money* view” (Mehrling, 2011: 4). Ricardo’s strict Bullionist (Scarcity) approach retained the classical view that commodity money was the sole equilibrating force, and implicitly viewed the economy through the lens of real variables and assumed that there were never any non-price or liquidity impediments to the real economy when adjusting to the supply of specie. Bosanquet’s Anti-Bullionist (Abundance) approach emphasised flexible self-adjusting markets for the different forms of paper monies, and implicitly viewed the ‘cash flows emerging from the past real investments’ as able to smoothly equilibrate with the ‘cash commitments entered into in anticipation of an imagined future’ – the implicit assumption being that today’s cash flows would always closely match yesterday’s imagined future (the Real Bills Doctrine), with any short-term adjustment executed via the agency of a banking system always able to buffer any discrepancy between these two flows through the adjustment of their balance sheets. The implicit Bosanquet assumption was that, when making these adjustments, the banks could always rely on the saleability, or “shiftability” of different assets, especially government securities – a notion that Mehrling (2011: 7) shows was rekindled by the “well-meaning American economist” Harold Moulton in 1918 and became the intellectual support for the shift in monetary policy towards flexibility.

In short, both Ricardo and Bosanquet assumed liquidity was a free good, but for very different reasons: Ricardo, because the flows of nominal quasi-money instruments did not form part of the mechanisms by which an economy re-equilibrated; Bosanquet, because the flows of nominal quasi-money instruments *were unfailingly* the pathway by which an economy re-equilibrated to an exogenous demand for broad money, and that demand for money reflected economic agents always able to imagine and assess accurately future cash flows. Both underplayed the “money view” that emphasises the inherent instability of credit as the key component of that buffer provided by the banking system, and in particular the role played by “fringe banking” - a view best expressed by Minsky (1986). However, as we explain in the next paragraphs, in 1809 Bosanquet did have a better appreciation of the relationship between broad money and credit.

3.3 Credit money and the “gold mine” analogy

In his 1809 writings, Ricardo compared the creation of a new note-issuing bank to the discovery of a new gold mine. This is a highly contentious example, eloquently disputed by Bosanquet, which neatly captures the significant early *lacuna* in political economists’ understanding of the role of credit-money.

Ricardo argued that under a gold standard, if the bank issued a large amount of banknotes by way of loans to either the private or public sector – and the Bank of England did both during the Restriction (Chapter 10) - this would have the same effect as the discovery of a new gold mine:

“ If a mine of gold were discovered in either [of two countries whose bi-lateral trade is in balance], the currency of that country would be lowered in value in consequence of the increased quantity of the precious metals brought into circulation, and would therefore no longer be of the same value as that of other countries. Gold and silver, whether in coin or in bullion, obeying the laws which regulate all other commodities, would immediately become articles of exportation; [...] If instead of a mine being discovered in any country, a bank was established, such as the Bank of England, with the power of issuing its notes for a circulating medium; after a large amount had been issued either by way of loan to merchants or by advances to government, thereby adding considerably to the sum of the currency, the same effect would follow as in the case of the mine. The circulating medium would be lowered in value, and goods would experience a proportionate rise. The equilibrium between that and other nations would only be restored by the exportation of part of its coin” (Ricardo, 1810: 54).

This analogy is problematic for two reasons. Firstly, it equates an increase in a nation’s stock of high-powered money (specie) obtained by the net *sale of export goods* to a new mine excavating gold. Secondly, it equates an increase in the supply of broad money (“circulating medium”, i.e. specie plus banknotes) to an increase in high-powered money (only specie). Bosanquet (1810: 52) provides an effective critique of Ricardo’s analogy of the gold mine, which he says has “not one point of analogy to the issues of the Bank of England.” In doing so, he gives the clearest explanation of why we should treat high-powered money and credit-based money differently. The critique makes three important points.

Firstly, Bosanquet (1810: 52-3) makes the key point that banknotes enter the monetary system as the simultaneous creation of an asset and a liability, whereas specie/gold enters the monetary system solely as an asset/commodity exchanged for another commodity. Banknotes are credit-based money because they are only issued *when the Bank of England makes a loan* to the government or discounts the bills of private sector merchants.

“The principle on which the Bank issues its notes is that of a loan. Every note is issued at the requisition of some party, who becomes indebted to the Bank for its amount, and gives security to return this note, or other of equal value, at a fixed and not remote period, paying an interest, proportioned to the time allowed.”

Bosanquet is describing banknotes as entering the economy in the form of a financial swap. This ‘swap’ carries an on-going cost for the counterparty taking on the liability side of that swap, to which Bosanquet adds the classical construct of a notional maturity corresponding to the end of the production cycle that the loan has helped finance. For Bosanquet, the combination of the cost and the notional maturity create natural incentives for the new issuance of banknotes (and other paper-based quasi-monies) to ultimately be extinguished if they are no longer needed by the real economy. While they are in circulation, the efficient engine of the London money market that supports the Law of Reflux would ensure that any excess supply of paper monies surfacing in any one Smithian pond would be conveyed to those ponds where it was scarce.

Secondly, Bosanquet (1810: 52-3) points out that the gold produced by a new mine enters the monetary system only when the owners of the mine sell it in exchange for goods: only then will there be a depreciation of the [exchange] value of the circulating medium [relative to goods]:

“[...] gold produces no benefit to the holder as gold; ... to render it useful, he must exchange it either for such things as are immediately useful, or for such as produce revenue.”

Whereas, by contrast, when banknotes are issued as part of a bank loan:

“No note is issued in payment of any service, moral or physical, constituting the consideration for it, and there is therefore no analogy between the circumstances of the issues from a gold mine and those from the Bank of England.”

Bosanquet then extends his attack on the gold mine analogy by returning to his Law of Reflux described above. An excessive supply of gold will cause its exchange price to ‘grow cheap’ relative to other commodities which ‘grow dear’, but this would happen gradually as the gold is minted into coin and then spent, and this change of relative prices has no pre-determined end point. By contrast, an excess supply of ‘bank-paper’ would revert to the Bank of England the very next day via a reduction in the demand for discounts of bills. Bosanquet argument is that the mechanisms by which the supply and demand for gold are brought into balance with the real economy are both slow and partial, whereas those that bring into balance the supply and demand for credit-based paper money are ‘immediate’ and in full – because of the efficiency of the London money market in ‘hoovering up’ any excess issuance and conveying it to those agents with debts to extinguish or payments to make to the governments departments. Bosanquet is suggesting that the marginal rate of substitution between gold and new consumption of goods may be low in the short run, whereas the marginal rate of substitution between banknotes and other debt instruments (such as bills) is high and nearly instantaneous, once the supply of banknotes exceeds the demand for real money balances.

Scholars of Ricardo such as Rosselli (2013) have argued that his true position on credit-money and the income-based velocity of specie should not be judged by the gold-mine example, but by his Ingot Plan described in his *Proposal for an Economical And Secure Currency* published in 1816. The Ingot Plan proposed a gold exchange standard where the nominal unit of account was indexed to a fixed quantity of gold, but where the arbitrage mechanisms were so designed as to limit its access whilst allowing paper money to more readily act as a substitute for specie: “the Bank [of England] were obliged to deliver uncoined bullion in exchange for their notes at the mint price and standard [and] they were not under the necessity of purchasing any quantity of bullion offered them” (Ricardo, 1816: 67).

It is indeed appropriate to cast Ricardo’s 1816 views on paper-based credit money and the effects of confidence as being more sophisticated than those he expressed in 1809, reflecting a more moderated view that addresses some of the Anti-Bullionist arguments

noted here. This change of perspective by Ricardo supports the argument made here, namely that at times of radical changes in the monetary system political economists only gradually learn how to appropriately adapt previous monetary theory to the new institutional environment. Ricardo-1816 benefited from an additional seven years of empirical observation, conceptual thinking and intellectual input from his peers. In Ricardo-1816, his main objective emerges more clearly as an attempt to design a monetary system that builds a bridge between the *ancien regime* and the by then better-understood advantages of using a paper-based *medium of exchange*, whilst trying to retain the benefits of the fixed parity to a *standard of value* (gold), immune from political interference and from the Bank of England's private incentives. However, this Ingot Plan was only very briefly sketched in the appendices of *The High Price of Bullion*; it was put forward fully only seven years later, by which time *all* commentators had had much more time to evaluate the new institutional context created by the Restriction and hence the opportunity, with greater understanding, to move away from more extreme positions.¹⁶ In this thesis my interest is in examining early reactions of political economists, at a time when the rapid changes in a monetary system were still freshest and bewildering, and juxtaposing those early theoretical responses to the evidence of actual concurrent banking practices. I have posed the question 'How did the bifurcated responses in the way political economists 'modelled' the monetary system in 1809-10 compare to actual concurrent behaviour of the banking system during the Restriction?' I am not posing the narrower historical question of 'How do political economists' evolving views of money after the Bullion report explain why Britain decided to return to the gold standard in 1818 and not in 1809?'

3.4 The bifurcation through the lens of Fisher's equation of exchange

In order to allow the perspective offered by this work to travel forward through time, I take a brief detour using Fisher's well-known 1911 equation of exchange to specify "ahistorical, invariant, or generalisable" uniformities (Ashley and Orenstein, 2005: 241) that pertain to the two antithetical approaches to the modelling of money born in 1809 that run through the history of monetary policy debates.

¹⁶ In this sense, one might say Ricardo learned more quickly than the modern central bankers quoted in the Conclusion to the thesis (Prologue section).

Writing a century after the Restriction, at a point neatly equidistant between today and the Restriction, Irving Fisher formulated the identity: $MV = \Sigma pQ$, which we abbreviate to: $MV = PQ$ as described in Chapter 1. Fisher states the equation is valid for a given ‘community’ over a given time period: institutional context, and the possibility of its change over time, is important. The identity is always true for any given definition of money (M). Let us accept the relatively unproblematic assumption that nominal GDP is an adequate representation of what Fisher meant by the right-hand variable PQ: the sum of the monetary value of all economic transactions during one year. Then every possible definition of ‘money’ (M) will generate a corresponding income-based velocity of ‘money’ (V) that allows the identity to hold. For the purpose of this analysis M encapsulates both high-powered money (M1) and other quasi-monies (M2) that are mediating market exchange, such that $M = M1 + M2$. Similarly, V is the blended income velocity of M1 and M2, such that $M1.V1 + M2.V2 = PQ$.

As with all identities, Fisher’s provides no primary directional force of causality. Its elegant simplicity aids understanding by enforcing a balance through accounting equivalence. Being neutral to causal direction, it is available to both the Bullionist and Anti-Bullionist lobbies to differentiate them in terms of the direction of causality they each assume or impose upon the identity. The two lobbies are distinguished by the causal direction they impose upon Fisher’s identity, reflecting the monetary outcome their favour, respectively for the rate of growth of the supply of money to be at least equal to the growth rate of nominal GDP (“Abundance”), or for it to be equal or no greater (“Scarcity”). *The Anti-Bullionist / Abundance lobby* focus on money’s role as a *means of exchange* and view the primary direction of causality to run from nominal GDP to the transactions demand for money, such that:

$$\Delta PQ \Rightarrow \Delta MV$$

Hence, if the operation of the gold standard defines M1 as the stock of gold bullion and specie, and limits M2 to a fixed ratio of M1, and these limitations combine with wartime constraints to the real economy in preventing the adequate response by the total of MV to an exogenous change in PQ, then the Anti-Bullionist / Abundance lobby supported the Restriction because it loosened those constraints. That loosening can occur in two ways: (1) by way of a redefinition of what “a community” counts as its high-powered money (M1), thereby expanding what the banking system can use as liquidity reserves, or (2) by loosening

the contingent requirement to redeem quasi-monies (M2) with high-powered money (M1). Either or both of these allow V to increase and compensate for the inadequate supply of high-powered money, enabling the endogenous expansion of credit-based monies (M2) created within the banking system using the existing stock of high-powered money as reserves. In Part IV I show empirical evidence that point to both these factors being at work during the Restriction period. The implicit assumption of the Abundance lobby – described in the Real Bills Doctrine - is that private incentive mechanisms operating in free markets will ensure that all desired transactions, and any additional IOUs created to enable them, will have a positive net long-term welfare benefit. As von Mises (1934: 406-7) eloquently described a few years after Fisher, the Abundance lobby:

“denies the possibility of an over-issue of banknotes and regards ‘elasticity’ as their essential characteristic [and hence] necessarily arrive(s) at the conclusion that any limitation of the circulation of notes must prove injurious, since it prevents the exercise of the chief function of the note issue, [namely] the contrivance of an adjustment between the stock of money and the demand for money without changing the objective exchange value of money”.

The Bullionist / Scarcity lobby, by contrast, focus on money’s function as a *store of value* which they wish to see preserved in real terms, and hence its role as a *standard of value*, and view the primary direction of causality as running from the supply of money to the change in the price level:

$$\Delta(MV/Q) \Rightarrow \Delta P$$

During the Restriction, this Bullionist lobby viewed a rise in the price level and its mirror image, a decline in the value of the pound on foreign exchanges, as *prima facie* evidence of an excess supply of high-powered money (M1), now defined as specie plus Bank of England notes. This required three assumptions: that Banknotes were fungible with specie when used as high-powered money (M1) in the banking system; that M2 was a stable ratio of M1; and that V was stable.

The Scarcity lobby places as its top priority the preservation of money’s value in terms of other goods and services, and is therefore primarily concerned with indexing the money

unit of account to a credible standard of value (e.g. to gold at the time of the Restriction; or today, to an inflation index). Since a near-zero change in P is the primary outcome sought, then by implications policy should be aimed at a stable relationship between the change in the stock of broad money (M^*V) and the change in the volume of real transactions Q (which is assumed to be exogenous). For the Scarcity lobby, a stable price ratio between the unit of account and all goods and services is assumed to produce the optimal long-term growth in the real economy. This lobby further assumes that the supply of broad money (M^*V) is institutionally under our collective control. It assumes a stable demand for money function ($k^* PQ$), and a stable relationship between the stock of high-powered money ($M1$) and the total supply of broad money (M^*V). As V is assumed to be stable and real growth to be exogenous, then any increase in the price level must have resulted from the supply of high-powered money growing faster than the real economy - as Ricardo concluded in 1809. Hence, a rise in the price level or its mirror image, a decline in the value of the pound on foreign exchanges (relative to other currencies linked to a commodity standard, as occurred during the Restriction) is viewed as *prima facie* evidence of an excess supply of high-powered money ($M1$), and the responsibility for that rise in prices is placed at the door of the institution with the authority to create it. Again, in von Mises' (1934: 456-7) words, the Scarcity lobby looks to a system of commodity- or commodity-like money as:

“render(ing) the determination of the monetary unit's purchasing power independent of the policies of governments and political parties. Furthermore, it prevents rulers from eluding the financial and budgetary prerogatives of the representative assemblies. Parliamentary control of finances works only if the government is not in a position to provide for unauthorized expenditures by increasing the circulating amount of fiat money”.

In summary, for the Abundance lobby, M^*V should be allowed to respond endogenously to the demand for 'money' occasioned by the world of (real) transactions, and it is assumed that this response will always be necessary, suitable and proportional as long as private incentive mechanisms are allowed to operate unhindered (and unregulated). The Abundance lobby accepts that the income velocity of high-powered money (specie) varies endogenously to the change in its supply and is part of the mechanism by which the monetary system rationally adjusts to the demand for (all forms of) money. The Abundance lobby are less concerned by the mix of monetary instruments that form the total broad money supply

(M^*V), as it is implicitly assumed that the same set of private incentives will produce the most efficient mix.

By contrast, the Scarcity lobby view the supply of broad money (M^*V) as something that needs to be managed exogenously. Such management may be exercised with varying degrees of freedom: by a fixed link to a real quantity (such as gold), or by use of rules, or by delegating to the discretion of an institution independent of government and with the sole task of achieving the Scarcity lobby's primary policy goal of price stability. In all cases, the Scarcity lobby assume that the velocity of (centrally planned) high-powered money is sufficiently stable to bring the supply of broad money under the executive's control. The Scarcity lobby believe the banking system to have a limited ability to expand its balance sheet gearing to the stock of high-powered money, which it does by forming new banks or creating innovative monetary instruments at the fringes of the established banking system.

Monetary economists of both persuasions have largely overlooked the porous nature of the distinction between high-powered money and the supply of broad money. Fisher (1991: 149) acknowledged that velocity is affected by the state of confidence, the attitudes to the extension of bank credit, and by technological innovation: "The velocities of circulation will be increased ... by improvident habits; by the use of book credit; and by rapid transportation." Ricardo and the Bullionist/Scarcity lobby assumed that the income-based velocity of high-powered money was stable in the medium and long term: what changed after the Restriction Act was that they no longer equated high-powered money to only specie, but now to specie plus Bank of England banknotes. In contrast, the Anti-Bullionists/Abundance lobby overlooked the potential for changes in velocity to have performative feedback effects on the proper operation of the private incentive mechanisms, upon which this lobby relies for allowing total broad money to be endogenously determined by the banking system.

Fisher's identity highlights how the two lobbies view money from "opposite sides of the coin" (Hart, 1986). The two lobbies agree on what is represented by the right-hand side of the identity, PQ , but view the left-hand side of the identity (MV) as representing two antithetical concepts. The two lobbies would agree that the product MV represents the total supply of broad money, although not on how it behaves. The Abundance lobby characterises MV as the notion of *liquidity*, which is seen as a beneficial lubricant for real

economic activity, while the Scarcity lobby views MV as the stock of *financial debt*, credit-based quasi-monies that are (and should be) only temporary substitutes for high-powered money (*specie*) and are seen as open to excessive use, inflationary, and dilutive of trust amongst economic agents – and, more importantly, dilutive of the extrinsic value of money relative to the money standard (gold) that was thought to guarantee its role as a store of value - because it allows the polity to avoid fiscal and budgetary constraints.

3.5 Conclusion

Under a gold standard the two notions of extrinsic-value and intrinsic-value of money appeared as bound together by a fixed parity, plus or minus arbitrage costs; but in fact this was only true as long as one viewed them at a single instant in time. In Smith's discussion of velocity in the previous chapter, the exchange-value of the stock of gold coin was intended as the total nominal value, measured over *multiple* instants in time, of all economic transactions intermediated by the stock of gold coin *and* any associated stock of banknotes and other quasi-monies which it supported. Hence, for Smith, the extrinsic exchange value of gold coin equals [(intrinsic-value) * (time)]. For Smith, extrinsic exchange value referred to the GDP-based velocity of gold coin in the same way as it is defined in this paper [$V = PQ / M1$] – a definition that would permit velocity, so defined, to change over time even before the Restriction. It would have been a small step to extend this definition of the extrinsic value of gold coin by including the operation of the banking system, such that it became: [(intrinsic-value) * (banks' gearing to gold coin) * (time)].

After the Restriction, the two notions of value became free to diverge even at a single instant in time, and more visibly so whenever the price of bullion rose above its previous fixed parity. As Heywood (1812: 77-8) remarked, "One of [the Restriction Act's] first consequences was, to weaken the association of ideas that existed in favour of a circulating medium possessing intrinsic value". This could happen due to, *inter alia*, (a) changes in bank asset gearing, allowing London banks to expand lending with the same stock of *specie* and unchanged total liabilities; or (b) it could happen due to a change in the public's acceptance of paper banknotes, allowing Country banks to exogenously 'manufacture' additional liabilities to fund a greater volume of credit with the same quantity of deposits. I show in

subsequent sections how the evidence points to material changes occurring in both bank asset gearing and note issuance.

Hypotheses to be tested

In Part II and III I analyse numerous case studies drawn from London and Country banks and their operating behaviour as revealed by their balance sheets, in order to identify the evidence for and against the two competing hypotheses underlying the contemporary theoretical debate: was the most stable relationship (A) between the creation of bank liabilities by London and Country banks, and the Bank of England's balance sheet (exogenous money underpinned by the Stable Fringe Velocity), or was it (B) between bank lending and real GDP (endogenous money underpinned by the Real Bills Doctrine)?

The Scarcity lobby's hypothesis of a Stable Fringe Velocity postulated relationships between the balance sheet of London and Country banks and that of the Bank of England. The Abundance lobby's Real Bills Doctrine postulated relationships internal to each bank between its note issuance and its lending activity (Smith's 'micro' version of the Law of Reflux), as well as relationships between aggregate bank balance sheets and GDP (Bosanquet's 'macro' version of the Law of Reflux).

The latter relationships were conceived primarily at the level of the aggregate monetary system and the 'average' bank and its relationship to the whole economy. However, careful use of the sample case studies allows us to set up proxy tests of these hypotheses at the level of the individual bank without over-specifying what we would expect to find. The proxy tests, specified below, are a recurring theme in the way we investigate the case studies of London and Country banks. Questioning the micro-economic data this way allows us to build greater insight and confidence in assessing whether the broader hypotheses were an accurate reflection of how the banking system was actually functioning. Then in Part IV I conclude with an analysis of the observed behaviour of the aggregate data series.

As I analyse each case study I am posing the following questions. If the Bullionists' Stable Fringe Velocity had been an accurate description of Country banks' balance sheet behaviour during the Restriction, what would we expect to observe?

1. The issuance by a Country bank of its own notes would have a stable ratio to its stock of specie and Bank of England banknotes [i.e. its Cash]
2. A London and Country bank's lending would be a stable multiple of its Cash reserves
3. As a corollary, a Country bank's net notes outstanding should be a stable ratio of total lending
4. At the aggregate level, total London and Country bank balance sheets should be correlated to the Bank of England's banknotes in circulation

Any two of the first three imply the existence of the third and fourth, and are equivalent to postulating that the banks' asset and liability matching strategies should be stable.

If the Anti-Bullionists' Law of Reflux had been an accurate description of interbank payment flows, what would we expect to observe?

1. Most daily flows between the a London bank and its Country correspondent would be settled via offsetting accounting entries, with only a small part settled via physical transfer of specie or Bank of England notes

If the Anti-Bullionists' Real Bills Doctrine had been an accurate description of banks' lending behaviour during the Restriction, what would we expect to observe?

2. Banks would cut back on lending if faced with declining profit margins
3. Banks should experience very small loan losses on their lending to private customers, and none beyond what they had previously reserved against such losses
4. At the aggregate level, total bank lending should be correlated to nominal GDP

In order to investigate these, it is first necessary to identify the full taxonomy of different London bank business models operating in 1797 in order to lay the ground for understanding important differences in the way each would be affected by the changes in the institutional environment ushered in by the Restriction Act, and the way the London money market interacted with the growth in Country banks.

PART II

Bank business model innovation:

A taxonomy and typology

PART II

Bank business model innovation: taxonomy and typology

Chapter 4. The ‘Goldsmith’ and the ‘Discounter’

1. *Introduction*
2. *Methodology and relevant literature*
3. *Data sourcing and contribution*
4. *Accounting practices*
5. *The four ‘Goldsmiths’*
6. *The four ‘Discounters’*

4.1 Introduction

Part II examines the emergence of two ‘business models’ amongst London banks during the early stages of the Industrial Revolution using newly collected longitudinal data on eight London banks¹⁷ for which adequate balance sheets records survive. It reveals the growth - amongst younger or recently re-articled banks - of a new business model dedicated to serving both the expanding use of bills of exchange and the needs of the growing number of Country banks, illustrating all three areas of change that this thesis has identified as regularly causing problems for monetary theorists: innovation in financial products and processes, the role of credit and fringe banking, and the rationales of bankers. By identifying the innovations in bank business models that were already taking place before the Restriction, in subsequent chapters I am able to unpick how Britain’s decision in 1797 to come off the gold standard impacted monetary transmission pathways and affected the supply of money. Although our ultimate objective is to understand the dynamic changes in the monetary system during the Restriction, this Section focuses on the structure of the London banking system that had evolved under a gold standard regime before 1797: it focuses on the layout of the kindling before the match was lit.

Part II poses “large questions in small places” (Joiner (1999) in Vaara and Lamberg (2014: 20)) by analysing the banks’ financial records from the technical and material perspective in

¹⁷ The ninth bank, Coutts, is explored in detail in a case study in Chapter 6.

the manner adopted by both economic historians and business model scholars working within strategy management and practice research. I find that the composition of bank balance sheets can be arranged into a taxonomy clustered around two generic business models that form separate ‘strategic groups’ at the intermediate level of aggregation between the firm and the whole industry, in the tradition of Hunt (1972) and McGee and Thomas (1986). In this Chapter, I first outline the relevant recent literature and methodology and, second, following Baden-Fuller and Morgan (2010: 162), I arrange the eight case studies of individual London bank micro-histories into an empirical *taxonomy* of the two main business models inferred from their balance sheet composition, using financial analysis. I label these the “Goldsmith” and the “Discounter”; then in the subsequent Chapter 5 I provide evidence of such business model clusters and develop a *typology* of bank business models. I conclude by exploring the implications of this typology for the *cognitive frames* that lay behind the bankers’ strategy decisions, and infer linkages to the debate amongst political economists studied in the previous section. In doing so, I follow Porac and Baden-Fuller (1989: 398) in believing that at “the cognitive level, business competition must be analysed in terms of the mental models of decision-makers and how such mental models lead to a particular interpretation of the competitive milieu.”

The pre-analytic approach was guided by my archival research and the simple intuition that our understanding of the behaviour of the British money supply at the end of the eighteenth-century could be improved by a micro-historical analysis of bank balance sheets. To date, our understanding of what a bank looked like and the functions it performed at this time have been dominated by the work of Temin and Voth (2005, 2006, and 2013) employing data from C. Hoare & Co, which they recently expanded to four other goldsmith banks in the century prior to the Restriction. It was only during the collection of the broader archival data from the later period that important differences in balance sheet composition emerged: the clear patterns and clusters inferred from these empirical differences suggesting the presence of different business models. Joslin (1960) had glimpsed these emerging differences in a forgotten essay on London bankers during the war years of 1739-84 (which he never developed into a fully quantified study).¹⁸

My analysis “involved an iterative approach of moving back and forth between data, relevant literature and [strategy management and business model] theory. Theoretical

¹⁸ I am grateful to Prof. Patrick O’Brien for bringing this to my notice.

propositions were not constructed prior to the research. They were developed through careful within-case analysis (Regnér, 2003: 64). Following Bates (1999: 13-7), I immerse the reader in many of the case studies so as to construct analytical narratives that are “logically persuasive and empirically valid accounts that explain how and why events occurred”. In doing so, like all analytical narrators, I “blur the conventional distinction between deduction and induction” and “stop iterating when we run out of testable implications.” While such categorisation is potentially open to the criticism by behavioural psychologists levelled at all historians’ use of pattern recognition, the argument made in this thesis does not require or purport to be a rationalization of some inevitable path, but rather for events to have been the consequence of certain (monetary) policy actions (e.g. the Restriction Act). By making explicit the interpretation of the narrative that emerges from these eight case studies, and recasting it into a formal set of business model types, I put the explanations at risk and expose them to the reader’s judgement.

I find that prior to the Restriction, the Goldsmith-bank business model followed a low frequency transaction business with high gross and net margins, focused on secured lending. Conversely, the Discounter-bank business model followed a high-frequency transaction business with high gross annualised margins, but low per-unit nominal profit and higher unit costs, and focused on the discounting of unsecured paper-based IOUs: bills of exchange and (promissory) notes. These two types of bank business model captured different parts of the value creation occurring within banking; were exposed to a different mix of business risks; and constituted different monetary transmission pathways that would subsequently experience the changes brought about by the Restriction in quite different ways. A financial analysis of the two decades prior to the Restriction reveals a picture of idiosyncratic long-run trend growth for individual banks, driven by bank-specific success in growing deposits within a slow-growing total (under the gold standard), playing out within a dominant common cyclical aggregate outcome. Nevertheless, the patterns of year-to-year changes in balance sheet size already revealed a clustering around the two business models. The analysis of profitability - using Hoares and Prescotts as the main examples to illustrate the two respective polar extremes in business model – suggest that the business of banking in London had reached an approximate equivalence in the return on assets across business models, net of loan losses.

This *status quo* would be disrupted by the decision to suspend convertibility into gold coin and the subsequent credit boom fuelled by increased Bank of England discounting of private sector bills and notes. Part IV will explore how this had different consequences for the two business models; elicited different responses from bank owners; and exposed the dichotomy of views on money held by bankers and political economists alike.

4.2 Methodology and relevant literature

In recent years, the term “business model” has become ubiquitous in the everyday language of business practitioners, as the supply-side logic of the industrial era has given way to the more complex value propositions demanded by a world of greater consumer choice (Teece, 2010). Gradually, the academic study of business models has also gained ground as an area of research in its own right within the wider body of strategy management and practice research (for a comprehensive review of the latest developments, see the Baden-Fuller and Mangematin, 2015). Furthermore, in the past year there has been a renewed interest from management schools for building bridges towards economic and social historians, or perhaps back towards the historical analysis found in the original work of Chandler and Mintzberg. Although the focus of this thesis is on the implications of these micro-economic changes on the monetary system as a whole, these chapters can be viewed as such a bridge from the shores of economic and financial history.

In this Part II the analytical methodology is the *longitudinal historical case study* of the eight London banks for which we have sufficient data for the period prior to and during the Restriction of 1797. The longitudinal case-study methodology is well known to economic and financial historians, but it also has paradigm status when designing modern research concerning managerial activities (Vaara and Lamberg, 2014: 13) where the aim is – as in this thesis - to provide descriptive inferences and generate hypotheses in an insufficiently researched area (Regnér, 2003: 60-1). This work does not claim that the sample of London banks is a fully stratified sample of the 70 banks that existed in 1797. It only claims to be the first analysis of the complete sample of balance sheets remaining in the archives and that, supported by triangulation with archival material from the Bank of England (Chapter 11), the sample is sufficient to allow us to infer the main business model types.

Criticism has been levelled at strategic management research that it “has lacked historical comprehension and sensitivity”; by historical embeddedness, strategy management researchers intend “the ways strategic process and practices and our conceptions of them are embedded in socio-historical environments and defined by them” (Vaara and Lamberg, 2016: 3-4). In this thesis I place the historical embeddedness of strategy practices at the very forefront of the research design, using this section’s empirical analysis of the business models as the micro-economic foundations for our investigation of the Restriction’s impact on the aggregate monetary system. The thesis pursues analytically structured history, defined by Rowlinson and Hassard (2014) as an approach that “uses analytic constructs [...] to search archival sources, enabling the construction of a narrative of structures and events that may not even have been perceived as such by actors at the time [and] driven by concepts, events, and causation.”

In this Part II, I first adopt a material-technical, activity-based financial accounting perspective of business models, and then conclude by inferring the cognitive perspective associated with these models. The financial accounting analysis addresses the methods by which each of the two bank business model created and captured value; the subsequent inferences made regarding their different cognitive perspectives seek the links to the different framing of money by political economists, many of whom were or had also been bankers, or would regularly mix in the same circles.

Porac, Thomas and Baden-Fuller (1989) in their landmark study of Scottish knitwear manufacturers highlighted how competitive interactions can be analysed both at the material/technical level and the cognitive level. From the material-technical, activity-based perspective I analyse the London business models in the terms of well-researched concepts such as: barriers to entry (e.g. eighteen-century banks being limited by law to private partnerships of no more than 6 partners), product differentiation (secured lending versus bill discounting), pricing (e.g. mortgage interest versus the implied interest rate on bill discounting), relative average and marginal cost or margin curves (e.g. costs structure of high-frequency bill discounting versus low-turnover mortgage lending). From a cognitive perspective, a business model is a constructed conceptual template that represents the salient activities and features that distinguish one business model or strategy from an alternative one, where each ‘model’ entails significantly different choices in regard to the locus of the value capture, the product and service mix used to capture that value, and the

human and fixed capital resources required to generate it. When conceptualizing business models, Furnari (2015: 5) similarly distinguishes between ‘activity-based perspective’, which sees them as a system of activities that firms use to create and capture value (e.g. Zott and Amit, 2010; Casadesus-Masanell and Ricart, 2010), and a separate ‘cognitive perspective’ that sees the business model as “a cognitive instrument that represents those activities (e.g. Chesbrough and Rosenbloom, 2002; Baden-Fuller and Mangematin, 2013; Baden-Fuller and Haefliger, 2013)”.

The majority of strategy management research seeks to understand the formulation, dissemination, and implementation of business models by living actors either within a firm or industry. However, business models when viewed as templates of generic strategy (Baden-Fuller and Morgan, 2010) are equally useful for the business and financial historian with no access to living actors. The business model as a cognitive tool can be seen as a scientific model subject to being manipulated independently of the empirical data that led to its initial design (Baden-Fuller and Mangematin, 2013) for the purpose of enabling inquiry and knowledge construction (Furnari, 2015)). In the case of the economic and financial historian, it is the researcher (and not the actor in the case study) who performs the manipulation of the conceptual business model. In this thesis, the author performs this manipulation of the conceptual ideal-types with the dual objective of improving our understanding of the impact of the Restriction on Britain’s money supply, as well as to construct cognitive connections between banking practices and the contemporary debate on monetary theory.

4.3 Data sourcing and contribution

Our understanding to date of the micro-economic practice of banking has been dominated by the story of the Goldsmith banks emerging in the early eighteenth century as recounted by Temin & Voth (2013: 47) based on the surviving data for five banks which relied “heavily on the continuous record of Hoare’s Bank [...] as it is by far the best we have.” At the end of the eighteenth-century they estimated that there were 70 banks in London, 9 of which had roots in the London goldsmiths of a century earlier, plus 276 mostly smaller Country banks (Chapter 12). The Bank of England acted as a quasi-central bank, not by clarity of mandate, but by the nature of its relative size and operating privileges. Its balance

sheet was (I estimate here) some twenty times that of the two next largest banks; it had a monopoly of banknote issuance within a 65-mile radius of London; and it was the only joint-stock bank in London, while all others were limited to no more than six partners.

By focusing on the period after 1780, usually associated with the early Industrial Revolution, I was able to discover and analyse a broader set of bank business models, using balance sheets reconstructed from over 11,000 newly collected data points for a dozen London banks. The ‘data contribution’ section of the Introduction provides a full explanation. In these Chapters 4 and 5 I investigate eight of these banks in the years preceding the Restriction, chosen because their records allow analysis of the subsequent balance sheet evolution during the Restriction. Coutts is the subject of a separate Chapter 6: although also a member of the ‘£1 million Club’ in 1796, it operated a hybrid business model that combined in equal parts the Goldsmith model, and the Discounter model closely connected to the Bank of Scotland. To the best of our knowledge this is the first time such forensic accounting analysis has been done across a sample of London banks for the same or near-same years.

The analytical approach adopted was to first reconstruct each bank’s balance sheet from the archival records; analyse what story they reveal; and only then investigating the biographical stories told by historians of banking, thereafter iterating between the two in order to sharpen the understanding. In doing so I have drawn from a number of histories of banks cited in the description of the respective bank below. These histories typically focus on the families of the partners, and only tangentially relate their story to any detailed examination of financial state of the business.

4.4 Accounting practices

In this section I explain what is meant by a bank balance sheet at the end of the eighteenth-century.

Prior to 1821, there was no statutory obligation to publish balance sheets or profit and loss statements. As banks were private partnerships limited to no more than six shareholders, there was also little incentive to do so. This was an era when the partners managed the

business, typically taking it in turns to be present in “the shop” to supervise daily activity and, as often as not, find polite and not so polite ways to say no to new requests for loans (but also regularly dispensing small charitable gifts to supplicants turning up at the door). Sometimes communications with clients were in writing, with a secretarial clerk transcribing a copy by hand to be kept in a “Letter Book”, and sometimes *a viva voce*, with a short note of the conversation written into a “Daily Book” by the partner in charge on the day, thereby allowing other partners to be informed of previous client discussions. Country banks would keep a separate book dedicated to recording communications with their London correspondent. Hence, managing partners were usually well acquainted with the essential state of affairs of the bank – at least those in charge of the London banks that survived the period under review, which almost all did.

Where high-level annual (and sometimes semi-annual) balance sheet summaries exist, they appear to have been a form of ceremonial offering to the partners produced by the chief clerk as testimony to his (it was always a he) honesty, skill and diligence – and as justification for his annual salary, typically £180-200, or about ten times that of the junior clerks, and thirty times the £7 offered at the time to men who would enlist to fight Napoleon. These summary balance sheets were often reproduced and collated in a separate book [most grandly named by Hoare & Co as the “Anno Domini” book] and written with the tidiest and most ornate handwriting compared to that used in the detailed ledgers. This summary would be presented at the partners’ annual sign-off event, the chief purpose of which was for the partners to officially accept the division of the profit previously agreed over lengthy backroom discussions.¹⁹ The sign-off also served to record the partners’ joint and several responsibility over the contents of the balance sheet, including any bad debts or fraud, either known and as yet to be discovered (forcing a revision of past accounts). Only a few banks have such tidy summaries; many did not, or if they did, these do not survive. Where balance sheet summaries exist, they are usually too general to extract an adequate picture of the changes taking place, which must be uncovered by searching amongst the jigsaw puzzle of documents showing details of the underlying ledgers. Some banks left a full-blown treasure hunt, where the key ledger totals have to be hunted down across multiple pages filled with many different entries that mix client balances with securities holdings, and which then had to be cross-checked against surviving draft summaries and/or

¹⁹ We sometimes get a glimpse of those backroom discussions hidden in the voluminous legal language with which new partnership agreements are drawn up.

for equality between total assets and total liabilities. In some cases, years of crisis such as 1797 and 1825 left a visual representation in the form of a marked dishevelment of the accounting – and, no doubt, of the accountant – when compared to the previous year.

All banks broadly followed the same system of double-entry bookkeeping, although each bank had its own idiosyncratic style for laying out its balance sheet in conformity to the main thrust of its business or what its partners saw as the best way to represent the key drivers of it. The typical balance sheet books begin with the liabilities (“Contra”), usually a list of the outstanding deposit balances for the individual clients, sometimes ordered alphabetically, but sometimes with less transparent logic. Discounters usually identified a separate “Country ledger” listing deposit balances from the Country correspondents. On the asset side (called “Debits”) the accounts listed the overdrafts of each client, the individual secured loans, and the outstanding bills discounted, finishing with the balance held in securities and in cash. In a page placed between the Debit and Contra pages we are occasionally rewarded with a summary page with the total assets and liabilities, the profit for the year and their distribution amongst partners, and (more rarely) the paid-up equity capital. Country banks would keep a separate “Note Book” to track their issuance of their own banknotes, how much had been returned and how many cancelled. Country banks would usually include under ‘cash’ not only specie and Bank of England banknotes, but also the stock of their own stamped banknotes not in circulation (and even small quantities of the banknotes of sister banks). This has the effect of inflating both sides of the balance sheet and exaggerating the true proportion funded from note issuance; in our analysis, wherever possible we compute a net balance sheet by subtracting the unused notes from both cash (on the asset side) and from notes issued (on the liability side).

For analytical purposes, if there is a material difference in the *accounting principles* between banks, it is in the representation of the annual profit and/or the paid up capital of the partnership. In some cases these are shown as part of the liabilities, with the corresponding amount included in cash on the asset side; but sometimes the annual profit and/or the paid-up capital is shown separately or not at all. For example, Hoares’ balance books do not show the paid up capital, but do show the annual profit; in the case of Childs, the capital is not identified separately, and the annual profit is included in the total liabilities until 1786, but shown separately thereafter. Different again were the balance books of Coutts and Barclays Bevan Tritton which clearly indicate the paid up capital for the whole period 1774

to 1845, but do not clearly separate out the annual profit. These different accounting practices restrict our ability to make confident comparisons of profitability across all the banks in the sample, but do not prevent the compilation of robust standardised balance sheets. We can safely assume that any paid-up capital was included in the total liabilities, and then adjust the balance sheet totals to account for whether they were drawn up before or after dividend distributions. Since for most banks, and most years, net profits represent 2-3% of total liabilities, and were fully (or almost fully) distributed out to the partners, for analytical purposes these differences in accounting practice can be corrected, and any small errors introduced via differences between banks in the method (e.g. for the timing of bad debt write-offs) are almost always immaterial (at least for these surviving London banks).

By contrast, when comparing profitability more care is needed, although it is possible to select sub-samples of two or three banks where we have sufficient information to make such comparisons. Where it has not been possible to clearly establish comparability, I show the readers more than one measure.

Particular care needs to be taken on the comparability of treatments of accrued interest and capital gains. Hoares had the cleanest and most transparent method, which was as follows. Year-end interest income on term loans was made up of the interest received during the year, less that portion that had been booked as having already accrued at the previous year-end, plus accrued interest on loans currently outstanding. Bills discounted would be recorded on the Debit side at cost in two columns: the first marked “to client X” to indicate who had tendered it, and the second “on company Y” to indicate the issuer of the bill; when the bill came due, the purchase cost was recorded on the Contra side as “by bill on company Y” and the discount earned was recorded separately alongside as “by client X”. At year-end the total of the discounts earned was transferred to the profit and loss account.

4.5 The four ‘Goldsmiths’

For each bank I first summarise the highlights of their history drawn from Orbell and Turton (2001) and any relevant individual biography as cited; I then focus on the comparative analysis of the balance sheet reconstructed from the primary archival sources listed in the Bibliography.

For ease of comparison, the balance sheet composition of each of the four Goldsmith banks and the four Discounter banks in the year immediately preceding the Restriction is shown pictorially in Exhibit 4.3 below.

C. Hoare & Co.

For economic historians, Hoares Bank is the iconic London bank of the early Industrial Revolution due to the research based on its financial records conducted by Temin and Voth exploring the presence of non-price credit rationing (2005); the early fractional reserve banking (2006); and the emergence during the eighteenth-century of a British banking system built around the London goldsmiths (2013). Hoares is the iconic example of a bank with goldsmith roots that continued to pursue the ‘Goldsmith’ business model throughout the period examined in this thesis – and can be said to still do so successfully to this day. Here I give only a brief summary of the early history of C. Hoare & Co. prior to 1797, drawing upon the biography of the family partners recounted by Hoare (1955)²⁰, and juxtapose this with a comparative analysis of the bank’s balance sheet data collected from the original records and which are mostly complementary to that shown in Temin & Voth (2013) who focused on the period before the Restriction years.

Hoares traces its roots to the goldsmith Richard Hoare who in 1673 inherited the business of his master, Robert Tempest, and today is the longest surviving privately held family-run bank in Britain. Originally located in Cheapside, in 1690 Richard moved the business to its current location at 37, Fleet Street prompted by a desire to be within walking distance of London’s most desirable residential districts. As a result of this remarkable continuity in the bank’s ownership and physical location, the bank has retained a veritable treasure trove of archival materials.²¹ Until his death in 1718, Richard Hoare led the transformation of the business away from the custody of silver, pearls, gold and diamonds to that of a bank making monetary loans. The holdings of gold plate etc. declined rapidly after 1700, from about half the assets to less than 10% (Temin and Voth, 2013: 68). Upon the death of Sir Richard, the business was carried on by his sons Henry and Benjamin, and has remained

²⁰ Especially Chapter 5: “Messrs. Hoare, 1718-1929”.

²¹ I am extremely grateful to Jeremy Marshall, CEO and the Hoare family for allowing me extensive access to the balance sheet records from 1772, and to Pamela Hunter, archivist, for her patient assistance in exploring the different accounting books.

under the family's direction to this day, more recently adding a growing wealth management service to the historic banking activity.²² By 1787 the bank traded under the name Henry Hoare & Co, until 1828, when it changed to Henry Hugh Hoare & Co until the end of the period reviewed here.

Before 1797, typically two-thirds of Hoares' balance sheet assets consisted of secured lending, with the remaining one-third held in cash and short-term government paper. Balance sheet funding came from the deposits of a large array of private clients. In the twenty years from 1778 until 1797, Hoares maintained a high liquidity reserve: the stock of cash and government securities was always between 30% and 40% of assets. Of the total secured lending, the longer-term commitments in the form of "money lent on mortgage, bond, etc" accounted for the majority and, consistent with the slower run-off of such loans, the absolute amount was relatively stable between £350,000 and £420,000. The rest of secured lending was accounted by "Loans undischarged on Personal Securities" which included lending collateralised with either personal indemnities or customer holdings of government securities. The latter component, being associated with shorter-term lending, was naturally more volatile. In the years running up to the Restriction, the balance sheet had been shrinking every year from a peak of £1,036,012 in 1791 to a low of £663,815 in 1797, and as a result the proportion dedicated to the longer-term lending secured on mortgage or bond had become the majority of all lending. This downward adjustment of the balance sheet was implemented through a reduction in lending against personal securities and most of all through liquidation of the holdings of government securities - in a pattern of behaviour prevalent amongst all banks at this time. The latter fell from a high of £215,873 (1791) to an average of £67,337 in the final three years before the Restriction Act (at one point reaching a low of £9,085 in 1793). Conversely, during the Restriction years, these two latter components would account for most of the balance sheet growth to £1.5 million by 1817-8, while loans secured on mortgage or bond would remain within their previous bounds (£330,000 to £400,000).

²² Today's 14 members of the Board include 8 partners, all of whom are family members.

Child & Co.

Childs traced its roots to the goldsmith shop of William Wheeler and Robert Blanchard in the Strand. Like Hoare's, Child's had transitioned to a banking business in the first two decades of the eighteenth-century, and its holdings of silver, gold, diamonds and plate had declined from over half the assets (Orbell and Turton, 2011: 147). By the 1740s these assets accounted for less than 3% of the balance sheet at both Childs and Hoare's, and both banks were already making monetary loans accounting for approximately 60% of their total assets (Temin and Voth, 2013: 68).

At the time of the Restriction Act in 1797 the balance sheets of the two banks were of similar size (£719,936 versus £663,815). Childs operated with an even more risk-averse liquidity ratio: it held a similar cash reserve to Hoare's, in the range of 30% to 40%, but kept a larger buffer of government securities. Childs grouped all holdings of securities together with other secured lending, but a painstaking inspection of the sub-ledgers allows an estimate of the year-end holdings of government securities (Exchequer bills, Navy & Victualizing bills, Short & Imperial annuities, and East India bonds) to be carved out. The combination of these traded securities and cash accounted for one half or more of the balance sheet. This liquid portion of the balance sheet would rise further to three-quarters during the Restriction years, mostly driven by a predilection for investing in East India bonds (from nothing in 1797 to £300,000 by 1822). The latter behaviour ran counter to the tendency observed at other banks to move away from such bonds as the years progressed, but is explained by Childs' reputation for catering to the banking needs of the East India Company executives (Uglow, 2014: 91).

On the liability side, like Hoares, Childs relied on the deposits of a large aristocratic customer base; it also attracted many from the legal profession. In its ledgers it goes a step further than Hoares by distinguishing between deposits from "Nobles" and the rest of its deposits. "Noble" deposits had been a growing proportion of total liabilities, reaching 20% on the eve of the Restriction, and remained there throughout the Restriction. Childs had issued its first printed note in 1729 and the first printed cheque in 1762, and evidence suggests they used these more than Hoares. Childs separates out its notes and cheques in circulation in the summary accounts, but the accounting method changes in the mid-1780s

and again in the early years of the new century; however, we can estimate these accounted for 10-15% of total liabilities both before and during the Restriction.

Drummond & Co.

Drummonds story is recounted in the amusing biography by Bolitho and Peel (1967) that focused on the Drummond family; I summarise the highlights and juxtapose these to a comparative analysis of the bank's balance sheet data they report in the appendix.

The bank was founded in 1712 by the Scotsman Andrew Drummond who traded as a goldsmith in the Angel Court area of Charing Cross in London, until recently still the home of venerable banking houses such as JP Morgan, but now site of one of London's latest spectacular mixed-used skyscrapers. Within a few years Drummonds' banking business came to dominate in spite of its share of hiccups and frauds. Andrew Drummond was initially seen with suspicion in some quarters of London despite there being little evidence that he shared his brother William's 'ardent Jacobite sympathies'. His brother had been "among the first to join the standard of the Old Pretender in the Jacobite rising of 1715" and again under Prince Charles Edward's ill-fated attempt to install a Stuart king over Great Britain in 1745, dying in the battle of Culloden (Bolitho and Peel, 1967: 23-4). Soon after, Sir Thomas Winnington, Paymaster-General of the Forces had a warrant issued for the seizure of the bank's papers for the purpose of finding evidence that the bank had supplied funds to the revolt. But Andrew Drummond fought back and he was eventually fully exonerated by the Cabinet (1967: 40-1).

By 1765 the bank's clients included "six Dukes, forty-three Peers and forty-two other titled persons [amongst] the 1290 separate accounts in the books" (1967: 70), and there are connections with the Royal household dating back to 1784, which eventually bloomed into George III transferring his account from Coutts in 1802, while his son the Prince of Wales transferred in the opposite direction in 1800, when Drummonds was asked by the King to stop lending to his spendthrift son (1967: 80-7). The bank also had extensive links with artisans and craftsmen (similar to Ranson Bouviere & Co) including Sir William Chambers, who designed Somerset House in London and Dundas House in Edinburgh; John Christian Bach, the son of Johann Sebastian; Thomas Gainsborough; and Josiah Wedgwood, the

master potter (1967: 70-1). Later clients included John Frederick Sackville, 3rd Duke of Dorset and patron of the game of cricket; the Duke of Wellington and his father; Pasquale Paoli, the Corsican patriot who was paid a £2,000 annual pension by Pitt's government as a reward for making himself a nuisance to the French; and Henry Addington, later Viscount Sidmouth.

In the run up to the Restriction, Drummonds balance sheet amounted to just under £1 million, some 50% larger than both Hoares and Childs, making it the largest private bank in our London sample. The balance sheet structure of Drummonds is a close match to that of Hoares and Childs, although perhaps implemented with a more diverse and colourful client base. It shows all the same conservative approach to liquidity and a focus on secured lending, with little or no discounting of bills (just 1-3% of total assets). During the early Restriction years, Drummonds would allow itself to become more involved in discounting until it accounted for a peak of 7% of total assets in 1804, after which it plateaued. Secured lending ("money lent") regularly accounted for 50% to 60% of total assets, with the rest held in cash and securities. However, the composition of this liquidity reserve as between cash and securities was more volatile than observed at its two peers: at the end of the 1770s Drummonds moved away from holding its liquidity reserves only in cash and began using more traded securities. Thereafter, in any one year, cash might represent all of the liquidity reserve or as little as one-quarter of the total reserve.

After the founder died in 1769 the business was split between three branches of the family and the banking side continued to thrive, under the stewardship of William's two sons, Robert and Henry. This success was in part due to Henry Drummond and Richard Cox being appointed Joint Paymasters of the Royal Artillery in 1766, in what must have seemed the ultimate example of having the last laugh when contrasted to events only a generation earlier. The appointment brought Treasury contracts for the payment of British troops in North America involving sums upwards of £200,000, as well the private accounts of numerous officers (Bolitho and Peel, 1967: 54-7). The latter explains the abnormally large drop of £274,180 (29%) in the size of the balance sheet in the two years following 1781, the year the American War of Independence came to an end.

Goslings

The path taken by Goslings' business is of interest because rather different to the other three Goldsmiths. Like some of the banks categorised as Discounters in our sample (see below), in the 1780s Goslings flirted with a shift away from its goldsmith roots towards adopting the Discounter business model, but unlike those banks, Goslings reversed course well before the Restriction. The highlights of the Goslings history and the changes in its partners are described in Orbell and Turton (2001: 234-5): by juxtaposing these to a detailed examination of the changes in the balance sheet, I reveal the more interesting facts for our thesis.

Goslings was established in the middle of the 17th century by the goldsmith banker Henry Pinckney based in Fleet Street, London, where its sign still hangs today just a few doors down from Hoare & Co. Subsequently, "the Gosling family, in the form of Sir Francis Gosling, become connected [and] by 1750 the business was styled Gosling & Bennett." Like the other banks in this group, Goslings had a distinguished list of clients including the aristocracy and other leading political figures. In 1779 Goslings was the most conservative of Goldsmith banks: it made secured loans accounting for a third of its assets (33%), and almost half of the assets (46%) was held as cash reserves. Its involvement with discounting bills was small, but this was about to change.

After Robert and Francis Gosling took control in 1778, during the 1780s, Goslings was the Goldsmith bank most tempted into diversifying its business into the new field of bill discounting – without ever fully adopting the Discounter model in the way of Barclays Bevan Tritton or Barnett Hoare Hill & Barnett (see "The four Discounters" below). During the first decade under the direction of Robert and Francis Gosling, the bank took a more aggressive path, rapidly expanding into notes and bills discounting which rose from 7% of the balance sheet to a peak of 49% (in 1791). Cash reserves fell to a low of 16% (a level not seen again until the bull market days of 1808).

A decade later this more aggressive business model was put into reverse. In 1786 the bank had welcomed William Gosling as partner with a 2/16 share, and in 1794 he and Francis took over as joint senior partners, each with a 22/48 stake, with Benjamin Sharpe joining on a 4/48 stake (later upped to 2/12 in 1810). It seems that William and Francis decided they

did not have the same taste or capacity to stay the course on becoming a fully-fledged Discounter, and in the following decade they steered the bank back to operating on a Goldsmith business model. By 1796, on the eve of the Restriction, the earlier strategic shift had been almost entirely reversed, although its discounting activity remained somewhat larger than other Goldsmiths, and (consequently) the bank tended to run a lower cash reserve compared to its peer group (Exhibit 4.3). On the eve of the Restriction in 1796, half of Goslings' assets were again devoted to secured lending on mortgage or bond or other collateral. Goslings still had a larger activity in bill discounting than the other Goldsmith banks, matched by a more prominent share of its deposits attributable to its Country bank correspondents, but its discounting had fallen back to just 18% of assets.

Goslings is included amongst the 'Goldsmith' banks because that is the business model to which its balance sheet is the closest fit on the eve of the Restriction, albeit about half the size (at £416,201) than the other names above, and because its balance sheet evolves thereafter in a way that most closely matches the other Goldsmiths. Goslings continued to shun the discounting business during the boom in this business subsequent to the Restriction Act, such that by 1805-6 its share of the balance sheet had halved again to 9%, the same it had been in 1778. What is most different about Goslings is the particularly aggressive way the partners chose to direct the business towards a low-risk low-return model during the Restriction, moving a majority of the assets into government securities until the bank resembled more a government bond fund. We review this further in Chapter 12 in the context of the 'crowding out' debate.

On the liability side the notional equity of £48,000 constituted 11.5% of total liabilities in 1796, but it had not been called. The notes to the "Heads of Articles of Partnership" suggest that the partners had not "brought in the said sums" and that – as with many other banks at that time - the notional capital was used primarily to establish the relative stakes in any profits (and the relative exposure to losses) of each partner in order to "obviate any demand by the Executors or Administrators" in the event of the death of one of the partners. However, the partners made deposits with the firm that reached a peak of 3.9% of the liabilities in 1797; this proportion was seen only once again in 1804, after which it went into steady decline, settling at 1% or less in 1840s. Only 2-3% of liabilities were deposits from Goslings' correspondents in the Country.

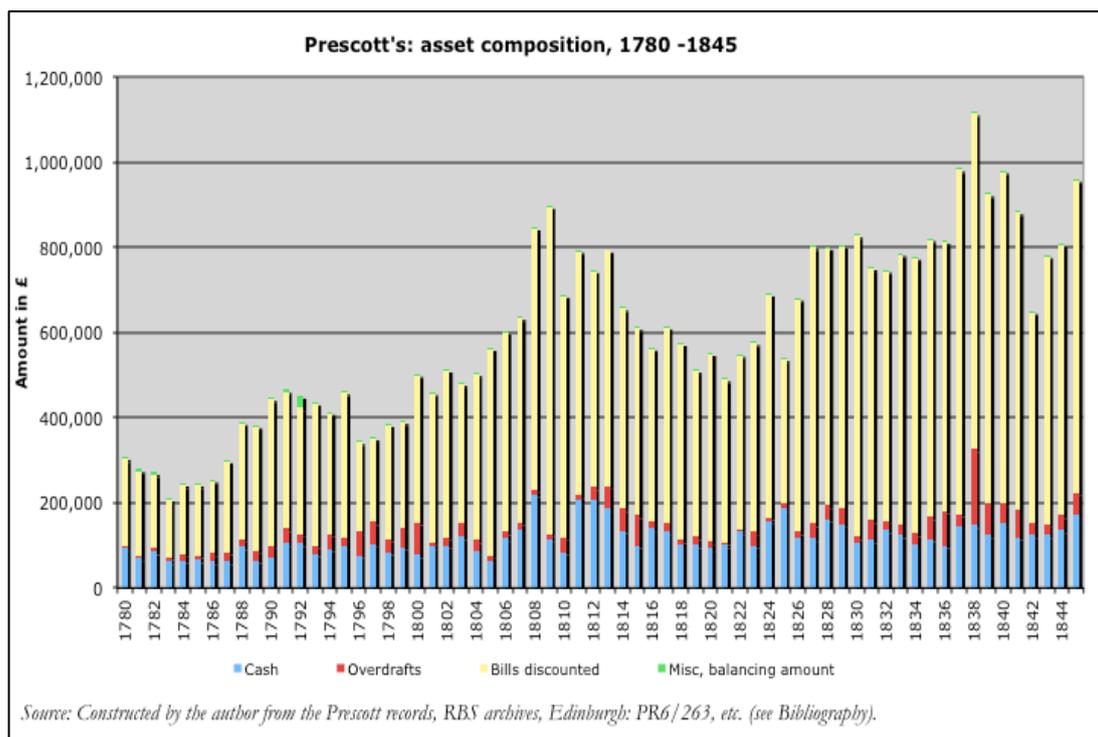
4.6 The four ‘Discounters’

Prescott’s – *the pure Discounter*

The Prescott story prior to the Restriction is summarised in Orbell and Turton (2011: 440-1) and was briefly touched upon in the first of five anonymous articles printed in the *National Provincial Bank Review* (Anon, 1966), but these did not delve into the balance sheet data. I draw from these for the bank’s background history, and juxtapose it to an examination of the scant, long-but-narrow financial records left in the archives. Prescotts also left a long series of high-level profit and loss data that is analysed and contrasted to Hoares in the next chapter.

Prescotts was founded in 1765 as (George) Prescott, (Andrew) Grote, (William) Culverden & (John) Hollingsworth and opened its doors on the 1st January the following year at No. 57, Threadneedle Street, bought for the princely sum of £5,500 (shown separately in the books, at cost, until 1785). It later bought new premises at Sun Court, No. 62 Threadneedle Street. On the 1st January 1773 George William Prescott and Joseph Grote were also admitted into the partnership, taking the number of partners up to the legal limit of six. By 1799 the name Culverden had been dropped. As with many other private banks, younger family members would be brought in as junior partners upon the death of an older partner, or earlier if time - and the father’s faith in at least one of his progeny - allowed for better succession planning. As junior partners spent more time with the business, their profit share would be increased each time a partner ‘quitted the business’ or died. Prescotts had a particularly difficult three years between 1787 and 1790 when Andrew Grote, John Hollingsworth and George Prescott all died (Hollingsworth was replaced by his son, also called John). However, unlike what occurred at Goslings and at Coutts, these difficult years did not induce a change in the business model at Prescotts, which maintained its focus on the discounting business throughout the 65-year period analysed here.

Exhibit 4.1 – Prescott's: asset composition of a pure Discounter, 1780-1845



The records reveal an entity with a balance sheet in 1796 of £374,610 - half the size of the three main Goldsmith banks - that operated with a business model diametrically different from the Goldsmiths: the bank devoted 60% to 70% of the balance sheet to the discounting of bills. In the first dozen years following the Restriction Act, Prescott's cyclically volatile balance sheet grew rapidly, nearly tripling by the time it reached its peak in 1809 at the time of the Bullion Report. It remained concentrated on bill discounting until records terminate in 1845, and would become ever more highly geared to cash reserves (Exhibits 4.1). Cash reserves had been gradually declining from an average of 30% in the early 1780s to an average of 20% in the years just before the Restriction Act. Customer overdraft balances accounted for the rest of the assets and tended to be between 1/10th and 1/20th of the discount balances, but the difficult years of 1796-7 had pushed these to much higher levels. We observe this tendency for customer overdraft balances at Discounter banks to rise during times of economic recession, as analysed in the Coutts-Bank of Scotland relationship (Chapter 6) and within the Smith Group of banks (Chapter 7). In the case of Prescotts, peak overdraft balances of £56,610 in the tight monetary conditions of 1796, equal to 15% of total assets, were not exceeded until the economic recession at the end of the war in 1815 – the same year Thomas Coutts was complaining to the Bank of Scotland Treasurer about the size of its overdraft balance at Coutts.

Prescotts acted as the London correspondent of the Old Bank, Bristol that I examine in Chapter 8. In 1890, Prescotts and the Old Bank would eventually merge together in a 4-way tie up with two other banks and become Prescott, Dimsdale, Cave, Tugwell & Co. Ltd. The latter was subsequently absorbed into today's Royal Bank of Scotland.

Barclays Bevan Tritton - *the fast growing, risk-augmenting Discounter*

I introduce my analysis of the balance sheet with a brief summary of the early history of the bank drawn from Orbell and Turton (2011: 83-4) and a *History of Barclays Bank Limited* by Matthews and Tuke (1926) in which a chapter is devoted to each of the sixty-two banks that eventually formed the modern bank, and where Chapter II is about the Barclays, Bevan, Tritton entity operating during the Restriction period.

Barclays Bevan Tritton traced its roots to John Freame, a Quaker goldsmith who traded in Lombard Street, London. By 1698 the business was known as Freame & Gould, one of the five studied by Temin and Voth (2013) during its early years up to 1793 when it still followed a Goldsmith business model. However, the bank was *de facto* re-formed in the decade after 1767 following the death in close succession of John Freame, James Barclay and Joseph Freame, after which the bank was re-orientated towards a Discounter business model, becoming one of its earliest adopters.

James Barclay, Freame's son-in-law, entered the partnership in 1736 and the first member of the Bevan family, Silvanus joined in 1767, shortly after which the Freame family withdrew. Silvanus Bevan (the third) was the product of the earlier marriage of Timothy Bevan and the daughter of David Barclay, the son of Robert Barclay, known as "The Apologist" having penned in 1676 the famous book "The Apology for the True Christian Divinity", or what constituted the Quaker manifesto. The Bevan family was said to descend from Jestyn-ap-Gwrgant, the last Prince of Glamorgan (1030 A.D.) and the Trittons could similarly trace their lineage back to Norman times. Noteworthy is the addition of the 27-year old John Henton Tritton to the partnership in 1783. Only the year before, Tritton had suffered the bankruptcy of his uncle's bank where, to his misfortune, he had been admitted to the partnership only four years before. This may explain the testimonial by John's loving nephew: "The early check to his youthful expectation, by failure of his Uncle's house

(Brown and Collinson), gave him the fixed habit of never relaxing his attention to business and all that he undertook was most correctly and thoroughly gone through [and] he followed up the details of every part of our concern with minute particularity which kept all the clerks up to the mark” (Matthews and Tuke, 1926: 41). It appears that even during the Restriction, a workaholic and perfectionist attitude were often the hallmarks of a successful banker. From 1783, John Tritton and Robert Barclay (III) together held the controlling stake for the next thirty years and the bank - styled Barclays Bevan Tritton & Co – thrived more or less continuously until 1865.

In 1796 Barclays Bevan Tritton operated with a balance sheet that was a de-risked version of the pure Discounter business model adopted by Prescotts, but subsequently experienced the fastest growth rate of all our sample banks. Barclays’ archival records are amongst the most complex to decipher and not all years contain the same set of ledgers, but their longitudinal length provide us with a worthwhile perspective of a bank that was the greatest beneficiary of the changes ushered in by the Restriction Act.

In 1797 Barclays’ balance sheet was a relatively small £281,290 and it had barely grown at all during the previous decade, making it smaller than Prescotts and one-third to one-quarter of the size of the larger Goldsmith banks in our sample. However, Barclays would experience a remarkable period of growth during the Restriction. By 1818 its balance sheet (£1.6M) was nearly three times larger than its rival Discounter, Prescotts, and the same size as the three largest Goldsmiths. In contrast to Prescotts, Barclays continued to grow after 1809 and also appears to have been a beneficiary of depositors’ search for safety after 1815: Barclays’ balance sheet grew 43% between 1815 and 1818, from £1,107,437 to £1,589,376. This growth was led by the liability side and not by the demand for credit – not surprisingly, given the deep recession that followed the end of the war. Almost half of that increase in the total balance sheet is explained by an increase in the deposits on the “Country ledger” from £366,285 to £574,993. The majority of the total increase is poured into government securities, which rise from just £82,248 in 1815 to £424,722 in 1817. After 1817 Barclays appears to have decided it was time to redeploy this increased deposit flow into providing additional credit support to its customers by way of increased discounting: in order to support this, for the first time since 1789 it raises the paid up capital from £20,000 to £60,000.

This makes Barclays one of the main conduits of the ‘break’ we observe in the way aggregate London bank liabilities tracked the Bank of England balance sheet, as explored in the final Chapter 12.

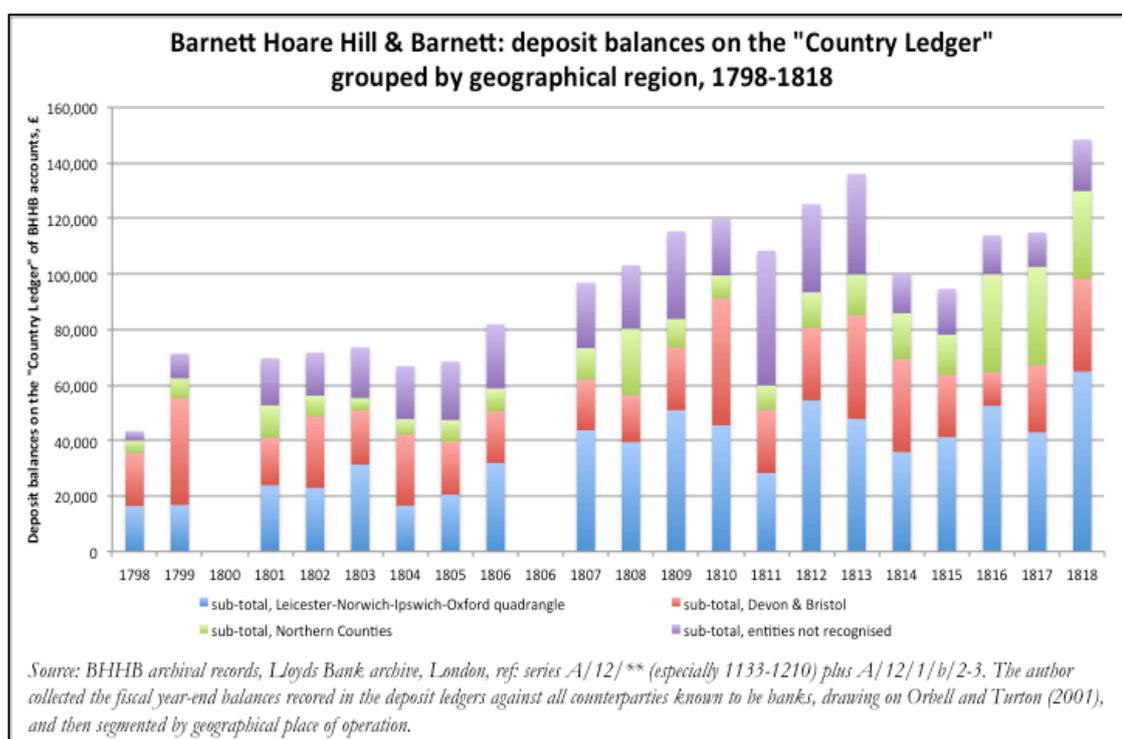
Barnett Hoare Hill & Barnett - *the well-controlled Discounter*

The highlights of the background to Barnett, Hoare, Hill & Barnett (hereafter “BHHB”) are described in Orbell & Turton (2001: 96) and I have extracted some further detail of the partnership changes from the archival records. The bank traced its roots to John Bland, a goldsmith in Lombard Street, London. It began trading under the BHHB name in 1790, dropping the first Barnett in 1800 after the then senior partner Benjamin Barnett exited the business. Two years later George H Barnett joined as junior partner. By 1808, the bank was known as Hoare, Barnett, Hoare & Co after the second most senior partner, John Hill exited the business, replaced by Henry Hill with only a junior stake; at the same time Samuel Hoare the Younger joined his father. Samuel Hoare Senior [who was no relation to the partners of Hoares Bank] had become senior partner after Benjamin’s departure and he guided the bank through the major part of the Restriction years, until James Barnett was raised to the same level in 1812. Finally the bank’s name changed to Barnett, Hoare & Co following Samuel Hoare Senior’s first retirement (it appears from the records that the elderly Hoare Senior was brought back in 1833, perhaps to help steady the ship after the 1832 banking crisis). The bank was eventually to merge with another Lombard Street Bank in 1864 and end its days in the Lloyds Bank group.

The available data for the full BHHB balance sheet begins in 1798, so we use that year to compare the balance sheet to that of Prescotts and Barclays in 1796. At the start of the Restriction, BHHB operated with a balance sheet following the Discounter model and totalling £413,008, approximately the same size as Prescotts and making these two banks the largest Discounters in our sample behind Coutts (Chapter 6), but also the slowest growing Discounters. By the end of the Restriction period, both banks had balance sheets nudging £700,000, but BHHB distinguished itself for having achieved it in a well controlled, less volatile manner when compared to the more ‘boom and bust’ profile of Prescotts and Barclays. Like Barclays’, BHHB held one-quarter of its assets in reserve in the form of cash, and used 60% of the balance sheet to discount bills, with the residual held in securities and

overdrafts granted to Country banks (including holdings of their notes) and sundry customers. On the liability side BHHB operated with paid-up capital of £15,600 that it quickly raised to £20,000 by 1802, matching that of Barclays. Where BHHB differs from Barclays is in the accounting of their securities holdings. BHHB only recorded a small holding of Exchequer Bills and government bonds on their own books. However, BHHB shows a regular and large balance with Goldsmids & Son Co.; as the latter was the pre-eminent government bond underwriter and broker, it seems likely that the account represents BHHB's custody account for trading in (government) securities or possibly short-term (mostly overnight) lending secured against Goldsmids' inventory of such securities. Hoares would introduce the same accounting practice between 1810 and 1813. If we add the Goldsmith account balance to the direct holdings of securities, this leaves the BHHB balance sheet composition at the start of the Restriction as a close match to that of Barclays (see Exhibit 4.3).

Exhibit 4.2 – BHHB: Country Ledger deposits, by location of depositor 1798-1818



Even before the Restriction, all three Discounter banks had lively correspondent banking relations with Country banks. These were a net source of deposits: deposit balances from the Country banks exceeded the London bank's exposure to them on the asset side. Before the Restriction, net balances from the Country were typically 9% to 13% of BHHB's

liabilities, but could be lower in years of monetary and economic stress when, as observed for Prescott and Barclays, many Country banks were forced to seek liquidity support from the London money market and run up their overdraft balances. During the subsequent years of the Restriction this source of net funding for the London Discounters became a more important part of their total funding, reflecting the growth in the number of new Country banks as well as the flow of excess liquidity back into the London money market from the Country (as described by Bosanquet in Chapter 3 and discussed in Chapters 11, 12). In the case of BHHB, net funding from the Country banks peaked at 24% of total liabilities in 1812.

BHHB's more consistently organised accounting of the Country ledger allows us to observe that the number of Country correspondent relationships it handled rose from 11 in 1798 to a peak of 28 in 1813. Relying on Orbell and Turton (2001), it is possible to recognise the entities named in the Country ledger accounting for approximately three-quarters of the total balances: two aspects of the correspondent banking business emerge (Exhibit 4.2). Firstly, from a logistical viewpoint, BHHB did business with a geographically diverse set of correspondent banks. If there were any economies of scale in communication and transport costs, these were overshadowed by the judgement as to the reputation of the Country bank partners. During the years 1798 to 1818, one third to one half of the balances from recognised entities came from banks in the Leicester-Norwich-Ipswich-Oxford quadrangle, but a further one-quarter to one-third came from Devon and Bristol, and 10-20% from the central counties of Yorkshire, Lincolnshire, Pembrokeshire, Shropshire and Cumbria. Secondly, in each of these three broad regions BHHB had a core of one or two main correspondents with whom it was already doing business at the start of the Restriction and who continue to do so throughout the following twenty years. These core Country relationships had been formed mostly in the 1780s; as the Restriction progressed, in each of these regions BHHB built up new relationships with newly created banks.

Herries Farquhar – *the cross-border, innovating Discounter*

The story of Robert Herries' bank has been pieced together by drawing from the summary in Orbell and Turton (2011: 269-70) and the relevant sections of Robert Rait's (1930) biography of the Union Bank of Scotland, where possible making a judgement call on some

of his largely unreferenced material by juxtaposing it to the balance sheet data collected here.

In 1796 Herries Farquhar was the youngest bank in our sample, and an innovator of financial instruments. It was in transition towards the Discounter model, gradually building up the degree of operating risk in a manner similar to Barclays, albeit with an idiosyncratic product mix. During the Restriction it would experience the second fastest growth rate amongst our sample banks (behind Barclays).

Robert Herries formed the bank in the mid-1770s in the West End of London. Orbell & Turton report the date as “about 1770”, but it seems more likely to have been after 1776, the year Herries’ partnership contract expired with Forbes, Hunter & Co, a bank based in Edinburgh. When James and Thomas Coutts took over the reigns of Campbell & Coutts in London in 1761 (see Chapter 6) they resigned from the Edinburgh-based Coutts Bros. & Co, leaving their brothers John and Patrick to run it. It appears that Patrick was not terribly interested, so John did much of the running and brought in Robert Herries on a fixed term contract to help him. Herries was an experienced businessman who had worked for the prestigious Amsterdam bankers Hope & Co, and at the age of 23 had already set up his own business in Barcelona. When John Coutts died in 1761 the Edinburgh bank was left in the hands of its two most senior staff: William Forbes and James Hunter. Like many who find themselves inheriting a far greater wealth than they perhaps ever imagined, the two operating partners appear to have been particularly risk-averse: by 1776, having already agreed to extend his contract once, Herries had grown tired of having his partners constrain his more exuberant trading style and resigned,²³ whereupon he was hired by the *London-based* Coutts to lead their City of London brokerage business under the name Herries, Cochrane & Co (Orbell and Turton, 2001: 269). This in itself is a good indication that Herries’ skills and interests lay in high frequency trading of short-term instruments; his subsequent innovation also supports this view.

Herries is credited with the innovation of the Circular Note, considered the first traveller’s cheque. This innovative product began slowly, and until 1813 Herries’ business model was much the same as the emerging Discounters like Barclays, but running a lower risk profile than that of the fully matured Discounter (Prescotts): 90% of his liabilities were non-interest

²³ For a full and entertaining, but poorly referenced account see Rait (1930), especially Chapter 4.

bearing deposits (which he called by their French name “lodgements”), and these supported assets typically allocated 10% to client overdrafts, 20-25% to bills discounted, 20-25% to government securities, 5% to the premises and 25-35% in cash (in his case this included banknotes).

Using his experience of banking on the Continent, Herries developed the “Foreign Note”, which he renamed the “Circular Note” from 1811. This was as a modified letter of credit which was payable ‘anywhere’ rather than in just one place, allowing those travelling outside Britain to change their itinerary at will and draw cash in flexible amounts. Later he added the Transferable Note, which could be endorsed rather like a bank cheque. Herries would make money on the free cash balances remaining with him between the date of issue of the Circular Note and the date it was returned to him by the foreign correspondent. The client would deposit cash with Herries and receive a Circular Note payable at any of Herries’ network of correspondents which he set up across the continent; when the client presented the note to one of these correspondents, the latter would pay out cash (in the currency of denomination of the note) and then return it to Herries for settlement. Herries invested these free cash balances mainly in Exchequer Bills and other government bonds yielding some 5% p.a..

Herries took these ideas to the London-based Coutts brothers who found them wanting, whereupon he set up his own bank, apparently with some (tacit) support of his previous Edinburgh partners (Rait, 1930). The bank operated until 1893, when Lloyds Bank acquired it).

By 1798 the young bank was still not fully on solid ground, with a balance sheet barely reaching £100,000. In response to the heightened challenges posed by the Restriction, Herries appears to have wanted to bolster the firm’s standing and capital, and brought in Thomas Harvie Farquhar as senior partner with a two-thirds share in the new capital of £24,000 (Herries holding the other third). Herries persevered with his idea of the Circular Note, but the accounts show that it took until the temporary peace of 1801-2 for it to really take off, only to then be hit by the resumption of war. Outstanding balances at year-end were still under £7,000 in 1799-1800, barely 5% of total liabilities. But following peace with France these jumped to almost £27,000 in 1802 (14% of liabilities) thanks to a rush of visitors to the continent, captured in William Wordsworth’s poem “Calais, Auguste, 1802”.

After war broke out again, Napoleon's order in May 1803 that all adult Englishmen under the age of sixty were to be regarded as prisoners of war naturally killed off continental tourism, and the Berlin and Milan decrees further hampered any commercial travel, causing Herries' balances of Foreign Notes to decline back below £10,000 for the next decade.

The Restriction ultimately proved beneficial for Herries' business: as Napoleon's hegemony waned after 1813, Herries Circular Notes business once again took off, reaching balances of over £100,000 by 1828. Herries recorded the number of accounts opened and closed each year, and these show that his bank added net new clients every year from 1800 to 1847 with the sole exception of the financial crisis year of 1825.

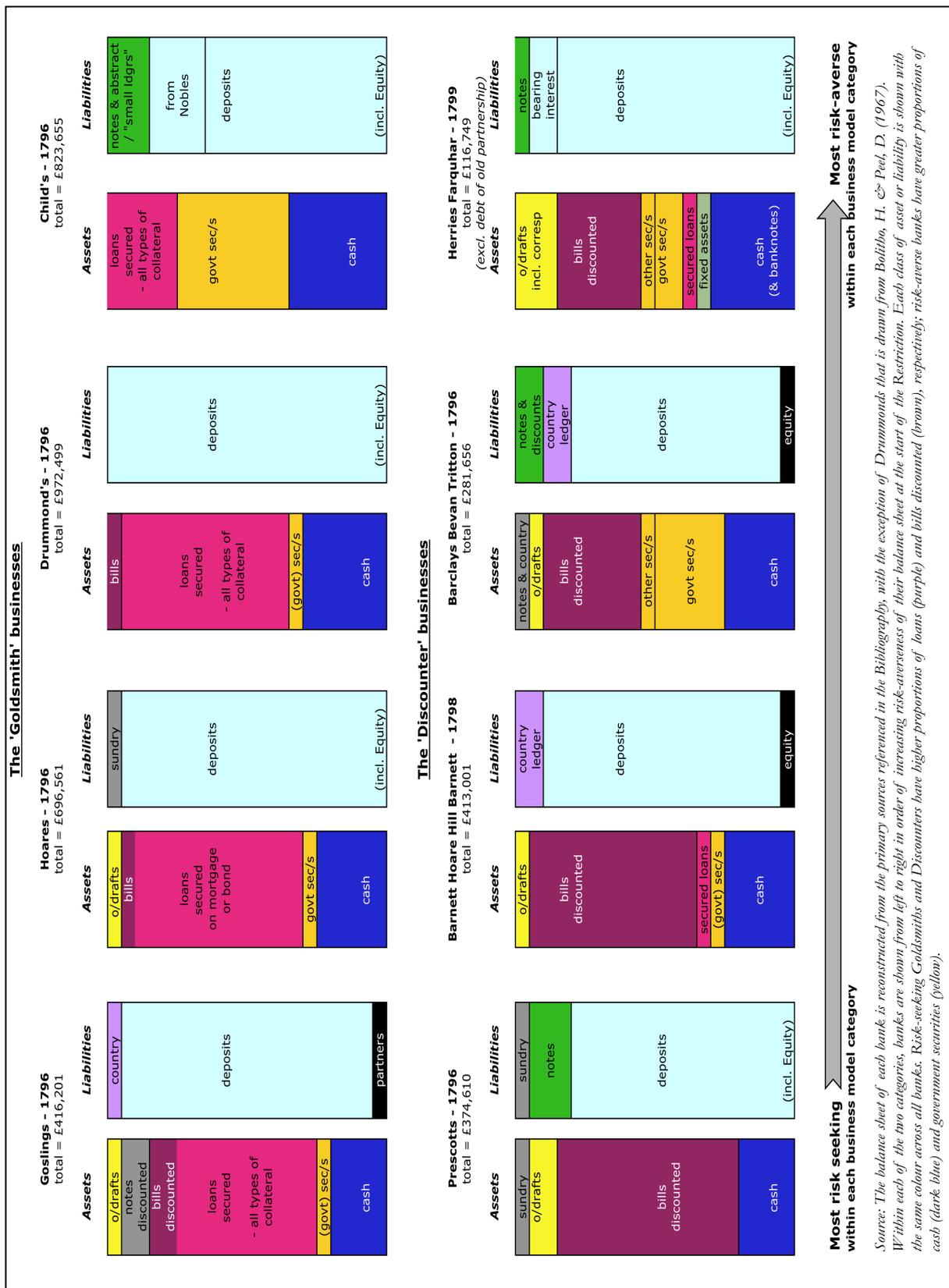
With travel to the continent resuming after 1815, there is evidence that the success of Circular Note was becoming a disruptive threat to the client relationships of the established Goldsmith-style banks that had hitherto shunned the instrument. In 1817 Thomas Coutts – having reject the product 30 years previously - writes to the Bank of Scotland:

“on the subject of Foreign Credits and Circular Notes – These last have never been issued by the Houses of Child, Drummond or Hoare [note: the implicit peer group is of the eminent Goldsmiths] and we have felt a reluctance in taking up as it was a new Concern, but I think we should be wrong in persisting in this – in some situations they are certainly convenient to Travellers – Whether they may be generally considered so seems doubtful, but many of our Friends [i.e. clients] particularly of late have thought they are, and it is always our wish they should be accommodated – We do not expect any profit should result from the plan – what we rather aim at is the feeling that other Houses should not be able to afford to their Friends more facilities than we can do to ours – and besides I hope it will save us some trouble in the use of Letters of Credit which are attended with an immense detail of correspondence...”²⁴

This is one of many examples of how financial innovations either fail or finally become widely adopted by the mainstream banks, for two reasons: either reluctantly, for defensive reasons, to avoid losing clients; or more enthusiastically, because the mainstream recognises how the new product is able to save costs or otherwise increase profits.

²⁴ Coutts Special Letter Book: letter to Samuel Anderson Esq, Edinburgh dated 27 Aug 1817

Exhibit 4.3 – Balance sheets of the 4 Goldsmiths and 4 Discounters in 1796-9



PART II

Bank business model innovation: a taxonomy & typology

Chapter 5. Business model clusters and cognitive frames

1. *The 'Goldsmith' business model*
2. *The 'Discounters' business model*
3. *Balance sheet growth and business model clusters*
4. *Profitability*
5. *The cognitive frames of the business strategy-makers*
6. *Conclusion*

In this chapter I examine signs of clustering by the London banks around two ideal-type business models defined by their balance sheet practices and shaped around a Goldsmith business model (typified by Hoares) and a Discounter business model (typified by Prescotts) in the run up to the Restriction period. I then investigate and compare the individual patterns of growth in the balance sheets and the respective profit and loss experience in the early stages of the Restriction period. In Part IV, Chapter 11 these will form the starting point for our analysis of the impact of the Restriction upon Britain's money supply. I conclude this chapter by inferring the differences in the cognitive framing of strategic decision-makers and postulate similarities to the views of money espoused by contemporary political economists.

I find that London banks followed two different business models with distinct asset strategies and a differentiated degree of involvement with the provision of correspondent banking services to Country banks. The Goldsmith bank bore greater liquidity risk due to the maturity mismatch in its balance sheet, while the Discounter bank took on greater credit risk by lending short-term, mostly unsecured, to a larger number of counterparts, and by being more exposed to potentially rapid changes in the net exposure to bank-like entities in the rest of the country. From the analysis of profitability, I find that in the decade prior to the Restriction the two London banking business models had plausibly settled into an approximate state of equivalence in their net return on assets, with bankers seemingly able to judge the credit and liquidity risks present in their respective operating environment under the gold standard.

This state of affairs was then disrupted by the systemic changes to that environment ushered in by the Restriction. Before 1797, long-run balance sheet change in London appears to have been predominantly cyclical, with little or no net growth except for the growth in deposits flowing down from Scotland. However, the evidence suggests that Goldsmith and Discounters were already subject to different underlying monetary influences within this slow-growing total: by 1795 the Discounter (Prescotts) had caught up with the smallest Goldsmith (Goslings). During the Restriction, banks converged more strongly around the two ‘ideal type’ business models, both in terms of the composition of assets and liabilities and the growth rates in total assets (Chapter 11).

5.1 The ‘Goldsmith’ business model

The “Goldsmith” business model focused on medium-term lending secured on real assets. In contrast to the “Discounter” model (section 5.2 below), the Goldsmith would undertake little or no discounting of unsecured short-dated commercial paper, and have little or no involvement with correspondent banking services to Country banks. The Goldsmith business model is best illustrated by Hoares’ balance sheet because of their unwavering focus on secured lending and their contrasting limited activity in bill discounting. Of the banks with historic goldsmith roots in our sample, Drummonds and Childs most closely followed Hoares’ balance sheet structure on the eve of the Restriction (Exhibit 4.3 above). All three banks were part of the exclusive “£1 million club” having balance sheets that had already surpassed that figure by 1791, the peak in the previous expansionary boom, when Childs and Drummonds were the largest banks, each with approximately £1.4 million balance sheets. All had shrunk below £1 million by 1796, having dipped quite severely during the prior tight monetary conditions. The Goslings balance sheet, although half the size of Drummonds and Childs, closely matched the Goldsmith model in 1796, but followed a somewhat different path both before and after the Restriction.²⁵ Two other banks with goldsmith roots no longer followed the Goldsmith business model by 1796: both Barclays Bevan Tritton and BHHB had become Discounters after the late 1770s.

During the eighteenth-century a number of goldsmiths had made the successful transition to what we would recognise as a bank. This earlier evolution prior to the 1770s – the period

²⁵ Discussed in section 5.5 and also at the end of Chapter 12 in the context of the “crowding out” debate.

before that studied here – is fully recounted in Temin and Voth (2013) *Prometheus Shackled: Goldsmith banks and England's Financial Revolution after 1700*. They estimate that this sector had experienced no new entrants after the 1730s, and regular net exits thereafter, with the result that of the 43 goldsmith “banks” that existed in London in 1700, only nine remained by 1770 (2013: 41, 46). On the evidence shown here, by 1796 at least three of those no longer pursued the undiluted Goldsmith business model (Barclays, BHHB and Coutts). A century earlier the goldsmiths had produced jewellery from bullion, acted as custodians for people’s precious effects, and lent bullion to individuals and to the sovereign. By the 1790s those few that remained had learned how to migrate the business to that of a financial intermediary. At least four of them [those studied here] adopted a conservative balance sheet based on the secured lending model followed by Richard Hoare. “Richard Hoare did not introduce a new spinning device, but he turned a relatively new idea – lending to private individuals financed by deposits – into a successful business” Temin and Voth, 2013: 43). In a touching reminder of their roots, the partners of Child’s in 1770 still reported in the annual summary statement a separate entry for a few hundred pounds of ‘Plate’ – referring to gold and silver artefacts – even when this represented less than 0.05% of the total assets. This nostalgic accounting practice was finally discontinued in 1826.

The Goldsmith bank resembled the image of the bank presented in classical theory: an intermediary collecting real resources from savers (deposits of specie) and on-lending these to those requiring longer-term fixed capital. During the generation preceding the Restriction of 1797, the Goldsmith model consisted of taking deposits from a relatively small circle of aristocrats, landed gentry, high-ranking clergy and wealthy merchants (sometimes in their name, sometimes in the name of their commercial business), and making secured loans to other individuals from the same strata of society. Often clients on either side of the ledgers were Members of Parliament and the cabinet. The Goldsmith banker controlled medium-term credit risk by lending on the collateral of real assets, and managed liquidity risk by maintaining a conservative balance sheet both in terms of loan gearing to cash reserves. On the liability side of the balance sheet, committed and paid-up equity was usually small, no more than 5% of total liabilities. However, partners often supplemented this low capitalisation level with additional deposits (on which interest was paid); and these firms were legally structured as unlimited partnerships, so the notional equity-at-risk for each partner was the partners’ entire wealth.

Three aspects of the Goldsmith business model most distinguished it from that of the Discounter: the Goldsmith mostly shunned the discounting of short-term commercial paper; undertook little correspondent banking with Country banks; and during the Restriction much of the growth in liabilities was deployed into government securities. What distinguished the ideal-type Goldsmith business model was the near complete absence on the asset side of the balance sheet of the discounting of bills of exchange. Similarly, overdrafts were discouraged and often consisted mainly of allowing the partners to draw in anticipation of the annual dividend. By the eve of the Restriction in 1796, for banks following the Goldsmith model, bill discounting had typically shrunk to an even lower relative importance than two decades earlier. For Hoares it was a negligible 1% of total assets²⁶ and Goslings had already reversed its experiment with greater bill discounting. The Goldsmith banker viewed the growing activity in the discounting of bills of exchange as somehow unsafe, and perhaps only for brokers and upstarts. In particular it was the short-term nature of such lending that was viewed as inappropriate, combined with its unsecured nature. Although bills might have passed through many hands, acquiring along the way an expanding list of signatories that were joint and severally liable for its repayment, these bills were not secured (on a senior basis) on real assets in the manner to which the Goldsmith banker had been accustomed to lend. This attitude is epitomized by Thomas Coutts – whose core activity, undertaken as principal rather than agent was akin to the Goldsmith model (Chapter 6) – when writing to the “young and rising” person of William Gilpin on the 6th Oct 1810, when he says:

“... with respect to my House [i.e. Coutts bank] I have never wished to consent to their making any permanent Loan but on proper Security such at least as ultimately must render it perfectly safe independent of the success or fortune of the individual borrower. In temporary Loans for short times, They [i.e. the Discounter banks] have frequently advanced on Bills by discounting them and even upon the Notes at hand of the party as we have done for you – the last is a practice we do not much approve and never wish to see too often resorted to – desirous of all times that as Bankers the inclination we always feel to oblige should not induce us to go beyond the prescribed rules – experience has shown us is so necessary to be observed.”²⁷

²⁶ To be visible, the placeholder appears somewhat exaggerated in the chart in Exhibit 4.3.

²⁷ Coutts Special Letter Book: letter addressed to William Gilpin Esq. dated 6 Oct 1810.

The Goldsmith's gearing was very low by modern standards, although not quite the simple purveyor of safe-deposit boxes recommended by Hume in 1750s (which would have required a gearing of 1:1). Total lending was typically no more than 2 to 2.5 times the cash reserve. What direct lending did take place was secured on collateral. Mortgages would account for the bulk of total secured lending, mostly secured on private houses and landed estates. Lending on traded securities – almost exclusively consisting of government securities – accounted for perhaps one tenth. This type of lending – which today we might call 'lombard loans' – should not be confused with lending on 'personal securities', a term used by some banks at that time to refer to a third form of secured lending guaranteed by personal bonds, sometimes provided by third parties such as a relative, and which had the effect of raising the bank's claim to that of senior debt. When lending was secured on (government) securities, the borrower (or guarantor) was required to issue a power of attorney in favour of the bank allowing it to sell the securities in the event of non-payment (or the market value falling below the amount of the debt outstanding).

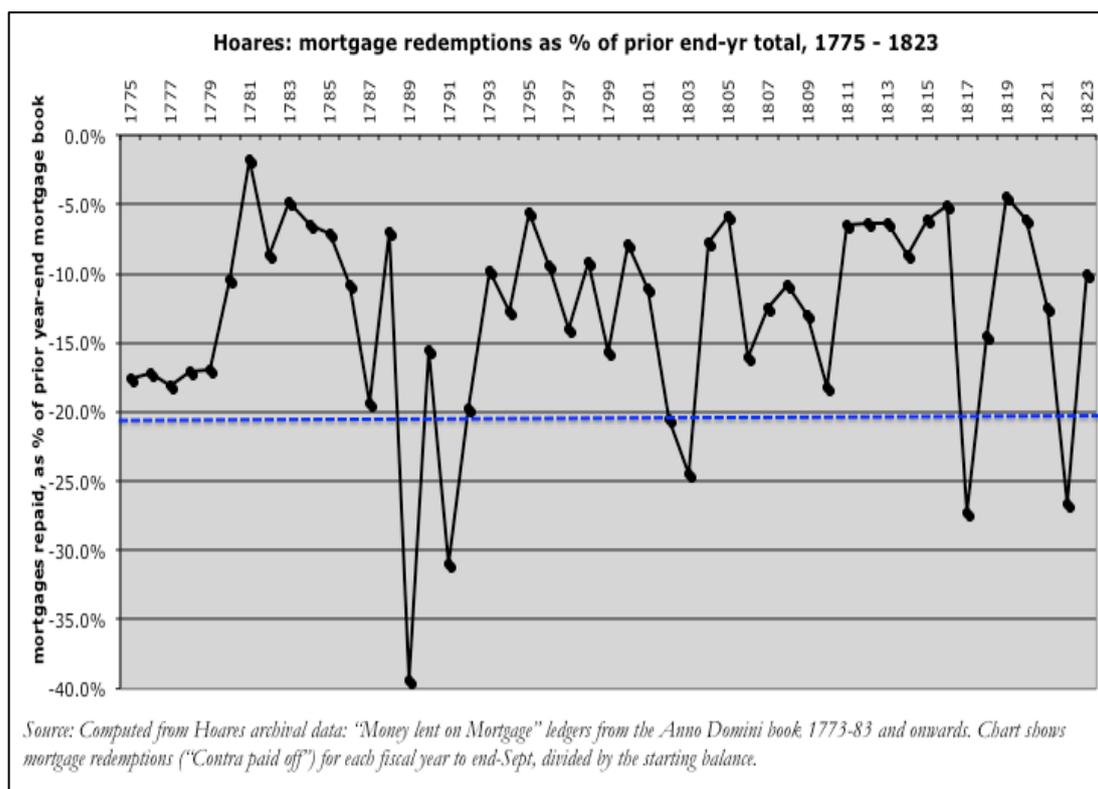
Importantly, the turnover in mortgage lending would be small. Taking Hoares as example, usually 7% to 20% of the mortgage balances at the start of the year would be repaid during the following twelve months. During the 50 years studied, in only five years did mortgage redemptions exceed 20% of the previous year-end balance, while in 22 of those years they were less than 10%; the average turnover was 13% and declining over time (Exhibit 5.1). This average turnover is composed of two types of mortgage loans: firstly, larger loans made to quality (noble) borrowers who were impeccable in their regular payment of the contractual interest, and were therefore allowed to keep their mortgage loan outstanding for many years, sometimes decades; secondly, smaller loans that would remain on the books for just one or two years.

For example, Hoare's lent £20,000 on mortgage to the Duke of Northumberland in 1794 at the rate of 4%, payable semi-annually.²⁸ The rate was particularly favourable, being 1% below the maximum allowed under the cap of 5% imposed by the usury laws, *and* below the average yield on government bonds (4.5%) of that same year. Perhaps as a result, the Duke always paid on time; and so the rate was lowered to a most favourable 3.6% in April 1804 at a time when the market base rate was still 5% (Bank of England, 2016) and average

²⁸ Hoares Anno Domini book 1794-1805 (p.141) and then onwards, following the client's account through subsequent books.

government bond yields were even higher at 5.3% (Mitchell and Deane, 1962: 455). The interest rate was eventually raised back to 4% in October 1816. Once the 1825 crisis had passed, during 1827-8 a further £53,000 was lent on bond to the Duke; this was done using three tranches that would be familiar to a modern banker: the blended rate was still 4%, but the smallest tranche of £13,000 carried a higher rate of 4.86% and was, not surprisingly, repaid within a year. The remaining total loan of £50,000 was still on Hoare's books in 1843, fifty years after the lending relationship first began.

Exhibit 5.1 – The turnover in Hoare's mortgage book, 1775-1823



In summary, we can describe the asset composition of the ideal-type Goldsmith model as consisting of secured loans accounting for 50-60%, with the rest being made up of holdings of tradable securities (15-20%) and cash reserves (25-35%), plus a small residue of overdrafts and bills discounted accounting for 10% or less. For our purposes, the only two slight differences in the balance sheets of the Goldsmith banks were that Childs and Drummonds ran somewhat higher cash reserve ratios than Hoares, and that Childs does not record any bill discounting at all. Childs also held the highest cash reserves (35-45%). Securities holdings in the Goldsmith model would consist mostly of short-dated Exchequer bills – or their undated and higher-yielding equivalent, namely Navy and Ordinance bills

issued directly by one of the governmental agencies. There were also holdings in some longer-term government bonds (usually perpetual, irredeemable annuities called 'Consols').

5.2 The 'Discounter' business model

The alternative 'Discounter' business model focused on discounting various forms of short-dated commercial paper. In contrast to the Goldsmith's focus on medium-term secured lending, the Discounter lent on an unsecured basis, over shorter periods, by buying at a discount to their face value various bills of exchange and promissory notes prior to their final maturity date, which would be mostly within one to three months, but occasionally up to six months hence [Exhibit 5.2]. Many of these paper IOUs were sent from the rest of Great Britain for settlement in London. Hence, the Discounter was more connected to the network of Country banks compared to the Goldsmiths' little or no involvement with the Country banks. The Discounter provided the Country banks with correspondent banking services, and its funding typically evidenced a greater reliance on inter-bank wholesale deposits stemming from those correspondent banks being required to maintain a positive net balance with the London bank. Consequently, the Discounter intermediated financial flows that were different from those to which the Goldsmith was exposed: more wholesale banking, more driven by trade and commerce, and more geographically dispersed. It should be expected, therefore, that the two business models would experience differently the changes brought about by the Restriction.

Prescotts best evidences the Discounter's typical asset-side balance sheet. Prescotts' business was as single-mindedly dedicated to the discounting of bills of exchange and promissory notes, as Hoares was to secured medium-term lending. Exhibit 4.3 above compared and contrasts Hoares' Goldsmith balance sheet with Prescotts' Discounter balance sheet, both for 1796. On the asset side of the balance sheet, the Discounter business model was the opposite of the Goldsmith model. Two-thirds of the balance sheet of the ideal-type Discounter was tied up in bills discounted and an additional 5% was accounted for by overdrafts²⁹, the latter mostly generated by its correspondents. The rest

²⁹ There was also a small 'sundry ledger' the contents of which is not visible in the Prescott records and may have contained some (government) securities, but more likely represented overdrafts granted to correspondents and partners. This 'sundry ledger' was immaterial in the early 1780s but had grown to account for 5-10% of the balance sheet on the eve of the Restriction.

was mostly cash held in reserve, typically lower than that of the Goldsmith and accounting for 15% - 25% of total assets.

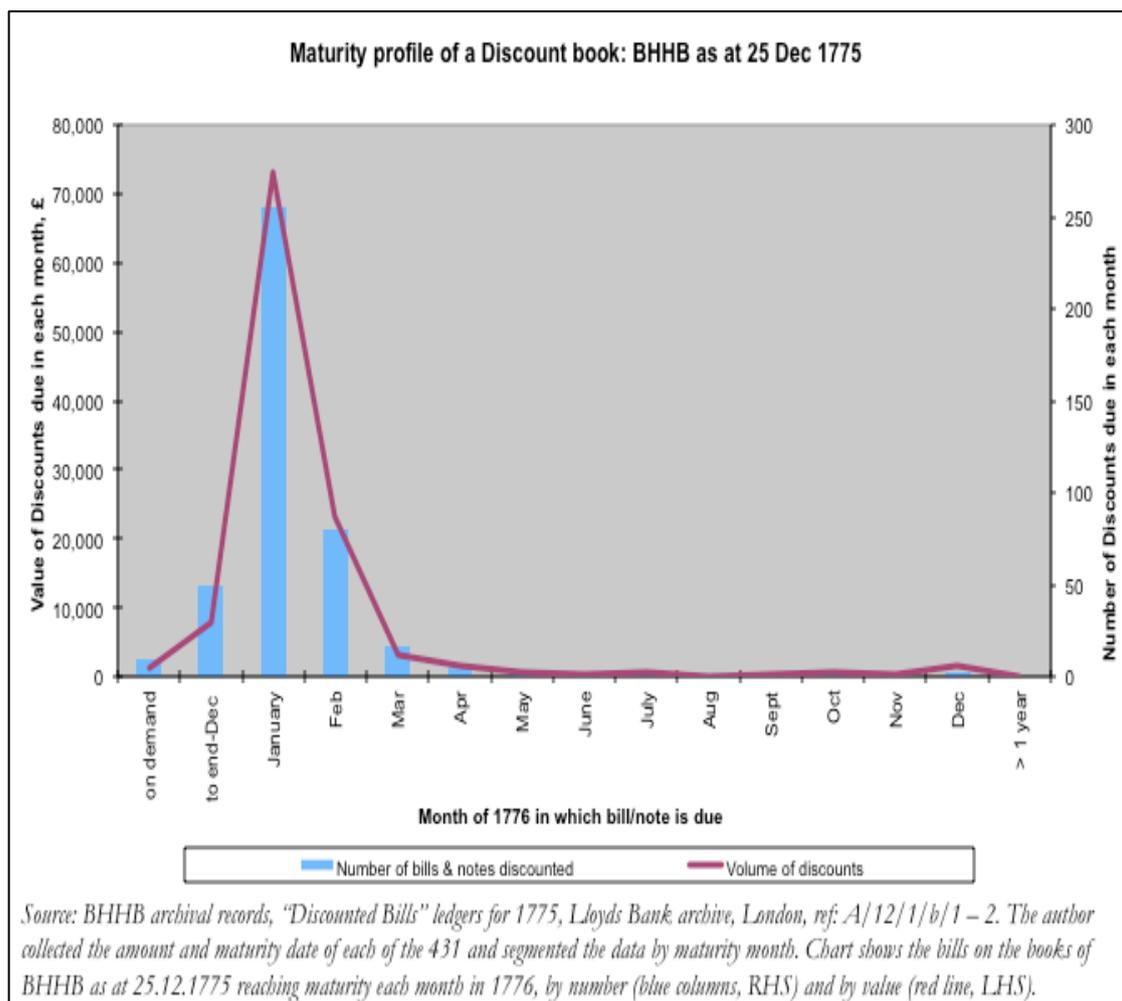
On the liability side of our ideal-type Discounter, the balance sheet was driven by the ability to grow its deposits, similarly to the Goldsmith model, but with the difference that the Discounter had a larger part of its liabilities composed of wholesale deposits. The Discounter model relied more on a correspondent banking structure for sourcing its deposits, whereby Country banks would agree to maintain a certain level of (minimum) deposit balances in order to finance the London bank's ready purchases of bills and payment of drafts drawn on it by the Country bank's clients. In principle a Discounter could expand its balance sheet faster than the average London bank by adding correspondent banking relationships with more Country Banks, or because the balance sheets of its Country correspondents were growing faster than London balance sheets. Unlike London banks, even before the Restriction, a Country bank was allowed to issue its own banknotes and hence, within the contingent limits imposed by convertibility, it could 'manufacture' its own balance sheet growth independently of the growth of its deposits. A Country bank with a sound reputation and operating in a prospering region with an expanding loan demand could meet that demand by growing its banknote issuance, thereby creating a greater flow of bills and notes presented for discount at the offices of its London correspondent. If the latter chose to meet that greater flow and/or was able to easily re-discount those bills and notes within the London money market, that London Discounter could grow faster than the average deposit base – a process best typified by the dramatic influence the Bank of Scotland's correspondent business had on Coutts' balance sheet (Chapter 6). All this means we should expect the total balance sheet (assets and liabilities) of any single Discounter to be more correlated to the state of business in the regional economy where its correspondent banks were located, and less correlated to the average deposit growth of all London banks. We would also expect the Discounters as a group to be more correlated to nominal and real GDP – which is indeed what we find in section 5.3 below.

Prescott's business model was one followed to different degrees by banks that were set up in the later part of the eighteenth-century, in contrast to the older goldsmith banks, or by banks that had recently undergone a significant change in the ownership structure and in the families involved. Furthermore, it appears that the younger a bank was, the more it adopted a lower-risk version of the Discounter model, holding less bills and more

government securities, indicating that the Discounter model was perceived by bankers at the time as newer, less tested, and therefore riskier. This dichotomy in the services provided by the two ideal-types of banks, and the cognitive image of Discounting as a business conducted by the younger upstarts, was to endure well beyond the Restriction period. As late as 1833 Coutts bank, under pressure from the Bank of Scotland to pay better interest rates on idle balances sitting on its account at Coutts, proposes to act as the Scottish bank's agent in setting up a relationship with Smith, Payne & Co, a full blooded Discounter (Chapter 7) where it could employ that idle cash more remuneratively. Coutts justify themselves by explaining that: "Houses in the City have greater facilities in knowing when the common Transactions of the Country afford openness for discounts and short Loans, than the established Houses at this end of Town."³⁰ Although no doubt partly prompted by marketing considerations, it is nevertheless remarkable that in 1833 Coutts directors still referred to Smith, Payne & Co as a somehow inferior bank, despite it having been formed in 1758, merely because it focused on discounting (Country) bills – in the same way it had done in the letter to Mr. Gilpin in 1810 (p. 121 above).

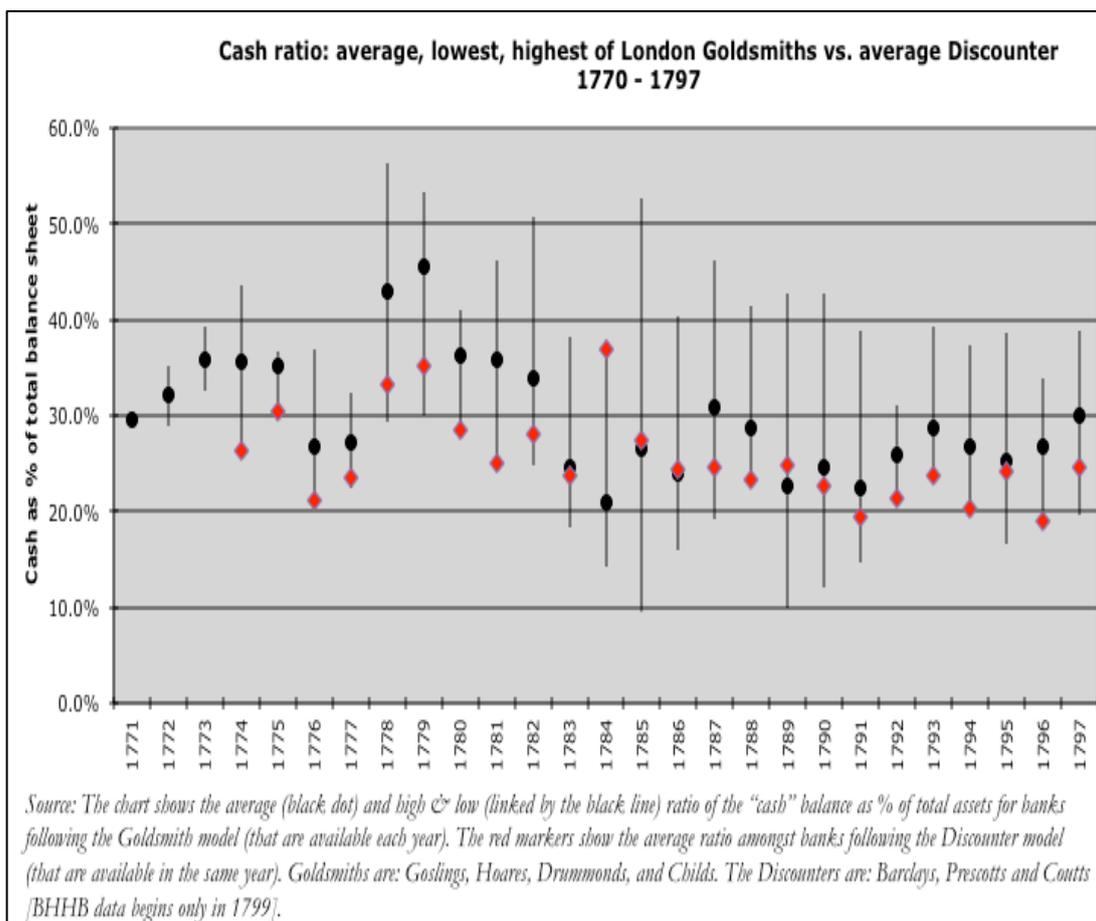
The Discounter took *greater credit risk* than the Goldsmith because its lending was unsecured and involved a wider set of borrowers which engendered higher information costs in order to continuously assess their respective creditworthiness. In contrast, the Discounter took less *liquidity risk* because its assets were mostly short-dated bills and notes, the majority of which reached their due date within the following month. In a typical example, on Christmas day 1775 the discount book of BHHB consisted of 431 separate bills and notes with a median value of £125 and totalling £114,776: of that volume, 1% was on demand, 7% was due in the final week of the year, and 64% were due by the end of January (Exhibit 5.2). This meant that in the hypothetical case that BHHB stopped discounting that same day, over the following five weeks 72% of its discount book would roll off and be paid up in cash, at no loss of interest income. With the typical Discounter employing at least 60% of its balance sheets in discounts, this would mean that over 40% of the balance sheet could be turned into cash within five weeks. Adding this to the typical cash reserves of 20% of total assets, this means that at least 60% of the balance sheet of Discounters was essentially 'liquid'. This was a liquidity profile that was quite different from that of the Goldsmith, where some 60% of the assets would be illiquid over a *12-month* horizon.

³⁰ Coutts Special letter Book: letter to Archibald Bennet at the Bank of Scotland dated 11 July 1833

Exhibit 5.2 – Maturity profile of a Discounter’s discount book, Dec 1775

The Discounter’s balance sheet was intrinsically more liquid: it could be more easily turned into ready cash simply by cutting back on the daily volume of bills accepted for discount whilst allowing those previously discounted to mature. We should therefore expect the typical Discounter to hold lower average cash reserves, and this is indeed what we observe. In almost every year from 1774 until the Restriction Act, the average percentage cash reserve held by the Discounters in our sample was lower than the average percentage held by the Goldsmith banks in our sample (Exhibit 5.3). In most years the cash reserve ratio of the *average* Discounter was at, or near the *lowest* reserve ratio observed amongst the Goldsmiths.

Exhibit 5.3 – Cash reserves of Discounters and Goldsmiths compared, before the Restriction, 1771 - 1797



The outlier is 1784, which appears to be an outlier caused by an exceptionally high level of cash recorded at year-end by both Coutts (44% of total assets) and Barclays (40.6%), but not Prescotts (26.1%). Coutts is an outlier because its cash ratio was 10% the previous year, 20% the following year, and averaged 21% for the 25 years prior to the Restriction; and never exceed 32% during that time except in 1784. The aberration that year appears to have resulted from a particular confluence in the timing of repayments on its loans secured on pledges; important liquidation of securities; and an increase in paid-up capital – all occurring near the 1784 fiscal year-end. The most likely *cause* was the large rise in bond yields. That year government bond yields averaged 5.4%, the highest seen since the early eighteenth-century and a level not seen again until World War 1 (Mitchell and Deane, 1962: 455), which would have pushed banks holding such medium-term securities to sell them and hold more cash instead. The hypothesis is supported by Barclays selling down nearly £40,000 of Bank [of England] stock that it had bought the previous year, equivalent to 17% of its total

assets; this was unusually large sale, as in no other year during 1780-1822 did Barclays change its non-government securities holdings by more 9% of total assets, and changes were usually in the range of 0% to 3% of total assets equivalent. The hypothesis is also supported by the fact that we do not see the same change in Prescotts, which did not hold medium-term securities.

We can attribute the greater liquidity of the Discounter's balance sheet merely to the shorter average maturity profile of its assets, even before we consider the additional option available to the Discounter of seeking to re-discount some of its holdings with the Bank of England. Before the Restriction, the Bank's discount window was not large and only a small portion of the London bank's holdings would have been of sufficient perceived quality to be eligible for discount at the Bank.³¹ As scholars of the Bank of England have long pointed out, at the time the Bank had no formal role as lender of last resort and was often criticised for operating solely as a privately owned commercial enterprise. Furthermore, given the Bank's obligation to redeem its banknotes into specie upon demand, its ability to expand the volume of discounts (both of private and public sector paper) was constrained. That the Bank did not see its role as lender of last resort is indicated in a letter dated 28th February 1797, at the peak of the liquidity shortages. Sent from a partner at Hoares to Richard Stone, almost certainly one of the partners the substantial London bank, Stone & Co, in reply to what must have been a request for assistance, the letter states:

“Your Letter gives me real concern and the more so as I fear it is not in my power to extricate you from the difficulty under which you labour, there is nothing that I would not do within my Compass to effect, for your House, who are all of them my old & particular Friends [...] probably arose from our having lately had a much larger Demand for Gold than usual, consequently were obliged to replenish more frequently [...] The Demand is now so great from all [Quarters] that it is impossible to calculate what Inventions People will have recourse to for procuring small Sums the effect of which we feel already and upon an application made by our House this Day to the Bank, requesting to know whether under the existing Circumstances they were authorised to assist Bankers with a Sum sufficient to pay the necessary Fractions, *they answered certainly not*, nor did they know when, if ever, they should be permitted to supply it as heretofore.”³² [*my italics*]

³¹ This triage process is reminiscent of central bank asset purchase programmes undertaken since the most recent financial crisis of 2008.

³² Hoares Private Letter Book 1795-1815, pp. 76-7: letter to R. Stone, dated 28th Feb 1797

Hence, prior to the Restriction period, we would expect the Bank's discounting (as a source of liquidity) to have been a less important influence in the Discounter's decisions on how to manage the liquidity risk of his bank, and to view the Bank of England at best as a contingent backstop in case of an emergency. This would change radically after 1797 (Chapter 11).

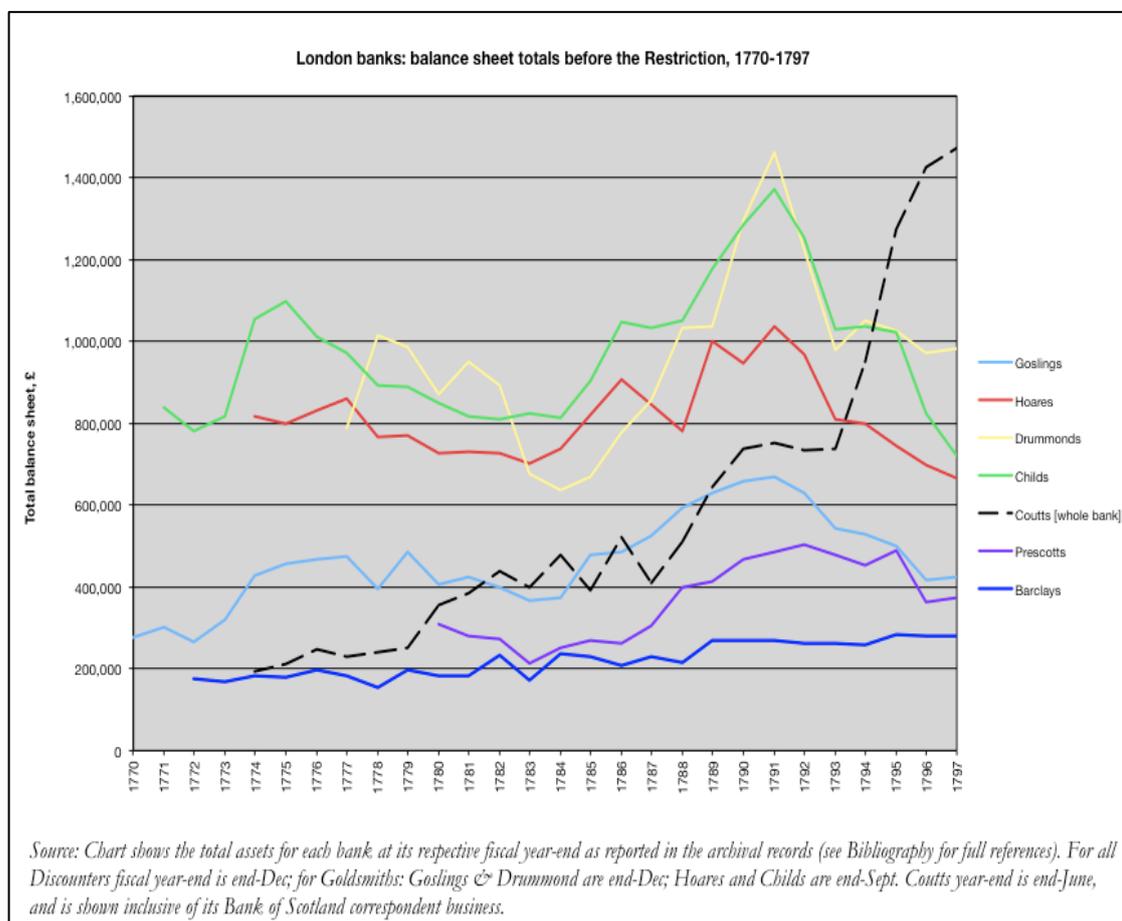
What we observe is that, in respect to private sector discounts, before the Restriction the Bank of England's balance sheet moved in a way that was the contrary of what would have been expected from a bank assuming the role of lender of last resort. The Bank tended to have raised levels of discounting in the same years that the Discounters had high cash reserves, and vice versa: between 1778 and 1797, I find a 25% positive correlation between the proportion of the Bank of England's assets employed in discounting private sector paper and the average cash reserves held by Discounters (also as a percentage of total assets). The implication is that the Bank of England reacted independently to what it perceived as opportunities to safely and profitably increase its discounting activity in certain years, and this would leave less paper to be held by the rest of the London market, leaving Discounters with cash unemployed and the percentage of their cash reserves to rise.

5.3 Balance sheet growth and business model clusters

In the decade prior to the Restriction of 1797, London bank balance sheet totals on aggregate were growing at 2.1% per annum, in line with that of the Bank of England (1.8% p.a.) and no more than keeping pace with the growth of real GDP (1.9% p.a.) (Exhibit 5.5). However, analysis of Coutts' balance sheet shows that most of this growth in deposits was attributable to the growth in net inter-bank deposits flowing down from Scotland, which at the time was experiencing better economic conditions than England. The latter makes a significant difference to aggregate London deposits, and is discussed in depth in Chapter 6. All this would change after the gold standard was suspended: for the next fifteen years until 1811, during the phase of the Bank of England's expansion of its discounting of private sector bills and notes (Chapter 10), the London bank balance sheets grew more than twice as fast (3.9% p.a.) and, unsurprisingly, all the Discounters (this time, with the exception of

Coutts) grew faster than the Goldsmiths. Individual bank growth rates, having been highly idiosyncratic before the Restriction, subsequently converged.

Exhibit 5.4 – London banks: balance sheet totals before the Restriction, 1770-1797



Prior to the Restriction, the four Goldsmith banks dominated by balance sheet size, but their total deposits had barely grown (0.6% p.a. between 1786 and 1797), if judged by this sample of banks (Exhibit 5.4). All four Goldsmiths (Hoares', Childs', Goslings', Drummonds') had balance sheets in 1797 that were no larger than twenty years previously. An earlier period of expansion in the 1780s was completely reversed during the troubled years of the 1790s. By contrast, the Discounter (Prescott's) did a little better, being smaller and younger. The reversal in the balance sheet expansion observable across all banks after the 1791 crisis unravels with a different pattern in our model Discounter (Prescotts) when compared to that of our model Goldsmith (Hoares) as a result of the numerous succession issues described above. The only exception was Coutts, whose balance sheet shows no cyclical decline in either the 1770s or the 1790s. Coutts' balance sheet was responding to the

Bank of Scotland moving its large correspondent banking business from other London banks towards Coutts, and this was occurring after the 1772 Ayr Bank crisis described by Smith, when Scotland's economy was experiencing more favourable economic growth and a greater expansion of credit funded by a greater circulation of paper banknotes compared to England (Chapter 6). If we include Coutts' business with the Bank of Scotland, then the hybrid-model Coutts had overtaken all banks by 1795.

Prior to the Restriction, money was mostly specie, and deposits of it would have seemed mostly cyclical around a slow-growing long-run trend (probably perceived as related to Britain's status in international trade). As a result, bankers appear to have acted mostly as reluctant lenders. The large archival evidence of daily correspondence books of Hoares, Childs, and Barclays Bevan Triton are a testimony to how bankers saw the extending of credit as a sellers' market: demand exceeded supply. They saw as their chief task that of prudently lending out these deposits on good security or by discounting quality bills at interest rates that exceeded their (marginal) costs of funds. These books show them regularly resisting requests for new loans; verifying the quality of the references received on individuals to whom they did lend; devising ever more elaborate ways to rein in the spendthrift or disingenuous nobility who were late with their repayments; or finally attempting to secure title and control over the collateral of bankrupt borrowers through the courts. One of the many typical examples from Hoares' Letter Book reads as follows:

“We have received the Honour of your Lordship's letter and lament exceedingly the Impossibility of complying with your Request, but your Lordship must be sensible that we have hitherto exceeded the Rules of Business by the payment of your Annuities in Advance which we must trust will prove the Attention we have wished to shew to your Lordship's Accommodation. Your Lordship's account is now overdrawn six hundred and one Pound 8[s.] 4[d], the replacing of which will much oblige.”³³

An example from Childs' Letter Book of what might be called a 'final request' letter to a Mr. John Marriot, resident at Braintree, shows how the language could be less deferential to non-aristocrats:

³³ Hoares Private Letter Book 1795-1815 [p.52]: letter addressed to Lord Arundell, dated 4th June 1795

“ Sir, We gave you notice to pay off the principal due to us on mortgage (being 7,000) the 26 June 1795 not hearing from you since that further on the subject we must desire the principal & interest due thereon be paid us on the 17th May next and in failure thereof we must take such steps to compel the payment as will be very disagreeable to you as to [us].”³⁴ [A note to the letter specifies that the interest due is £350, corresponding to the usury cap of 5% p.a.].

London banks, especially Goldsmiths, did not pay interest on private deposits, suggesting that clients saw sufficient value creation in the banks’ services of safekeeping and paying agent for the settlement of bills. With usury laws capping loan interest at 5%, the banks – and Goldsmiths in particular - were dependent on such ‘idle balances’ for their profitability. The marginal cost of raising additional funds - by discounting bills in the wholesale market or selling down their stock of government bills and bonds – would frequently exceed 5%. Hence the bank-client relationship entailed an assumption that even an aristocratic client who borrowed from the bank (for longer periods, on mortgage) would run his idle ‘everyday’ balances through the same bank, in the same way as was expected from Country banks and made more explicit in the bank-to-bank agreements (Chapter 6). A letter from Childs to the Duke of Portland makes this clear:

“Sir, As His Grace the Duke of Portland withdrew the management of his money affairs from our House without discharging the two sums of £8300 & £7700 due to us on Mortgage, we feel it necessary to apprise His Grace and His Trustees through your means that we expect the Principal & Interest due on those two Mortgages to be repaid at the Expiration of six months from this date.”³⁵

This delicate balancing act became an acute challenge at times of monetary stringency. A letter from Childs to a Mr. George Beauchamp, resident at Thetford, explains the bankers’ awareness of the government bill rate as the effective ‘shadow cost of funds’: if a (Goldsmith) bank misjudged the natural flow of deposit withdrawals and loan redemptions, e.g. because clients loans became overdue (i.e. the water level of its Smithian ‘pond’ began to fall), it would be forced to raise funds by selling its government securities, and hence

³⁴ Childs Letter Book 1762-1835: letter dated 21st March 1796 [RBS Archive ref: CH/229]

³⁵ Childs Letter Book 1762-1835: letter dated 15th August 1796 to John Heaton (trustee) [RBS Archive ref: CH/229]. Navy Bills were undated bills issued by the relevant government war department, but traded as short-term securities.

their market yield was the bank's effective marginal cost of funding. At times of monetary stringency, this placed the bank in the same situation as its clients to whom it had extended such 'lombard loans'. The letter shows bankers were sensitive to exercising their right to sell the collateral lodged by clients, as this would similarly force clients to crystallize unrealised losses on their bond portfolio:

“Sir, Mr. Walker some days since informed us of your wish to borrow a further sum of £1,000. When the former sum [£2,000 – see below] was lent it was on a transfer [to the bank's collateral account] of Stock [government bonds] & on condition it should be repaid by sale of that Stock at the expiration of three months. For a considerable time past we have lent no Money for a Longer time than three months & and then on the transfer of Government Securities with an order for sale at the expiration of that period – Bankers can have no Money to lend in the present unpleasant situation of public affairs. Navy Bills now afford a purchaser from 8 to 9 per Cent Int[erest] & you will readily believe they cannot with propriety sell Government Securities at a great discount to lend the produce at 5 per Cent. Your trustees I understand are enabled to satisfy you with £5,000, you will therefore allow us to request you will apply to them for the assistance you want on your own account as well as to discharge the £2,000 due to us. We have an order, you will recollect to sell Stock for that purpose, under the idea of its being repaid before this time[;] we have hitherto declined selling it.”³⁶

In the decade before the Restriction, although growth in the London bank balance sheets appears initially to demonstrate a common cyclical pattern, individual bank growth rates showed large idiosyncratic differences in both the long-run compound growth rate and the year-by-year growth rates (Exhibit 5.5). The variance between bank growth rates was ten times greater than what it was subsequently during the Restriction: it falls from 0.20% to 0.02%. Such bank-specific differences in balance sheet growth are to be expected under the gold standard regime prevailing before 1797 under which any expansion in the monetary base formed of Bank of England banknotes had been small (see Introduction) and banks competed for a sum of deposits that appears to have grown in line with real GDP (both 1.7% p.a.). In the first fifteen years after the Restriction Act, the total London bank deposits of our sample grew more than twice as fast (3.9% p.a.) and *two-and-half times faster than real GDP* (1.5% p.a.) – see Exhibit 5.5.

³⁶ Childs Letter Book 1762-1835: letter dated 15th March 1796 [archive ref: CH/229].

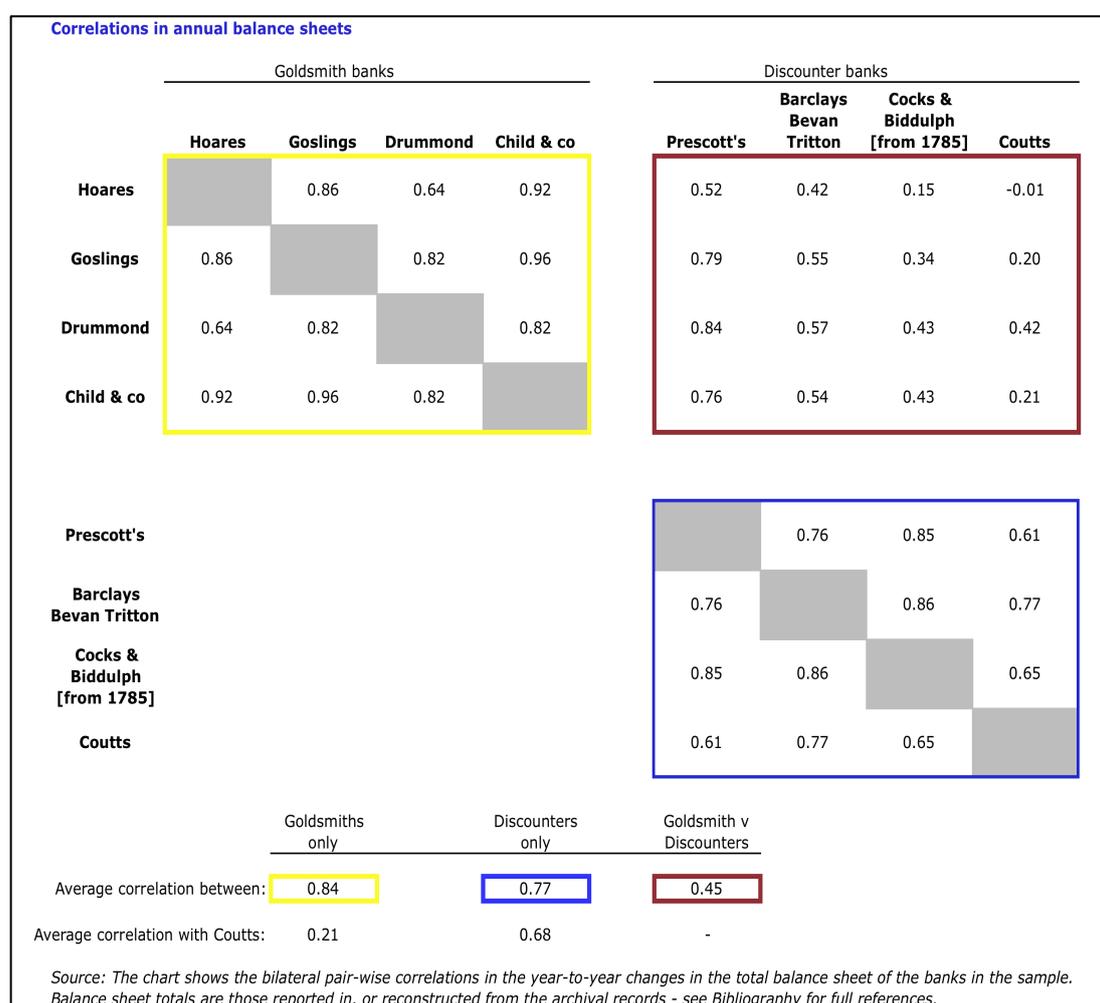
Exhibit 5.5 – Bank balance sheet growth rates, by business model ideal-type, before the Restriction Act, and for the period thereafter coinciding with the expansion in Bank of England's discounting.

Compound annual growth rates of the bank's balance sheet total - by type of business	<i>decade prior to the Restriction 1786-1797</i>	<i>during main expansion of BoE discounting 1796-1811</i>
Bank of England	1.8%	5.0%
	<i>average</i>	<i>average</i>
<u>Discounters</u>		
Barclays Bevan Tritton	1.8%	7.4%
Prescott & Co	3.3%	5.9%
Herries Farquhar <i>from 1799</i>		4.5%
Barnett, Hill & Barnett		4.2%
Smith Payne & Smith <i>1797-1813</i>		3.6%
Ranson Bouviere <i>from 1796</i>		3.5%
Coutts & Co [whole bank] <i>from 1798</i>	11.0%	3.0%
	5.4%	4.6%
<u>Goldsmiths</u>		
Hoares & Co	-2.8%	3.2%
Coutts & Co [ex-Bk of Scot.]	5.7%	3.1%
Goslings & Co	-1.2%	2.9%
Child & Co	-3.3%	2.4%
Cocks & Biddulph	2.3%	
Drummond & Co	2.1%	2.2%
	-0.6% (*)	2.7% (*)
average, all London banks	1.7%	3.9%
variance	0.20%	0.02%
GDP - real	1.7%	1.5%
GDP - nominal	3.1%	3.2%

Source: Bank balance sheet totals are those reported in the respective archival records, or reconstructed by the author from the same - see Bibliography for full references. Bank of England balance sheet totals were derived from Mitchell and Deane (1962:442). GDP growth rates were derived from Broadberry, S. et al. (2015). () Averages include Coutts as whole bank and exclude Coutts ex-BoS*

Unable to issue banknotes, London banks could not ‘manufacture’ balance sheet growth like modern banks, but had to rely on growing their share of a slow-growing total deposit base. For Discounters with active correspondent banking services, growth of their deposits was significantly affected by the ebbs and flows of activity of individual Country banks for which each London bank happened to act as correspondent. These ebbs and flows would reflect the relative fortunes of the different economic regions where each London bank’s correspondents happened to be located, and their different industries – most notably in the case of Coutts and its large exposure to Scotland’s growing industrial economy.

Exhibit 5.6 – Annual balance sheet growth patterns and the business model clusters



Despite these idiosyncratic differences, if we take the additional step of dividing the banks into two groups based on their predominant business model, the evidence points to the younger Discounters already showing greater buoyancy than the group of Goldsmith banks prior to the Restriction.

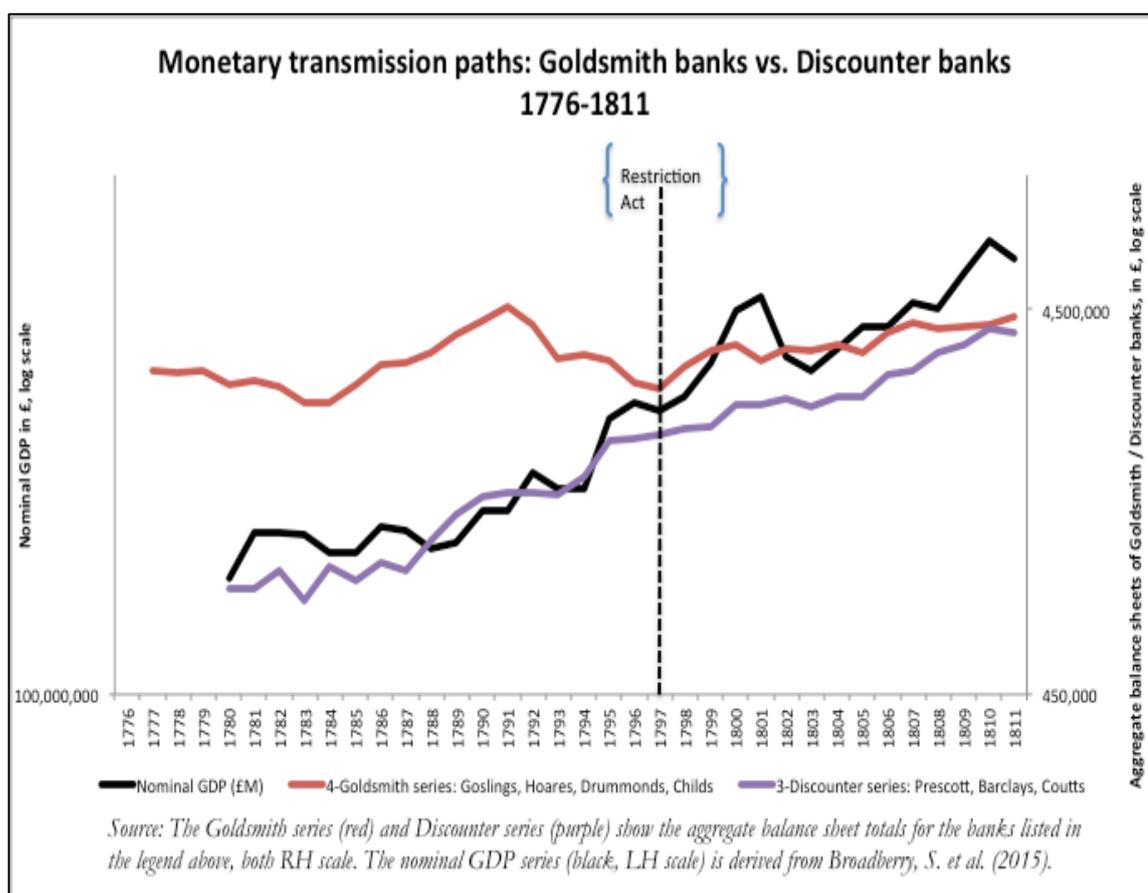
Between 1786 and 1797, for the Discounters for which we have records, Barclays (1.8% p.a.), Prescott's (3.3% p.a.), as well as our hybrid Coutts, with its Bank of Scotland correspondent business included (11.0% p.a.), all matched or exceeded the Bank of England growth rate (1.8% p.a.). By comparison, the three most established Goldsmith banks of Hoares' (-2.8% p.a.), Child's (-3.3% p.a.) and Goslings (-1.2% p.a.) all experienced shrinking balance sheets during that decade. Only Drummonds (2.1% p.a.) and Cocks & Biddulph (2.3% p.a.) showed balance sheet growth. After the Restriction Act came into force, growing the deposit base came to mean different things to the Goldsmith and the Discounter. During the period of rapid expansion in the Bank of England's discounting of private sector paper, the Discounter gained additional tools for responding to changes in the demand for money (Chapter 11 and 12), resulting in the Discounters growing on average at the same rate (4.7% p.a.) as the Bank (5.0%), while the Goldsmiths on average managed little more than half that rate (2.7%).

When viewed in the aggregate, these ebbs and flows of Country bank paper flowing into the London money market, to be discounted or simply settled, created strong enough forces to generate differences in the yearly growth patterns of the Discounters and the Goldsmiths respectively. Already before the Restriction the idiosyncratic differences point to a clustering around the two ideal-type business models, and this is confirmed by the correlation analysis shown in Exhibit 5.6 above. Between 1780 and 1796 the average correlation in the yearly changes in the balance sheets of just the Goldsmiths and just the Discounters was 0.84 and 0.77 respectively, while the average correlation between Goldsmiths and Discounters was only 0.45. On this evidence, Coutts is confirmed as belonging to the cluster of banks behaving most like the ideal-type Discounter model: its yearly balance sheet changes are three times more strongly correlated with other Discounters (0.68) than with the Goldsmiths (0.21).

If the higher average growth rate of the Discounters' balance sheets, and their clustering around a similar pattern of year-on-year changes, was due to their stronger and more direct links with the note-issuing Country banks, then we would expect Discounter balance sheets to be more highly correlated to monetary conditions in the rest of the Country, and hence to the year-on-year changes in nominal GDP. During the gold standard period of the eighteenth-century, there had been little noticeable difference in the medium term growth path of nominal and real GDP (see Introduction), and even the Bullionists believed that the

Real Bills Doctrine was a somewhat effective constraint on Country bank note issuance under a regime where banknotes were convertible back to specie. Hence, if Country assets - bank lending and balances with London – had already found *some* capacity to grow faster than the stock of specie thanks to their ability to ‘manufacture’ new paper money, then prior to 1797 we would expect the year-on-year growth in those assets to be dependent on the year-to-year growth of nominal GDP; and hence for the year-on-year changes in Discounters’ balance sheets to be more highly correlated to year-on-year changes in nominal GDP.

Exhibit 5.7 – London Bank liabilities and nominal GDP: Goldsmiths vs. Discounters,
1776-1811



Consistent with this hypothesis, prior to the Restriction the ebbs and flows from the Country banks into London caused the balance sheets of the Discounters to be (on average) six times more highly correlated with nominal GDP (0.68) compared to the balance sheets of the Goldsmiths (0.11). Exhibit 5.7 shows how, prior to 1797, the 3-Discounter balance sheet total traced out the growth in nominal GDP in ways that the 4-Goldsmith series

clearly did not. This result strengthens the support for the existence of two separate business model clusters, and that already before 1797 the flows of specie and the flows of paper-based quasi-money instruments has begun to follow different monetary pathways and were subject to different velocity characteristics.

5.4 Profitability

In this section I investigate and compare the profit and loss account of the ideal-type Goldsmith business model (using Hoares) and the ideal-type Discounter business model (using Prescott) in the run up to and during the Restriction. Understanding the profit dynamic of the two business models helps to investigate the relative incentives that London banks had to act the way they did during the Restriction (Chapter 11).

I find that, prior to the Restriction, the London banking business had plausibly settled into an approximate state of equivalence in the net return on assets between the two business models. After the initial marketplace disruption caused by the entry of numerous Discounters during the 1770s and 1780s, London bank numbers had stabilized at around 70 banks, and bankers had seemingly learnt to judge the credit and liquidity risks present in their respective business models when operating under the gold standard. The Goldsmith typically held higher non-interest bearing cash reserves to manage the liquidity risk; the Discounter typically held lower cash reserves, but invested part of the interest-bearing assets in government securities in order to reduce the credit risk, and was more likely to reserve a portion of annual profits against unexpected future losses. It is therefore possible to argue that bankers, whichever of the two business models they pursued, actively calibrated their balance sheet strategies in order to aim at a net return on assets of approximately 3% p.a. Accounting practices for these private partnerships with unlimited liability do not reveal the true equity in the business, but if we treat Thomas Coutts' capital strategy (regularly adjusting the paid-up capital, not letting it fall below 5% of assets, and then topping it up to 10% - Chapter 6) as indicating the true capital perceived as being at risk, then we can infer that implicit equity-at-risk ratios averaged 7.5% of total assets; which meant the target return on equity was approximately 40% per annum. This state of affairs was then disrupted by the systemic changes to that environment ushered in by the Restriction.

Exhibit 5.8 - Example of bank trading in Exchequer Bills: Childs, fiscal year 1796-7

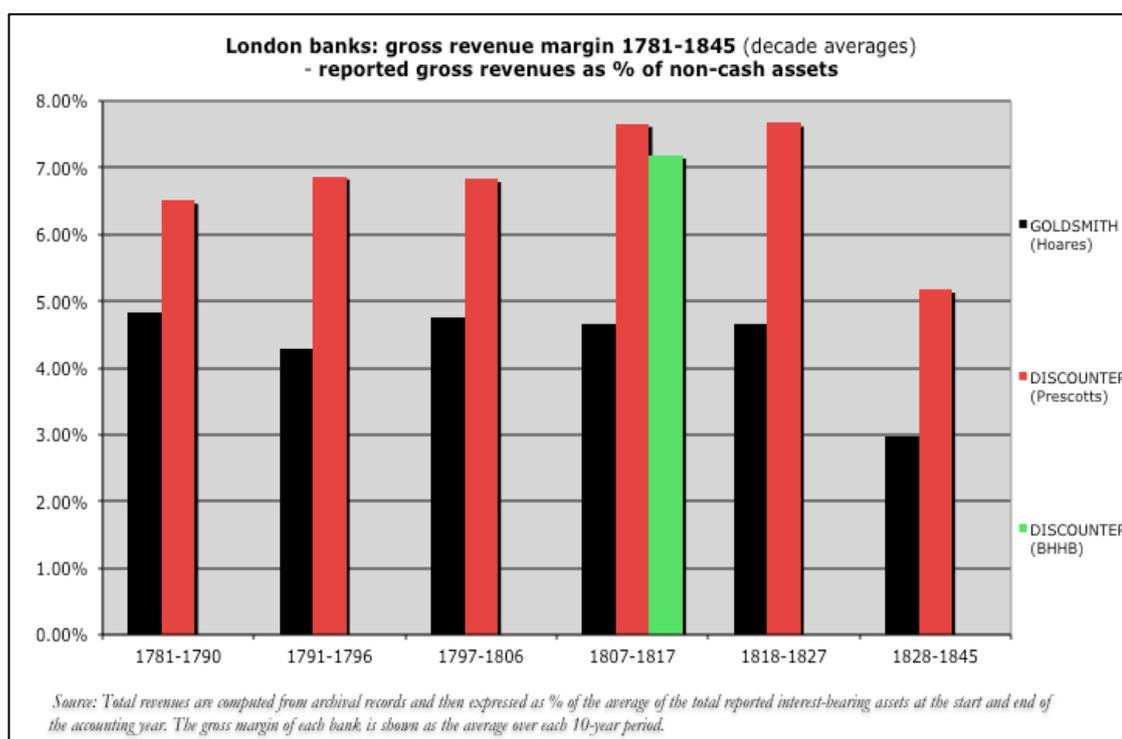
Example of London bank trading in Exchequer Bills: Childs, fiscal year Oct 1796 to Oct 1797					
SELLS			BUYS		
face value		cash £	face value		cash £
			75,000	To cash, ExB dated "to this day" @ 5% Disc	74,812
			8,000	To cash, dated 11 Mar @ 3 1/2 % Disc	7,722
12,000	By cash, dated 24 Jan @ 1/4 Disc	12,136			
8,000	By cash, dated 24 Jan @ Disc ?	8,094			
10,000	By cash, dated 24 Jan @ 1/8 Disc	10,134			
13,000	By cash, dated 24 Jan @ Par	13,244			
			10,000	To cash, dated 31 July @ 1 1/4 % Disc	9,895
10,000	By cash, dated 24 Jan @ 1 Disc	10,289			
8,000	By cash, dated 11 Mar @ par	8,198			
7,000	By cash, dated 24 Jan @ Par	7,217			
15,000	By cash, dated 24 Jan @ Par	15,540			
10,000	By cash, dated 24 Jan @ Par	10,134			
				Balance carried to P&L	2,555
Total cash in since last Oct		94,986	0	Total cash out since last Oct	94,986
weighted average entry date (numeric)		654931			
weighted average exit date (numeric)		655081			
av hold period (days)		150.24			
proportion of 1 yr		0.41162			
simple int rt		2.76%			
annualised int rt		6.85%			
average entry price		99.39			
average exit price		-102.14			

Source: Child "P&L Ledger, 1783-1798", RBS archive, ref: CH/203/6 [microfilm]. example of how, during 1797, Childs traded a total turnover of £187,415 with no net change in the position; weighted average entry price was 99.39 and exit price 102.14, with an average holding period of 150 days, giving an annualized total return equivalent to 6.85%.

The Goldsmith bank charged borrowers between 4% and 5% p.a., the latter being the maximum permitted under the usury laws. Interest was usually debited annually or semi-annually, but sometimes it was a mixture (even for the same loan) and in yet other cases there were no fixed payment dates at all. The bank did not appear to have levied late payment charges, nor did it calculate compound interest in cases when interest was paid at the end of, say, two years. Consequent to these practices, the average gross interest effectively earned on mortgages would be around 4.5% p.a. The gross interest earned on securities holdings, by contrast, would be closer to 5% and sometimes even exceed this level. This was because the available yields in the secondary market for government bonds

often exceeded 5% in the period up to the end of the Napoleonic Wars in 1815, and the usury laws only applied to the nominal coupon rate. Many banks were also active traders of these securities, moving in and out of the same security, arbitraging between different long bonds, and between bonds and Exchequer bills. Exhibit 5.8 shows an example of how, during 1797, Childs successfully traded a total turnover of £187,415 in Exchequer Bills, beginning and ending with no net position, with a weighted average entry price of 99.39 and exit price of 102.14, earning an annualized total return on average capital employed equivalent to 6.85%.

Exhibit 5.9 – Gross margin on non-cash assets of Goldsmith and Discounter



When combining loans and securities, before the Restriction the average gross interest margin on all interest-bearing assets averaged 4.7%. It continued at that level until 1815, after which it went into steady decline averaging less than 3% after 1830. Little or no interest was paid on deposits: this was the main mechanism by which Goldsmiths were able to capture the value added they created. We must infer that, in a world where the price level was taken to remain flat in the long run, depositors were willing to forego the opportunity cost of a 5% real return or more on government securities in exchange for the combination of various services: the secure physical custody of their gold money; the convenience of writing bills and drafts against those deposits, as well as having the bank act as its agent for

the execution of other daily monetary transactions; as well as obtaining contingent access to loans when and if the need arose. This was how London banks – especially Goldsmiths – created value and captured that value.

Operating expenses (staff and the banking hall) for the Goldsmith were low, taking out no more than 18% of gross interest earned (compared to today's typical bank ratio of staff costs to total revenues of 60%). Losses, including errors and sundry deductions, would vary considerably from year to year, taking out on average a further 5% of gross interest income (but never more than 11%). Taking these components together, at least three-quarters of the gross interest margin was retained as net profit, leaving a typical net margin on lending assets of a little below 4%. This translated into an average net return on total assets ("RoA") of 2.9% p.a. once non-interest bearing cash reserves are taken into account, and was highly volatile (4.1% in 1785-6, 1.7% in 1793). During the Restriction years, average RoA was similar 3%, but became much less volatile (ranging from 2.7% to 3.4%). After 1815 RoA gradually declined to 2% per annum, where it stayed for the rest of the century. Data from other Goldsmiths (Drummonds, Childs) and BHHB, the more conservative Discounter, closely match these levels and their pattern of change (Exhibit 5.9).

The profitability of the 'Discounter' business model prior to the Restriction (based on Prescotts' data) was similar to, or somewhat lower than that of the Goldsmith model after all costs are taken into account. By contrast, after the Restriction Act, some Discounters such as the more risk-seeking Discounter (Prescott) suffered consistently lower returns net of loan loss reserves.

The top-line gross interest margin earned by the Discounter on its discounting of bills was a more attractive 6.5% p.a. compared to the 4.7% p.a. earned on average by the Goldsmith bank on its mortgage lending and government securities. (Based on the Old Bank in Bristol, gross margins of Country banks following the Discounter model outside London may have been somewhat lower before the Restriction). By way of comparison, I estimate that at this time the gross margin earned by the Bank of England on its discounting activity averaged 4.6% on average balances,³⁷ suggesting that the better quality paper tended to be offered for discount at the Bank. Although not legally *pari passu*, the Bank of England was counting on

³⁷ Figures available for 1800-1819: Bank of England archives, ref: C36/6 & C36/14. See Chapter 11 and Exhibit 11.4 for a full explanation.

discounters of bills giving it *de facto* status of senior lender because of the dire consequences of being seen to default to the Bank (Chapter 11).

The gross interest margin of the Discounters grew to exceed 7% during the Restriction and remained high until the banking crisis of 1825. The estimates from Prescotts are consistent with the more detailed numbers we have for BHHB for the shorter period 1807-1817. By contrast, the gross margin of the Goldsmith (Hoares) remained steady at around 4.7% throughout the period until the 1825 crisis (Exhibit 5.9).

Although usury laws capped interest rates at 5%, the practice of discounting the face value of a bill, combined with its short-date maturity, made the effective interest rate charged less visible because, as with the mortgage interest arrangements of the Goldsmith, there were no adjustments for compound interest effects. If the interest rate charged on bill discounting was computed as 5% p.a. pro rated arithmetically over the relevant life of the bill, then a stable volume of discounting of, say, 1-month bills would have produced a full-year effective gross lending margin of 6.1% p.a. (on the assumption that interest income was re-invested in the business throughout the year) and close to the 6.5% observed. Furthermore, we know that the Bank of England, when discounting bills, would oblige the seller to relinquish the whole interest over the full term of the bill: hence it is possible that the Discounter banks at times practiced the same method. Finally, as shown in Coutts' letters (Chapter 6), and corroborated by the more detailed revenue records of BHHB (which begin only in 1803), Discounters usually earned fees from Country correspondents in addition to the net interest margin. These fees were charged either as percentages of the paying agency volumes handled and/or for providing what amounted to a revolving credit facility – a practice already in use in Scotland since some years previously (as described by Adam Smith). However, these fees do not seem to have become a material amount of revenues until a decade after the start of the Restriction.

While the Discounter enjoyed these higher gross margins than the Goldsmith, it also had to bear a number of offsetting higher costs.

Firstly, the Discounter suffered from the lower gross margins available on the wholesale correspondent banking business where, being an agency business not involving principal risk, fees were lower and overdraft interest rates negotiated in bulk. The costs side of the

Prescott accounts shows an item entitled “Expense and interest”, suggesting the Discounter paid *some* interest on the wholesale deposits or drafts that composed its liabilities. Unfortunately the Prescott records only break this out for five years after 1817:³⁸ for those years the interest costs varied between 0.8% and 1.3% of total liabilities, and averaged 1%. The latter is corroborated by the interest rate of 4% p.a. that Coutts assumed in its correspondence with the Bank of Scotland that the latter *could* have earned on its positive overnight balances during 1813-15 had it been using a London bank that paid interest on such balances. If we assume that the Discounter paid the same interest costs before 1817 as it did afterwards, then we can deduct 1.0% from that headline margin to reach a comparable gross margin of 5.5% for the Discounter – still a full 0.9% greater than that of the ‘Goldsmith’. But there were other costs for the Discounter.

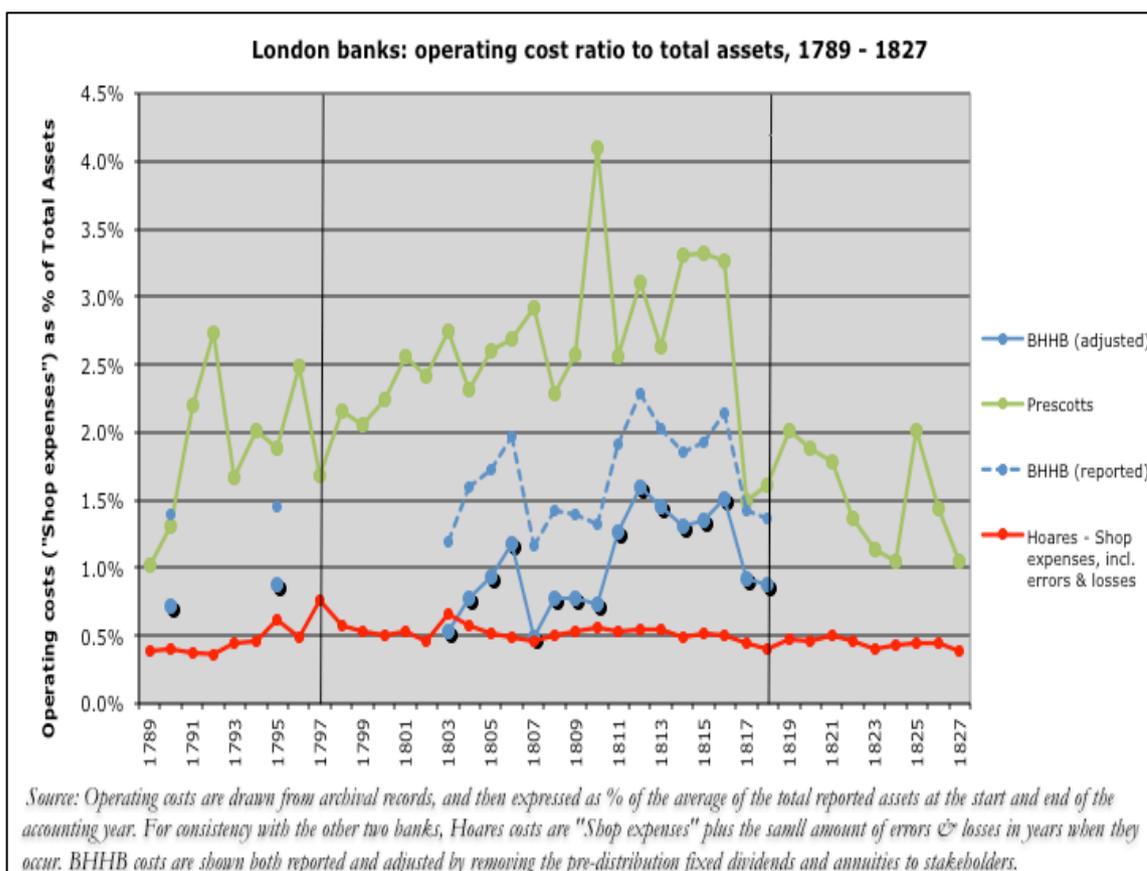
Secondly, the records reveal that the Discounter business model engendered higher operating costs. The operating expenses of the Discounter absorbed around 25% of the net interest revenues compared to a typical 15% for the Goldsmith. This pushed the typical net margin of the Discounter model down to 4.1%. These higher unit costs were to be expected given the more labour-intensive work of handling the higher turnover rate of the bill discounting activity. The typical bill of exchange was issued for maturities of one to three months: hence we would have expected the lending assets of the Discounter to turn over at least 500% during a year, compared to the average turnover of mortgages of just 10%. Although the documentation costs per transaction were higher for mortgages, this did not offset the difference in the frequency of transactions. The Discounter’s operating costs appear to have been between two and five times greater than the Goldsmith per £1 of assets, depending on the precise asset composition. Comparable continuous figures for 1799-1827 show that in the years before the Restriction, Hoares (the Goldsmith) had average annual operating costs of 0.44% of total assets, while Prescotts, already a full Discounter, had a cost ratio averaging 1.91% of assets. In 1803, BHHB, whose business was still in the process of moving towards the fully-fledged Discounter, operated with a cost ratio similar to Hoares (0.53%). As BHHB moved its balance sheet composition more towards that of a full Discounter during the Restriction (see Chapter 11), the cost ratio doubled to an average of 1.09% over the following twelve years, even when excluding interest paid to partners and the annuity paid to Mrs. Barnett (the cost ratio averaged 1.75% if including them). Similarly, over the same twelve years, Prescotts’ cost ratio deteriorated

³⁸ For the years 1817-19 and again in 1835-1845

further to an average of 2.90% - six times that of Hoares, whose cost ratio barely changed, averaging 0.52% (Exhibit 5.10).

During the monetary expansion (Abundance phase) of the Restriction, the Goldsmith model typically did better than the Discounter model in terms of net operating profits because its cost dynamic was less sensitive to balance sheet growth. The Discounter's high-frequency transactional model was generating incrementally higher costs, including higher stamp duties, while the typical Goldsmith reinvested the increased deposits into government securities (Chapter 11, 12) that entailed lower unit costs compared to executing longer-term secured loans to individuals. As the Restriction's monetary expansion progressed, the Discounter was taking on more credit risk to a wider set of counterparties, while the Goldsmith was taking less credit risk on average per pound of assets.

Exhibit 5.10 – London banks: operating costs as percentage of total assets, 1789-1827



Against a backdrop of total "shop expenses" at Hoares that were nearly unchanged between 1803 and 1818, both Discounters saw large costs increases coinciding with the timing of when they embraced the boom in discounting – and before they took steps to correct their

business model when faced with deteriorating returns. Prescotts (Discounter) embraced the expansion immediately upon the Restriction being imposed and grew its balance sheet at 10% p.a. after 1803 until it peaked in 1809 at just below £1million; during that period its costs more than doubled. By comparison, over the same six years, Hoares was able to grow its balance sheet at 5.6% per annum with no increase in costs. Over the period 1803-1818, the balance sheet of BHHB (the other Discounter) grew by a relatively sedate 2.1% p.a., half the rate of growth managed by Hoares, and yet already by 1813 BHHB's costs were three times greater than they had been a decade earlier.

Lastly, the Discounter suffered higher loan loss write-offs. In this regard, Discounters adopted a different accounting method to Goldsmiths: both Prescotts and BHHB did not distribute the entire annual profit, instead opting to book a (variable) portion to reserves. We interpret this as indicating that the managing partners of the Discounter accepted *ex ante* that the Discounter business model would generate a certain amount of credit losses each year. There is further evidence of on-going adaptive behaviour in adjusting these reserves to the loan loss experience. Loan losses would rise considerably after 1797, but for the two decades prior to the Restriction they had averaged a modest 0.6% of loan assets. [This loan loss rate can be compared to the 2.8% average rate experienced by the UK banking sector over the past 25 years.³⁹]

Loss write-offs prior to the Restriction reduced the more cautious, slower-growing Discounter's comparable net margin to a little below 4% and approximately the same as that of the Goldsmith. Arguably, the Discounter should have turned this net margin on interest-bearing assets into a higher net RoA - a premium for the higher volatility of earnings compared to a Goldsmith model - by being able to hold a smaller idle cash balances as reserve, justifying this on the basis that the Discounter's main asset - bills of exchange - enjoyed greater liquidity relative to longer-term mortgage loans. However, this effect was marginal as Discounters on average held only 4-5% less of their balance sheets in cash compared to Goldsmiths. As a result, the net RoAs of the two business models were similar, approximately 2.5 to 2.6% p.a. (Exhibit 5.11).

³⁹ Standard & Poors report in Dunkley (2015).

Exhibit 5.11 – Return on Assets of London banks, 1781-1845

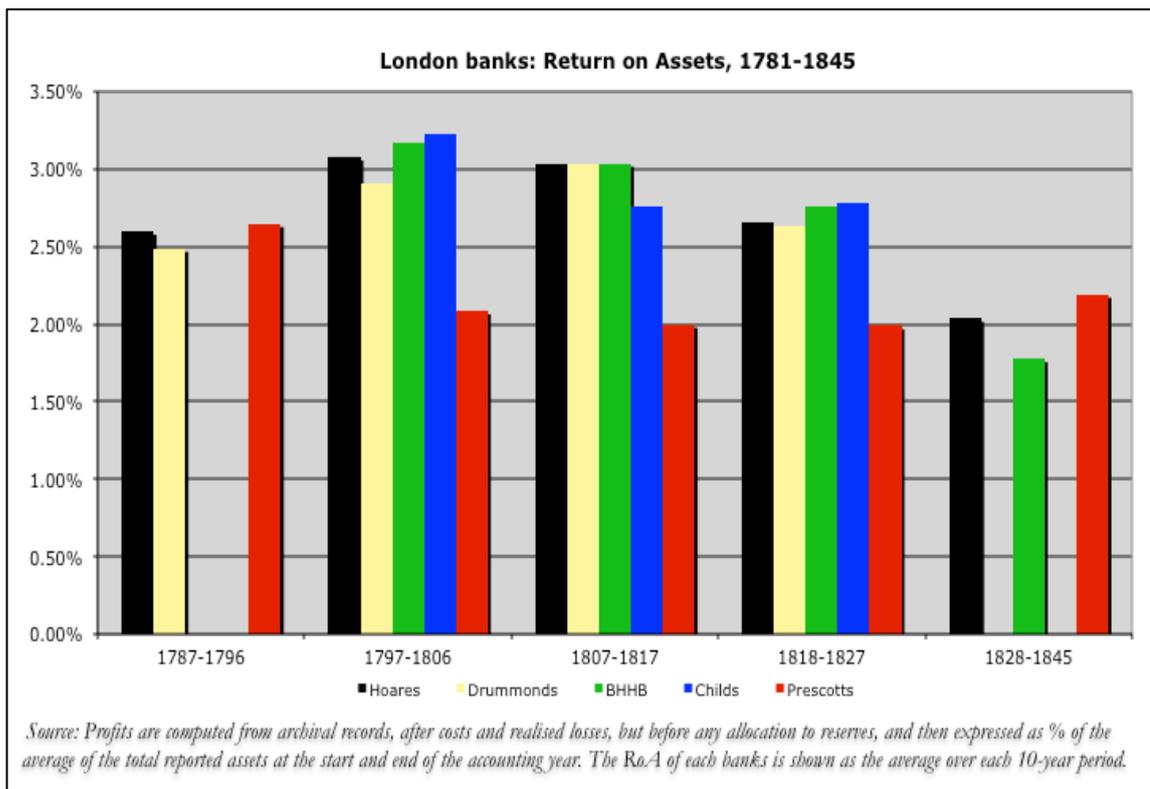
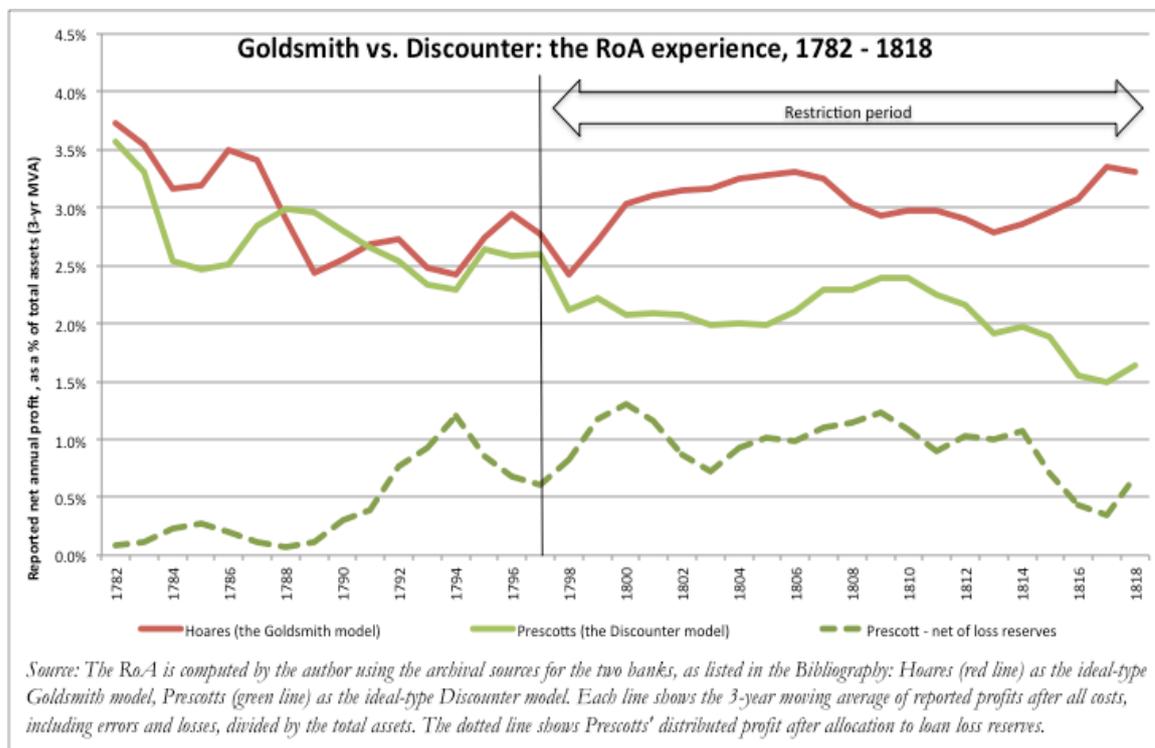


Exhibit 5.12 – Goldsmith vs. Discounter: Return on Assets, experience during the Restriction period, 1782 - 1818



During the Restriction, RoAs improved for the Goldsmith bank, but more selectively for the Discounter: Goldsmiths often achieved somewhat over 3% p.a., but for the Discounter it depended on avoiding increased loan losses. In our sample, it seems BHHB succeeded, while for Prescotts the Restriction Act marked the beginning of a deteriorating loan loss experience, and its RoA fell to 2% (Exhibit 5.11, and 5.12).

In conclusion, to the degree of approximation permitted by the historical records, I find something like an equivalence in the average profitability of the two bank business models in the decade prior to the Restriction. Although the Discounter obtained higher top-line margins on its lending activity, the *net* margin was similar to that of the Goldsmith after accounting for the higher operating expenses required to handle the higher-frequency transactional business; the greater loan loss experience involved in taking on unsecured credit risk from a wider range of counterparties; and the higher costs of wholesale funding and/or lower margins earned on temporary net overdrafts run by wholesale bank counterparties located in the Country. After proper adjustment, before the Restriction, both the Discounter and the Goldsmith business models had net operating margins on their interest-bearing assets of approximately 4%; a return on total assets of approximately 2.5%, and an estimated return on capital at risk of 30-35%.

During the easier monetary conditions after the Restriction Act, many banks experienced an improvement in return on assets to 3% p.a., but to achieve it the Discounters had to keep a lid on the escalating costs of supporting the growing high-frequency transaction activity in bill discounting, as well as avoid greater unexpected losses due to deteriorating average loan quality. Perhaps not surprisingly, the Discounter with the slowest rate of balance sheet growth (BHHB) succeeded, while the Discounter with the fastest growth failed to do so.

For any given bank directorate, the choice between the two business models appears to have lain partly on when they were founded, and hence where the founders could see the profitable opportunity. Under a gold standard regime the demand for medium-term loans secured against the existing slow-growing stock of specie was already well catered for by the older banks that had pursued the Goldsmith model; a younger bank was more likely to seek a competitive space by serving the new and faster-growing instruments such as the bill of exchange. Or, as in the case of Herries, seek competitive space by developing an entirely new instrument. However, the choice of business model also depended on the temperament

of the partners and the nature of the daily activity they enjoyed and on their perceived informational and marketing capacity, as well as the cognitive frame of money that they had built up from their previous experiences. As was the case for Barclays Bevan Tritton and for Goslings, a significant change in the principal partners could lead to equally significant changes in capabilities and appetites for handling the new instruments, and hence in the business model pursued. After the Restriction Act, Discounters also had to choose how aggressively they would embrace the easier monetary conditions in order to expand the balance sheet.

5.5 The cognitive frames of the business strategy-makers

Up to this point in Part II I have employed the material, technical, activity-based approach to parse through the empirical evidence and identify the salient patterns of bank strategy behaviour. I close this chapter by inferring from these patterns a conceptual understanding of the cognitive frames of the owner-managers of Goldsmiths and Discounters, informed by the insights of modern ‘strategy cognition’ research.

Since the 1990s, strategy management research (both process and practice) has included a growing contribution from scholars taking a cognition perspective, or what is referred to as ‘strategy cognition’. This part of the chapter borrows from the insights of strategy cognition research to draw inferences regarding the cognitive framing of late eighteenth-century bankers as revealed by the balance sheet policies they pursued, and so offer connections with the framing of monetary theory by contemporary political economists discussed in Chapters 2 and 3. I argue that the divergent cognitive framing of money by political economists, respectively espousing the Bullionist or Anti-Bullionist policy goals, was not something present only in theoretical debate, but rather reflected divergent perspectives present amongst the population at large. Since most of the ‘political economists’ of the Restriction were also bankers and merchants, it would seem unlikely that these two perspectives of ‘money’ were present only in the domain of theoretical ‘modelling’ - as if political economists operated in a vacuum separated from the broader society and its concerns.

The cognitive perspective seeks “the meanings and meaning structures which actors maintain about the components of the business model” (Tikkanen et al, in Furnari, 2005: 5).

We cannot interrogate directly the mental models of eighteenth-century bankers, but we can infer them from the strategic actions revealed by their balance sheets. While balance sheets do not speak directly of the *ex ante* beliefs and intentions of bankers, balance sheets do not lie about the choices that were made by bankers as revealed *ex post* by the actions they actually took (in contrast to the *ex ante* verbal statements they might have made describing those beliefs and intentions).

The strategy cognition approach focuses on the linkages between ‘cognitive frames’ and the strategic decision-making processes and implementation (Porac and Thomas, 2002; Regnér, 2003: 59). This paper uses the term ‘cognitive frames’: the limiting boundary conditions imposed (usually involuntarily) upon strategic decisions by the accumulated experience of the actor and decision-maker. Cognitive frames are the relatively stable mental maps that individuals and groups form as heuristic devices in order to make sense of the external environment and economize on everyday information gathering when making decisions about how to act in that environment. They are the knowledge structure that informs the template that individuals impose on the information environment to give it form and meaning (Nisbett and Ross, 1980; Walsh, 1995), thus acting as the ‘filtering mechanisms’ (Narayanan, Zane, and Kemmerer, 2011: 309) for what strategy managers pay attention to and consider relevant for strategy formulation (Huff, 1982).

As suggested in the introduction to this thesis, the Restriction is a natural experiment for observing what happens to both the monetary system and monetary theory when “zero bounds” imposed by out-dated cognitive frames are swept away by a radical change in the environment and its operating rules. In the strategy management literature, business models can be viewed as either the product of the strategist’s own cognitive framing, or as a cognitive tool created by the strategist for the purpose of communicating a vision of the business to others (Baden-Fuller & Morgan (2010)). Both perspectives are useful complements to this economic history essay because they can be matched to the theoretical ‘models’ of the political economists: the latter can also be viewed as either the product of the economist’s cognitive framing, or as his cognitive tool created for the purpose of communicating a vision of the monetary system – and lobbying for the outcome sought. Porac, Thomas & Baden-Fuller (1989: 398) in their landmark study of Scottish knitwear manufacturers were perhaps the first to recognise the “important link between group-level and firm-level competitive phenomena [played by] the mental models used by key decision-

makers to interpret the task environment of their organisation.” Here I argue that the mental models – not of what knitwear is for the consumer, but of what is the role of ‘money’ in the economy - were as different amongst the key decision-makers inside the Goldsmith bank and the Discounter bank as they were amongst political economists. This led bankers to pursue and persevere with different business models, with different consequences once the external environment changed after 1797: Discounters took on more credit risk because they perceived an increase in the ‘shiftability’ (Chapter 3) of their monetary assets, while Goldsmiths took on less risk and reinvested most of the increased deposit base into government securities because they perceived an inflationary dilution of monetary assets.

Cognitive strategy research is of interest here because – unlike the mainstream of institutional theory - it accepts that the bankers’ individual mental maps may have differed as regards what money was, and therefore they could disagree, as political economists did, on what was the principal force, or the “*vix mediatrix*” underpinning the functioning of the monetary system. The cognitive perspective allows for each banker’s decision-making to have been shaped by the different way in which each experienced the monetary world, and hence to display different rationales when conducting their business. Cognitive strategy research focuses “on cognitive representations of [the] environment and [the] organisation, while fully acknowledging the role of cognitive biases and heuristics” (Narayanan et al, 2011: 307). This perspective further allows for causation to run in the opposite direction: “managers can be expected to focus their attention on environmental changes that are most salient to, or offer support for, their current mental models, while other potentially important changes in the environment may not be recognised” (Barr, Stimpert and Huff, 1992). Similarly, in the domain of political economist, Ricardo-1809 and other strict Bullionists ‘framed’ money as metallic coin embodying the standard of value, and not as a unit of account that could become detached from the physical coin; as a result, they focused their attention on the high price of gold which their cognitive filter interpreted exclusively as the measure of the over-issue of banknotes.

The approach also accepts that information costs were non-trivial for bankers at the end of eighteenth-century, so they would initially proceed experimentally. Once they had settled on a business model that was viable and profitable, those same costs would have encouraged them to triage new information through the lens of what this meant for the continued

exploitation of the essential operating environment as imagined by their previously constructed mental image of it. The initial choice of business model for both newly formed Goldsmiths banks in the early eighteenth century, and newly formed Discounters in the last quarter of the century, was informed by the perception of where lay the competitive opportunity at the time. Once invested in one particular business model, the sunken costs involved in constructing the related customer and information capacity acted as a disincentive to change. This cost-based disincentive to changing business model was reinforced by the two divergent cognitive frames regarding money, created by the equally divergent everyday experience of their respective transactional environment. Discounters focused their attention on the high-frequency trading of paper instruments, thereby reinforcing their cognitive frame of money as a nominal unit of account for debts, while Goldsmiths focused their attention on the low-frequency loan transactions secured on real assets, thereby reinforcing their cognitive frame of money as a scarce real asset acting as a standard of value over the medium- to long-term. Only when there was a complete change of the partners within a short time (as with Barclays and Goslings) did the business model change to reflect new human capital and cognitive frames.

Strategy cognition research has contributed three areas of insight that are of particular interest here. Firstly, the influences played by the cognitive frame of *the individual* on his/her strategic choices made within a specific strategic context. Secondly, the influence played by diverse cognitive frames upon the formation of *strategic clusters within the industry*. And thirdly, it has identified the presence of *strategy inertia in organisations* (Abrahamson and Fombrun, 1994; Roger and Palmer, 1996; Hodgkinson, 1997). Regnér (2003) refined the strategy inertia concept as the product of a dynamic struggle between the deductive thinking at the centre of a firm or industry and the inductive thinking at the periphery of a firm or industry. All these three cognitive influences upon business model choice help to shed light on the decision-making preferences of late eighteenth-century London bank owner-managers and support the conclusions in this chapter.

Regnér's (2003: 65) dichotomy in mental maps between a 'core' and a 'periphery' set of firms resonates strongly with any current practitioner of business, and closely aligns with what was observed in the technical analysis of the two bank business models prior to the Restriction: a set of more established, usually larger Goldsmith banks at the core of the

London banking system; and a set of newer, usually smaller, faster growing Discounter banks at the ‘periphery’.

Regnér defines the periphery in terms of both the organisational hierarchy internal to the firm, but also – importantly for this paper - in terms of “remoteness from dominant practices and beliefs.” Using two comparative longitudinal case studies⁴⁰, he argues persuasively from the evidence that decision-makers in the ‘core’ of an industry exhibit forms of *deductive* thinking using historically based decision-making frames orientated towards the *exploitation* of a known and well-rehearsed business model. The ‘core’, more established firms – like the Goldsmiths - had built businesses based on practices and beliefs that, by definition, had become the dominant cognitive framing of the available opportunity for creating value. Hence these ‘core’ banks were focused on refining the existing methods by which they captured the value they created, and how they could best exploit the associated resource endowments and the sunken costs of previous investments in fixed capital or human capital. By contrast, decision-makers in the ‘periphery’ exhibit forms of *inductive* thinking using more *explorative* decision-making frames that look outwards towards new markets and new technologies – because they have to in order to develop profitable niches. Newer ‘periphery’ banks like the Discounters had less intellectual and financial capital invested in following the existing dominant practices and beliefs, and instead – like Herries Farquhar, for example - were orientated towards depicting products as solutions to (newer) customer needs discovered through contact with different clienteles.

Applying Regnér’s insight to our body of evidence from the second half of eighteenth-century, and especially after the 1780s, we see how the Discounters at the periphery of the industry grew by embracing the new ‘technologies’ of the bill of exchange and other quasi-monies that were one step removed or ‘remote’ from specie-money. Gradually they learned a new set of practices for the profitable handling of these new instruments - practices that were shunned by, and remote from the dominant model operated by the older and larger Goldsmith banks. For example, one prominent banker, Thomas Thompson, the managing partner of a leading Country bank, would write stating that “I am confident that it will be much more prudent to relax in charging discount than to lend money” (Chapter 7 – The Smith Group); by contrast, Thomas Coutts, brought up as a Goldsmith, would describe Discounters as operating a more risky unsound business model based on short-term lending

⁴⁰ His case studies were of Ericsson and Pharmacia in 1978-1998, and Couplet and AGA in 1988-98.

(Chapter 4). In order to compete, the more recently formed or re-articled Discounters had to display a more experimental, agnostic approach to the increasing use of paper-based instruments, similar to that displayed by Bosanquet when formulating Anti-Bullionist monetary theory, or like Heywood (1812) and his friend who embraced the expanding use of inland bills as a great benefit to the nation (Chapter 3). By contrast, the more deductive thinking revealed by the Goldsmith banker recalls that of the Ricardo and the Bullionist arguments which derived their policy conclusions by starting with a theoretical assumption based on eighty years of experience under a gold standard, namely that specie was the only *vix mediatrix* by which the monetary system adjusted to shocks.

The Goldsmiths formed the 'core' of the London banking system and had grown up in the mid-eighteenth century monetary environment that favoured Hume's view of money as only specie. Of the 44 goldsmiths present in London in 1677 (Orbell and Turton, 2001: 4), by 1750 some 13 to 18 had transformed into (and survived as) Goldsmith banks (Temin and Voth, 2013: 46) and they dominated by size the estimated 30 London banks. However, Goldsmith banks were not set up to respond flexibly to changes in the demand for money. While fractional banking had been practiced for many centuries already, London banks did not issue banknotes, so the only way they could respond to such changes in the demand for money was to alter their asset gearing of loans to their reserves of specie. Doing so was risky as some 60% of the Goldsmith's assets came due after twelve months and any deposit withdrawals had to met by paying out specie. This research shows that the aggregate ratio for all London banks – both Goldsmiths and Discounters - remained high from the 1740s until 1780, with typically one-third of assets kept as cash reserves. Outside London it is thought no more than a dozen Country banks existed (Orbell and Turton, 2001: 5), and hence there was little demand for correspondent banking services. Until the 1770s London bank numbers grew slowly, and although the number of Country banks saw regular growth from the very small base, their aggregate importance remained relatively small until 1785 (Chapter 12: Exhibit 12.6). At the same time the Bank of England had no mandate to provide liquidity and only did so in extreme situations (such as the Scottish banking crisis of 1772), so there was no easy route for Discounters to access additional funding; and the Bank's issuance of banknotes was limited to large denominations, subject to being converted into specie on demand, which constrained such issuance to modest levels relative to economic activity (Chapter 10). As a result, at the time Hume and Smith were writing,

the London money market was indeed principally driven by the supply of specie and the dominant bank business model reflected this.

By contrast, the use of bills of exchange – the instrument that was to foster the growth of the Discounters - was still relatively embryonic, and the Bank of England's activity in discounting these bills, which went hand-in-hand with its banknote circulation, was still small (Chapter 10). Since the founding of the Bank, discounters had accepted payment in banknotes, and this formed the route through which additional liquidity was injected into the London money market. However, banknote issuance and discounting were both sluggish in the middle of eighteenth-century compared to what was to come at the end of the century and during the Restriction. As Clapham (1970: 128-9) states, “it is enough to say that in the [seventeen] thirties, forties and fifties there were no important changes in the average size of [discount] operations; and that in spite of the growth of national wealth during the Walpole era, operations were sometimes curiously small. From 4 August to 15 December 1750, for example, the *maximum* day's business was only £19,212. 4s. 5d; days with less than £1,000 were not uncommon.” To put this in context, by 1809 the Bank of England's daily discount operations were *averaging* £63,000.

The London banks could not independently expand lending by increasing banknote issuance, and had every incentive to operate with high reserves of specie as they could not count on being bailed out by the Bank of England or obtaining emergency liquidity by discounting a greater proportion of their paper assets with the Bank. In this environment the London bankers' cognitive frame was constructed using the same concept of ‘money’ as that which was employed in classical quantity theory, namely that money was a commodity, and banknotes only a temporary one-for-one substitute for specie.

The London Goldsmith bank operated much like classical (and neo-classical) theory would have us conceptualize banks: as a simple intermediary for loanable funds, i.e. real resources (specie) made available by savers through the agency of banks for use by non-financial investors. All London bank lending activity was constrained by the net inflow of deposits of specie, but this was especially so for the Goldsmith banks that had less correspondent bank business and did not use the facility offered by the Bank of England for discounting of bills – meagre though it was in the years prior to the Restriction. The Goldsmith bank may have viewed any such use of the discount facility as equivalent to requiring “assistance” from the

Bank of England, and hence representing a weakness in their operating model. As late as 1825, in material found by the Drummonds' biographers, there are letters exchanged with the bank's broker (Messrs Smith & Payne) during the financial crisis of that year in which John Drummond states that they had never sought to discount paper directly with the Bank of England and "that the only *assistance* the House had ever had was about 30 years ago when they borrowed of the Bank [through Smith, Payne & Co] £50,000" (Bolitho and Peel, 1967; 155, my italics).

The London Goldsmith bank of the final decades of eighteenth-century had succeeded because of the careful and persistent exploitation of a well-rehearsed business model that had first emerged almost a century earlier. Business strategy decisions were framed by an understanding of the monetary and banking environment that had solidified within that business model after more than half a century of exploitation under a gold standard. The Goldsmith saw the primary value proposition as the organised safekeeping of specie deposited by the wealthiest individuals in Britain, combined with paying agent services to meet the day-to-day expenditures of their depositors and, more selectively, creating liquidity for customers' extensive land and real estate assets by lending out (over longer terms and secured on those real assets) that part of the bank's stock of specie not required for everyday payments. The Goldsmith operated a low-frequency transactional model and those transactions involved mostly real assets: movements of specie and loans secured on land and real estate. The Goldsmith's business involved fewer exchange transactions, and both inflows and outflows were conducted almost exclusively in "caish", which in turn served to reinforce the cognitive framing of money as a real commodity. Their daily physical and tactile experience acted to reinforce their cognitive bias towards viewing money as a commodity in its physical aspect, in addition to the functional aspects.

The computational environment of the Goldsmith bank's daily transactions did not encourage a cognitive focus upon money's alternative function as the nominal unit of account. Until 1797, for eighty years, that *nominal unit of account* lay stamped onto the surface of the pieces of metal coin just as it lay printed on paper-based monetary instruments; both types of money were indivisibly linked to the *money standard* (£1 = 7.3 grams of gold) in a symbiotic union underwritten by the legal right to convert nominal paper money into gold coin on demand at the official Mint parity. Like John Bull in the sketch presented in the Introduction of this thesis, the banker was aware that, although linked symbiotically, there

were contingent risks associated with paper money that meant that specie ranked higher than banknotes in the hierarchy of monies; but, like political economists using the classical Price-Specie-Flow ‘model’ before the Restriction, the Goldsmith had little reason to mentally prise apart the two aspects of money. As Heywood’s friend (1812: 77-8) stated, “one of the first consequences [of the Restriction Act] was, to weaken the association of ideas which existed in favour of a circulating medium possessing intrinsic value”.

By contrast, the Discounters were more recent entrants to the industry in the period 1765-1775, who had built a business primarily on the discounting of bills, or had recently become converts to bill discounting following a radical change in ownership. Prescott was founded in 1765. Herries Farquhar in 1770. Barclays had begun life as the goldsmith Freame & Gould, but the original families had entirely withdrawn by 1767 and the direction passed to the Barclays and Bevans. Similarly, BHHB had roots back to the goldsmith John Bland, but the ownership structure went through a complete change in 1772 after Samuel Hoare joined the partnership and at the same time the last of the Bland family withdrew; Samuel was an experienced banker formerly with the Gurneys in Norwich and hence familiar with banknote issuance by Country banks. By 1790 Samuel was the senior partner and remained so throughout the Restriction period from 1799 until 1825. Lastly, Coutts traced its origins to the goldsmith James Campbell, but by the 1790s the drivers of the bank’s business had been re-shaped into those of a Discounter by the Scottish connections of Thomas Coutts who had become the dominant partner in 1775.

The Discounter, out of necessity or different previous experience, held a more outward-looking mental map of money that looked towards new markets, new customers and was readier to experiment with new ‘technologies’ of money. The Discounter’s high-frequency transactional business in turn brought him into more frequent contact with paper-based forms of ‘circulating private credit’ (bills of exchange and promissory notes) that served to reinforce the cognitive framing of money as a nominal unit of account, rather than commodity-money embodying the standard of value and acting as a store of value. With its lending assets having an average life of less than five weeks, the Discounter was less concerned with money’s store of value function compared to the Goldsmith, whose lending assets had an average life of multiple years. For the Discounter, the function of money as a store of value linked to a commodity standard was subordinated to its function as a means of exchange linked to the nominal unit of account. The Discounter was less concerned by

money as a derivative representation of specie because the informational capacity of his business was built on the ability to manage those contingent credit risks through the use of maximum liquidity or ‘shiftability’.

In short, a banker’s particular view of money was related to the function that money played in their respective business. Even before the Restriction suspended convertibility, the Discounter grew more easily habituated to the notion of money being an *indirect and nominal claim* upon a metallic coin with an underlying commodity (gold) content – a claim intermediated through the agency of an institution in whose name the claim was issued (such as one of its Country bank correspondents). The Discounter was more exposed to money functioning as a *nominal unit of account* with only an indirect link to Ricardo’s *standard of value*. And the Discounter was more familiar with how that link was contingent upon the creditworthiness of the intermediary agent because the loan loss experience in his business was already greater than of the Goldsmith, and sufficiently material to justify regularly reserving a part of the net profit. The Goldsmith experienced almost no loan losses before the Restriction and did not reserve against that possibility. The Discounter’s mental map was one that *expected* a regular portion of its paper-money assets to fail. Even before the Restriction, the Discounter expected the extrinsic value of the nominal money unit, used to account for paper-money assets, to diverge from money’s intrinsic standard of value (gold) due to the friction costs generated by the agency risks involved in arbitraging between the two types of money (paper and coin).

5.6 Conclusion

The empirical data reveals the London banks followed two main business models. The “Goldsmith” model was used by some (but not all) of the banks with older roots dating back to the goldsmith businesses established in the early eighteenth-century; this was a low-frequency, low-gross margin business model focused on the direct gathering of non-interest-bearing deposits from wealthy individuals and lending these out secured against collateral, mostly longer-dated mortgages on houses and landed estates. In this way the Goldsmith bank limited its exposure to credit risk, and managed its liquidity risk by maintaining high cash reserves typically amounting to a third of its balance sheet. By contrast, the typical “Discounter” bank dated back only a generation and had staked out a

competitive position by meeting the growing demand for the discounting of bills of exchange, i.e. short-term commercial paper with maturities mostly under one month. This was a high-frequency, high-gross margin, but higher per-unit cost business model focused on lending unsecured via transactions in paper-based monetary instruments, and involving the partial use of interest-bearing wholesale deposits from correspondent banks outside London. The Discounter was exposed to relatively low levels of liquidity risk, and managed its credit risk by distributing only a part of its net profits, reserving a portion against losses. The more recent start-ups would look somewhat different in the early years, using lower-risk balance sheet configurations as they explored their way towards the preferred sustainable balance sheet structure, but I have shown how these can be viewed as transition stages.

As we shall explore in Part IV, after 1797 the Goldsmith grew its core lending business by placing most of the balance sheet growth in government securities, while the Discounter grew its core discounting and correspondent banking business by using the expanding Bank of England discount window. By 1814 all banks in the sample had increasingly clustered around either the ideal-type Discounter or ideal-type Goldsmith business model, with fewer and fewer differences between banks located within each cluster.

The growing use of bills of exchange reflected the expanding business of London and Britain's international trade; but it was also fuelled by the increasing role of small Country banks in the intermediation of financial flows outside London, their number having risen from an estimated dozen in 1750 – when David Hume was elaborating the early classical theory in *Of Money* – to an estimated 250-300 by 1796. The Discounter provided 'wholesale' correspondent banking services to this growing "fringe banking sector" of banknote-issuing Country banks located more than 65 miles outside London, acting as their paying agent in London, collecting or making payment against bills sent to London for settlement. As a result the Discounter's liabilities typically show a larger proportion of deposits coming via its agents and correspondents. Part III explores the nature and mechanics of these correspondent banking relationships and the behaviour of Country bank balance sheets.

PART III

Case studies of Country banks

Preface and historiography

The primary intent of the thesis is to quantify available balance sheet evidence in order to reveal how bank business practices compared to the theoretical perspectives of the political economists. In this chapter I use a set of longitudinal case studies of Country banks, where records are less complete, in order to quantify key aspects of their actions and infer some early implications for Britain's broad money supply; these are explored in more depth in Chapter 12.

Any work on Country banks during the Restriction must pay tribute to the exhaustive history put together by Pressnell (1956) in *Country Banking in the Industrial Revolution*. The book provides a wealth of insights into the functioning of the banking system in the years of the Restriction, and I draw from his deep understanding of many historical details recounted in the first nine chapters that deal with banking instruments, practices, and what constituted the circulating media. Not benefitting from the decade Pressnell needed to collect all his material, I have also taken from him the balance sheet data for Leyland Bullins & Co, Liverpool and Barnard & Co, Bedford without independently verifying the archival records.

Data for the following Country banks were collected from original archival records: the five Smith banks; the Bank of Scotland; the Old Bank, Bristol; A. Heywood & Sons; Locke, Hughes, Saunders & Co; William, Jones & Hughes; and Stephens, Harris & Stephens.

The analytical approach focuses on reconstructing each bank's asset and liability matching, this being a suitable operational definition of the Real Bills Doctrine espoused by the Anti-Bullionists. Further analytical focus on a bank's cash reserve management practices, and the nature of the flows between a Country bank and its London correspondent, are used to test the Bullionist assumption of a Stable Fringe Velocity versus Bosanquet description of the Law of Reflux (see Chapter 3 for an explanation of these hypotheses).

After initially analysing the business practices revealed by the balance sheets, I sought corroboration from the biographical stories told by historians of banking, thereafter iterating between the two. I have drawn from a number of histories of banks cited in the description of each bank below. These histories typically focus on the colourful stories of

the families of the partners, and only tangentially relate their story to any detailed examination of financial state of the business. The main exception was the book by Leighton-Boyce (1958), *Smiths the Bankers* which not only collected some useful (partial) balance sheet data that has since gone missing, but also inferred from the data an understanding of the state of the business which he wove into the story of the partners. Another notable historical work is Saville (1996) *Bank of Scotland: A History, 1695-1995* which recounts much that is relevant to analysing the Bank of Scotland-Coutts relationship, as well as some information relevant to the founding of Herries Farquhar, although there is no attempt to fully analyse the balance sheets. The Bibliography includes additional works, especially Cave (1899) for the case study of the Old Bank, Bristol.

Asset and Liability matching analysis – an explanation

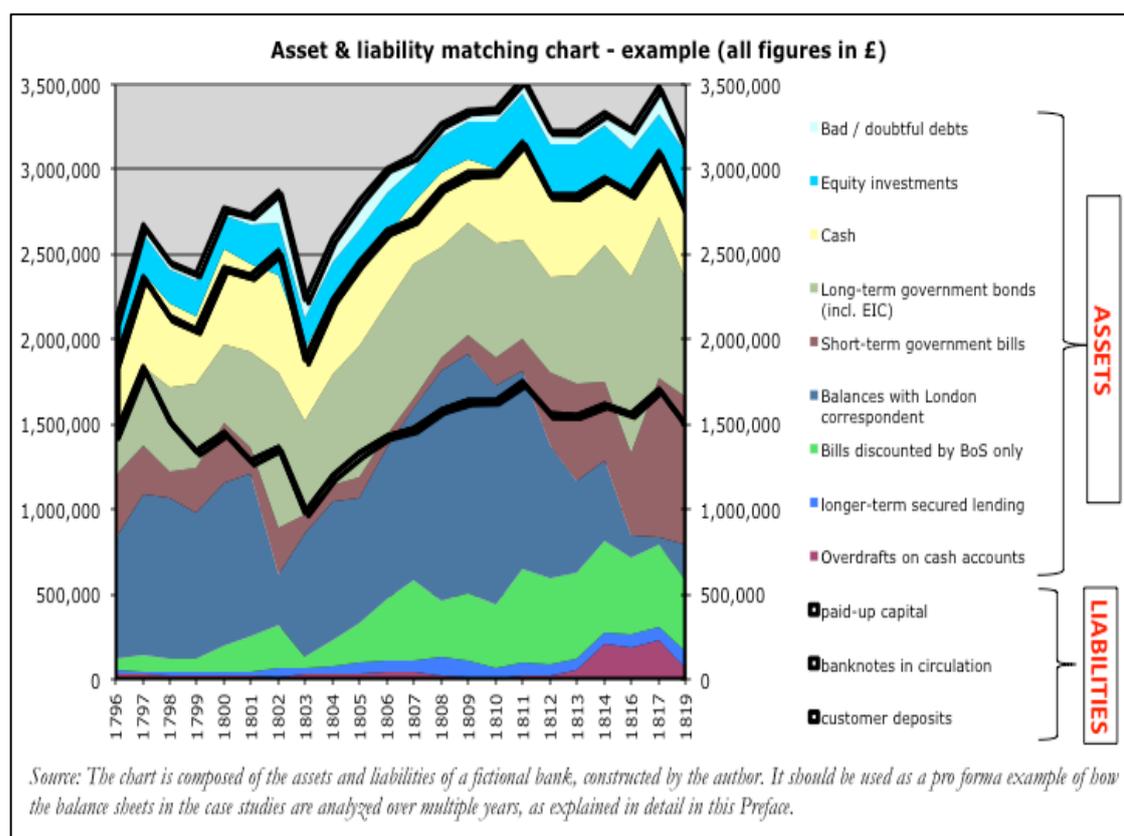
Bank strategies are analysed through the lens of their revealed approach to asset and liability matching. The principal aspects of asset and liability matching are the expected maturity, the credit risk, and the average cost or return (respectively paid on liabilities or received on assets). Because the three criteria would not always give the same ranking of asset and liability components, and because there is no hard and fast rule about how to match assets and liabilities, it was decided to proceed as follows.

The best starting point for the purposes of relating the bank behaviour to the theoretical debate was to use a risk-averse interpretation of the asset and liability strategy for Country banks recommended by Thomas Thompson (Chapter 7). This is then adapted to each particular case study to reflect each bank's individual matching strategy inferred from the pattern of year on year changes. A pro forma example is explained below. The most effective way to *illustrate* a bank's approach over multiple time periods is by using a stacked chart showing the few major components of liabilities overlaid onto the more numerous asset components. The asset components are shown as stacked coloured bands; the liability components are stacked as thick black lines and overlaid over the asset bands.

Assets are stacked beginning with those whose maturity is the longest (secured loans) or most unpredictable (overdrafts). Following these are the shorter-dated interest-bearing assets that can be liquidated at the bank's discretion, ranked in decreasing order of their

implicit credit risk: bills discounted, balances with the London correspondent, and short-dated government paper. To these are added any longer-term government securities on the basis that they are also liquid, interest-bearing and low credit risk, but they carry maturity risk and therefore are expected to be held for longer, albeit still at the bank's initiative. And finally, assets that are non-interest bearing and/or totally illiquid and that, for different reasons, a bank would be expected to match to paid-up capital: investments in the equity of other firms, bad and doubtful debts, and cash.

Exhibit P.1 – example of a chart showing a bank's asset and liability matching strategy



The stacking of *liabilities* is organised as follows: at the bottom, customer deposits, as these are stable but costly (for a Country bank); then the bank's own banknotes in circulation, which have very low cost, but whose balances are assumed to be more uncertain and unstable; and finally the paid-up equity capital, taken to be the most permanent liability and not needing a fixed return, at least conceptually (in practice some banks treated this as a form of deposit with a minimum fixed interest, but this was only a contingent obligation that was suspended at times of financial difficulty).

The legend on the right shows, starting at the bottom, the first category of liability shown at the base of the liability stack, followed by the second, and so forth. Above the three liabilities, the legend lists the various asset categories, once again starting with the asset category placed at the base of the asset stack. Each asset category band indicates the colour of the band used to represent it. As total assets and total liabilities in a balance sheet are equal, the top perimeter of the asset bands and the top perimeter of the liability bands will usually match; however, in some cases they may not, when small miscellaneous items are omitted in order to limit the number of bands and ensure the chart remains manageable.

In this fictional example, for most of the period 1796-1819 this fictional bank has a small total lending activity - overdrafts (purple), secured loans (blue), and bills discounted (electric green) - that grows from approximately £100,000 to £750,000 by 1815. This lending is always more than adequately funded by customer deposits of around £1.5 million (lowest black line). Deposits drop to £1 million during the first five years of the Restriction, and then recover to their pre-1797 levels. Excess customer deposits - i.e. those that are not lent out to customers in one of the three methods above - are placed with this bank's London correspondent (teal) and, after 1812, increasingly in short-dated government bills (brown). Except for the difficult year of 1803, the bank was successful in expanding the quantity of its own banknotes in circulation (middle black band) pretty much continuously up to 1811, after which the amount remains flat. Throughout, the bank re-invests this funding derived from banknotes approximately one-third into cash (yellow) and two-thirds into long-dated government bonds (khaki green), perhaps matching the perceived worst-case reflux in their notes. During the peak expansion of their balance sheet, created by the recovery in customer deposits and the simultaneous expansion in their banknote issuance, the bank places a portion of this extra funding into short-dated government bills (brown) and the remainder with its correspondent bank in London (teal). Equity capital (top black band) is matched to its own equity investments (azure), and doubtful debts (light blue).

PART III

Case studies of Country banks

Chapter 6. The Bank of Scotland and Coutts

1. *Historical context*
2. *The nature of the Coutts – Bank of Scotland correspondent banking*
3. *The Coutts asset and liability business model: a hybrid Goldsmith-Discounter*
4. *Growth and stagnation of Coutts – Bank of Scotland correspondent banking*
5. *The Bank of Scotland asset and liability business model: implications*
6. *Turnover rates, the transactional environment and the balance sheet velocity of specie*
7. *London banks' credit exposure to 'fringe' Country bank risk*

The records for Coutts and the Bank of Scotland, and those of the Smith group in the next Chapter, are the only ones that allow the financial historian to investigate the monetary flows between London and the Country from 'both ends of the pipe', i.e. as evidenced in the accounts of both banks over the same period of time. In this chapter I explore the interplay of these two large London and Edinburgh banks operating under different corporate structures, and triangulate their balance sheet behaviour in order to reveal insights into: (a) the correspondent banking relationships between the country and the London banks; (b) the way the Scottish bank managed its assets and liabilities following the Ayr Bank crisis of 1772-4; (c) what the detailed daily flows between Coutts and the Bank of Scotland tell us about the balance sheet velocity of specie and the extent to which this met the criteria of Smith (1776: 403) idealized 'pond' with balanced inflows and outflows of paper money closely matching "what the circulation of the country could absorb and employ"; and (d) the potential for credit and liquidity risks to rapidly shift between banks situated near the 'core' source of liquidity in London and the banks located in the 'fringe banking' sector outside London. We conclude by relating these to our broader interest in the behaviour of Britain's money and banking at the time of the Restriction.

On the eve of the Restriction in 1796, Coutts & Co. was already a member of the "£1 million Club" within the London banks: following a multi-year period of rapid growth its balance sheet had reached £1.4 million. It owed this to the growth in its correspondent banking business with the Bank of Scotland, the pre-eminent bank in Scotland under the control of Henry Dundas and for whom Coutts acted as sole London agent from 1793. The Bank of Scotland balance sheet already exceeded £2M. Viewed together, the two banks

almost certainly constituted the largest London-and-Country monetary hub, ahead of the Smith group. As a London bank, Coutts could not issue its own banknotes and was constrained in its corporate form to using a private partnership with a maximum of six partners; by contrast the Bank of Scotland enjoyed both limited liability and the freedom to issue its own banknotes, making it closer in form to the Bank of England. In contrast to the more constrained London banks that were more exposed to the cyclicity of the flows of specie under the gold standard, the Bank of Scotland used its greater freedoms to successfully increase its capital and expand its balance sheet throughout the 1780s and 1790s. Conversely, after 1800 when, unleashed by the Restriction, the London banks were experiencing their fastest growth, the Bank of Scotland's lending and balance sheet stagnated.

This asynchronous growth in Scottish balance sheets prior to 1797 explains why Coutts & Co. balance sheet grew faster than other London banks prior to the Restriction. By 1797 Coutts' correspondent banking business with Scotland had grown to account for almost half its balance sheet, causing it to operate with a hybrid business model combining in equal parts the Goldsmith and Discounter profiles adopted by other London banks (Chapter 4, 5). The core business involved direct deposit-taking and secured-lending relationships with individual customers, in keeping with the Goldsmith model; alongside, Coutts had a large wholesale correspondent banking business that is an example of the Discounter model.

6.1 Historical context

I begin by summarizing the origins of Coutts' and the Bank of Scotland as outlined in Orbell & Turton (2001: 170-1 and 76-7) and in Saville's (1996) full biography of the Bank of Scotland, before focusing on a new analysis of their balance sheets.

Coutts traced its origins to the goldsmith John Campbell who traded in the Strand, London from 1692, and the bank has been based at No. 59 since 1739. James Coutts, husband to John Campbell's granddaughter, joined the business in 1755 when the business became known as Campbell & Coutts. John Campbell died in Italy in 1750, followed by his partner George Campbell in 1760, and at that point Thomas Coutts joined his brother James and together they took over the business, trading under the name J. & T. Coutts. After James

retired in 1775, Thomas went on to lead the business (now named solely after him) for nearly fifty years until his death in 1822, becoming a leading *eminence grise* of London banking circles.

The Bank of Scotland was created by an act of the Scottish parliament of 1695, a year after the Bank of England, and given the right to raise capital under limited liability; it began with 136 proprietors in Scotland and 36 from London subscribing a total of Scottish £120,000 (Orbell and Turton, 2001: 76). From early on an important part of its business was the issue of paper currency in the form of transferable bills or (interest-bearing) promissory notes (Saville, 1996:76). After the union of Scotland with England in 1701, a royal charter in 1727 permitted the founding of a second bank, the Royal Bank of Scotland, and a period of competition followed, soon enjoined by the creation in the 1730s of the first private bank of John Coutts & Co. The latter subsequently become Sir William Forbes, James Hunter & Co. when Thomas and James pulled out, deciding to concentrate on the London business [see connections with Herries Farquhar & Co in Chapter 4]. This competition expressed itself primarily in battles to have each bank's notes accepted by the population in preference over those of its competitor. However, in 1772-4 Scotland experienced the Ayr Bank crisis described in detail by Adam Smith (Chapter 2). Kosmetatos (2014: 5), drawing on Hoppit (1986), describes it as Great Britain's first "major endogenous financial [crisis] caused by growth itself, rather than war or government policy". The lessons learnt from that crisis regarding the management of paper money were still visible in the differentiated behaviour of the Bank of Scotland balance sheet at the time of the Restriction.

Henry Dundas (1742-1811), later the 1st Viscount Melville, was an Edinburgh lawyer and a controversial Tory politician who became the major political force representing Scottish banking interests following the 1772 Ayr Bank crisis. The Ayr Bank (Douglas, Heron & Co.) was established in 1769 "with the support of prominent landowners, merchants, and professionals throughout the Lowlands, and the express purpose to provide the capital that the chartered Edinburgh banks would not, and could not, supply themselves" (Kosmetatos, 2014: 5) or as Adam Smith (1776: 399-400) describes, "for the express purpose of relieving the distress of the country" [i.e. Scotland] whose local capital was insufficient to finance the growing sugar and tobacco trade with the Americas (Hamilton, 1963). Amongst the subscribers was the Duke of Buccleuch whom Adam Smith had taught and taken on his 'grand tour' of Europe. The Ayr Bank stopped payment in 1772 when Alexander Fordyce, a

Scotsman and senior partner in the London bank of Neale, James, Fordyce & Down ran away to the Continent in June 1772 after suffering large losses on trades in East India shares. The Ayr Bank collapsed with over £1.2 million of liabilities (Checkland, 1975: 124–5), a huge sum in the context of contemporary banking, equivalent to one-fifth of the Bank of England’s balance sheet and one-and-half times larger than the largest London bank. The potential contagion risk was great and, “like a company connected by an electrical wire”, spread a series of cascading failures such that “people in every corner of the country have almost simultaneously received the same shock” (Boswell, 1773 cited in Kosmetatos, 2014:5).

The Ayr Bank crisis and the resulting credit shortages lasted for two years and were eventually resolved when in 1774 Parliament agreed to a scheme put forward by Dundas in his capacity as Solicitor General of Scotland: refinance the bank’s redeemable annuities (which carried a crippling yield of 15%) with a special issue of 5% bonds to be treated *pari passu* with East India bonds (Saville, 1996: 165) – a scheme which effectively rescued the creditors of the Ayr bank by socialising its debts and buttressing its creditworthiness with the tax base of the entire country. Reflecting this growing role as the champion of Scottish interests, later that same year Dundas was elected MP and thereafter represented Edinburgh without interruption until 1802, when he was made a peer. In 1774 Dundas was also appointed Deputy Governor of the Bank of Scotland, as the fallout from the crisis moved public opinion in favour of his advocacy of greater centralised control and regulation of the banking system to protect against “over-trading”. By 1778 he and a group of close associates representing Tory interests had also taken control of the Royal Bank of Scotland, placing his friend the Duke of Buccleuch as Governor, arguing that it was “for the substantial good of both banks [that they should] co-operate on a larger scale but not ... [formally] unite” (Anon, 1778 in Saville, 1996: 175). The two banks formed an oligopoly that controlled the monetary and credit system in Scotland and could impose a framework independent of the Bank of England.

Dundas was a close ally of William Pitt, and by the eve of the Restriction “Henry Dundas was at the zenith of his political power. In 1794 he was appointed Secretary of [of State for] War; he already had his India office [President of the powerful India Board of Control since 1793] and the Treasurership of the navy, and in 1800 he was made Keeper of the Privy Seal of Scotland. In the elections of 1796, his interests won thirty-six of Scotland’s forty-five

seats” (Saville, 1996:195-6). As Treasurer to the Navy, Dundas appointed Alexander Trotter as Paymaster General; using his power of attorney, Trotter controversially moved substantial sums to an account at Coutts bank where Alexander’s brother, Robert Coutts Trotter had been a partner since 1794 (*The Naval Chronicle*, 1806: 505). Ostensibly this was for the convenience of having a bank closer to the Navy Pay Office after it moved from Broad Street to Somerset House, but this contravened an Act brought in 1785 that obliged all Navy funds to be kept at the Bank of England, and excluded the Paymaster from benefiting from the interest on any idle funds (Hamilton, 2011: 28). After a naval commission of enquiry censured Dundas in April 1805, his enemies brought impeachment charges a year later, and these events appear (below) to have had an impact on the Bank of Scotland. He was eventually cleared and restored to the Privy Council and died in his sleep in 1811.

6.2 The nature of the Coutts – Bank of Scotland correspondent banking

Contractual structure, credit limits, and pricing policy

A series of letters in the Coutts files provides a useful window into the typical wholesale arrangements made between a London Discounter bank and their Country correspondents: these cover transaction fees, average balances and interest thereon, and overdraft limits.

The London banks would offer to act as the Country bank’s paying agent in return for a fee calculated as a percentage of total volumes transacted, plus a minimum average balance that the Country bank should leave on its account.⁴¹ Some, but not all London banks paid credit interest on those positive balances, at rates well below the ‘market rate’ of 5%. The London bank might also stipulate a maximum overnight overdraft limit to cover exceptional deficits created by timing differences in how bills were presented for payment, and on which interest was charged.

Around 1786, Coutts and the Bank of Scotland put in place an omnibus agreement. Coutts acted as the London paying agent for all the Bank of Scotland’s business in bills, in return

⁴¹ “Payment is sometimes made by a deposit – sometimes by a fixed Salary – but in whichever way made the sum allowed must be equal to the trouble and risk.” Coutts archive: letter to George Sandy dated 8 June 1816

for a single fee structure. Thomas's letters to the Edinburgh Treasurer indicate that Coutts monitored the account balance at the aggregate level, suggesting he viewed the credit risk as being to a single entity. There was a master agreement under which Coutts maintained separate sub-accounts for each of the Bank of Scotland's agents in the Scottish burghs as well as one in the name of the bank's Treasurer, representing the bank's central treasury. These Bank of Scotland agents were traders and lawyers who were not formally employees of the Bank of Scotland, operating more as franchisees in the different Scottish burghs: they swore an oath of allegiance to the Bank; their contract specified an annual fee plus a commission, but they were liable for all their losses on bills of exchange; and were expected to follow a set of standard practices which grew longer with time (Saville, 1996: 179). Initially Thomas Coutts must have been impressed by what he observed of the financial behaviour of these agents, for in 1793 he suggested to the Bank of England that they imitate it (Saville, 1996: 184); twenty years later he had probably revised his opinion (see below).

In the early stages of the relationship, when the Bank of Scotland still dealt with other London banks, the fee was set at ¼% of annual turnover, but three years later it was changed to a flat fee of £600 p.a. It was perhaps Coutts' willingness to accept a flat fee that influenced the Bank of Scotland's decision in 1793 to focus all its business with them, which Coutts took on whilst increasing the fee to £1,400 p.a.. By 1815 Thomas Coutts appears to have regretted that fee model. Based on Thomas's letters, his initial intention had been that half of that flat fee would cover the expected costs of paying the Clerks employed to transact the business, plus the relevant share of "Rent, Taxes, Stationary and other Charges incident to every Business and referable to the Bank [of Scotland]'s Concerns."⁴² The other half of the £1,400 fee, plus the interest Coutts earned on any idle balances would make up Coutts' profit: "the remaining £700, with the advantage of the surplus Balance, forms our compensation for the care and responsibility of managing Transactions requiring great accuracy."⁴³ In other words, he expected "the general Tenor of the account, except on particular Occasion, was understood as being left to be conducted as Bankers accounts usually are"⁴⁴, i.e. to remain in credit.

However, the Bank of Scotland did not always follow the principle behind Coutts' charging model. By the end of the Napoleonic Wars Coutts was taking significant credit risk on the

⁴² *Coutts Special Letter Book*, (Coutts archive): letter to George Sandy Esq. of 8 June 1816.

⁴³ *Ibid*, letter dated 19 Aug 1815.

⁴⁴ *Ibid*, letter to George Sandy dated 14 Aug 1815.

Bank of Scotland (see section 6.7 below) in return for a fee that no longer covered his direct costs of operating the business. A letter dated 27 March 1816 from Coutts to the Bank of Scotland Treasurer reveals how Coutts' effective rate was still too low despite greater competitive pressure amongst London banks during the Restriction having halved fees. The going rate in the London market for correspondent banking services had halved from $\frac{1}{4}\%$ to $\frac{1}{8}\%$ as a result of the booming volumes of bill discounting and the greater ease of rediscounting at the Bank of England. Indeed, in 1813 Coutts had proposed a similar, but smaller correspondent banking arrangement to Yarborough & Co with a fee of $\frac{1}{8}\%$ and a minimum balance of £2,000.⁴⁵ Coutts states that a “commission of one eighth per Cent [is] the rate usually paid” for paying agent services, yet the preferential flat fee of £1,400 was just $\frac{1}{11}$ th of one percent (*sic*) of the 1794 volume of £1.5 million of bills, “although we do not know that any rate as low as this was ever acted upon.”⁴⁶ By 1815 the volumes handled by Coutts had grown further to “within a few thousand pounds of Four millions,”⁴⁷ reducing Coutts effective fee to just $\frac{1}{30}$ th of one per cent.

Accounting practices and the offsetting inter-bank flows

Until 1815, Coutts recorded transactions relating to the Bank of Scotland on both the debit and credit side of its summary end-June General Balance under the name of the Secretary of the Bank of Scotland, James Fraser (until 1802) or Robert Forrester (1803-1814), as well as the names of the 24 individual agents of the Bank of Scotland located in the Scotland. After 1815 it recorded the aggregate balance as a single line item, matching the practice used throughout by the Bank of Scotland in its annual balance sheet.

The Bank of Scotland recorded all its transactions with Coutts through one account, for which we have the daily detail from 1812 to 1816, and the annual end-March balance for the years 1796-1822. The accounting methods revealed in the daily book are consistent with those described in Samuel Smith of Derby's daily letters to its London correspondent [analysed in the next Chapter 7]. Individual transfers and payment orders were recorded individually on the day they were notified or instructed by the customer, and then signed off in the margin when confirmation of their execution was received from Coutts a few days later. These would include a wide range of transaction types: money paid into Coutts in

⁴⁵ *Ibid*, letters to Coutts Trotter dated 6 Sept and to Mssrs. Yarborough & Co dated 15 Sept 1813.

⁴⁶ *Ibid*, letter to George Sandy Esq. of 17 March 1816.

⁴⁷ *Ibid*, letter to George Sandy Esq. of 17 March 1816.

favour of a Bank of Scotland client or, vice versa, sums paid out in London by way of debit to the account of a Bank of Scotland client; the London customers of Scottish companies settling their bills (invoices) by paying into Coutts; sales and purchases of securities by the Bank of Scotland or its customers and settled at Coutts; dividends on securities received at Coutts in its role as the bank's London custodian.

The majority of these transactions were settled through offsetting accounting entries. Only very occasionally, the Coutts account at the Bank of Scotland would be credited for quantities of silver and Bank of England banknotes sent by Coutts to the Bank of Scotland.

In addition to these individually specified payments, every week the Bank of Scotland would credit the Coutts account for all drafts that the London bank had paid out on its behalf (a one-line entry called "By Drafts due since [date] inclusive"), and debit the account for all the bills due to the Bank of Scotland that had been settled in London by paying into Coutts (a one-line entry called "To Bills due since [date] inclusive" or "To Bills paid and Returned since [date]"). The credit balances resulted from Coutts cashing in (or re-discounting) bills drawn on London and owned by the Bank of Scotland. These were bills drawn on the account with a London bank that the Bank of Scotland or its agents had bought (i.e. discounted) from clients in Scotland who needed the money before the date at which those bills became due. The Bank of Scotland would then send these bills to Coutts. "On receipt [of the bill] in London, a (junior) member of the [Coutts] staff sought the drawee's endorsement for later payment. When that day arrived, the [Coutts] staff collected banknotes or a note against an account at Coutts" (Saville, 1996: 188). The note served as an instruction to debit an account at Coutts (what, today, would be a cheque made out to cash). As explained by Bosanquet in his version of the Law of Reflux (Chapter 3), against these daily wholesale credit balances, Coutts paid out banknotes or gold coin to other London banks only when there was a net amount owing on bills travelling in the opposite direction for which it acted as the Bank of Scotland's paying agent: i.e. bills payable at the Bank of Scotland, but sent to London and presented to Coutts for settlement.

Through correspondent banking relationships such as the one between Coutts and the Bank of Scotland, Bosanquet's *Transfer and Set Off* machine in London was extended to support the circulation of paper quasi-monies outside London: it economized the use of high-

powered money, but clearly was labour-intensive for the banks that engaged most actively with these new paper instruments (see sections 6.6 and 6.7 for a fuller analysis).

6.3 The Coutts business model: a hybrid Goldsmith-Discounter

Under Thomas' direction during the 1790s, Coutts had only a core part of its balance sheet that matched the Goldsmith model. Alongside this core business, Coutts had come to absorb a large correspondent banking relationship with the Bank of Scotland (and smaller ones with the Royal Bank of Scotland and the Aberdeen Banking Co.) that operated like the 'Discounter' model (Exhibit 6.1).

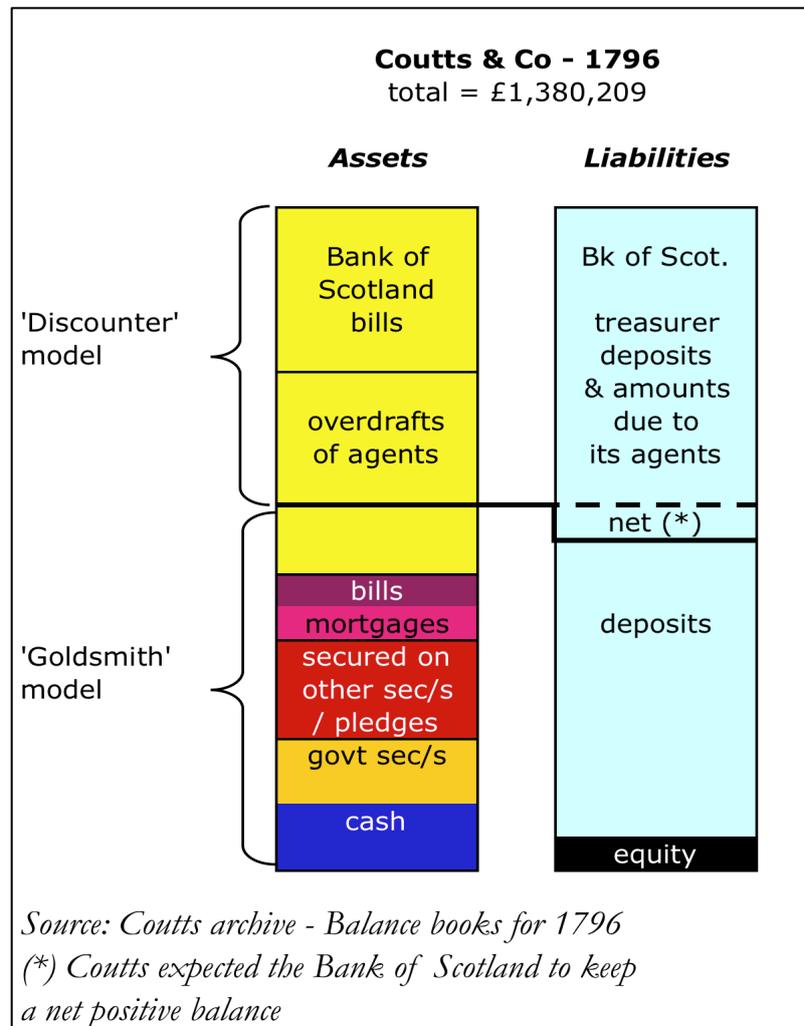
There was one difference between Coutts' large correspondent banking activity and that of the pure 'Discounter' model practised by Prescott's (Chapter 4) insofar as the work of prospecting for clients for the discounting service was done entirely by the banks in Scotland, where the locus of the client relationship remained. Coutts acted solely as the outsourced client-servicing bureau in London; other London Discounters mixed wholesale correspondent banking with an offer of discounting services directly to non-bank end-clients. By contrast, Coutts' direct client business seems to have principally involved the secured medium term lending typical of Goldsmiths.

A static analysis of the Coutts balance sheet in 1796 places it in the hybrid half-Goldsmith half-Discounter business model. However, for the purpose of our dynamic analysis of the London money supply, I include Coutts in the Discounter business-model cluster (Chapter 5) because the growth dynamic of its balance sheet is dominated by (the changes in) its handling as agent of the discounting business of the Scottish banks for whom it acted as correspondent. By 1814, Coutts had total assets of £2,948,702 of which £1,517,558 were balances due from the Bank of Scotland and its agents; of the remaining assets of £1,431,114, only £90,949 were bills discounted directly by Coutts as principal.

This dynamic categorisation finds additional justification when analysing Coutts' holdings of government securities as a proportion of (a) total assets and (b) only the assets outside the Bank of Scotland accounts. When judged by the former, Coutts' behaviour is closest to other Discounters; when judged only by the assets outside the Bank of Scotland

relationship, Coutts is a Goldsmith. Already prior to the Restriction Coutts held a larger part of its assets in traded securities compared to other Goldsmiths: this is because Thomas Coutts had acquired an early understanding of the usefulness of liquid securities in managing the volatility of the daily calls upon its core reserves of gold coin created by the growing Bank of Scotland business - as he had already explained in his letters to them in 1785. Then, during the Restriction, Coutts did not ramp up these holdings of government securities like other Goldsmiths, if viewed at the level of the whole balance sheet. However, if viewed solely through the lens of its non-Bank-of-Scotland assets, during the Restriction Coutts nearly doubled the proportion of government securities like other Goldsmiths, from 9.6% to 18.4% (see [Chapter 11](#)).

Exhibit 6.1 – Coutts & Co: a hybrid balance sheet structure, 1796



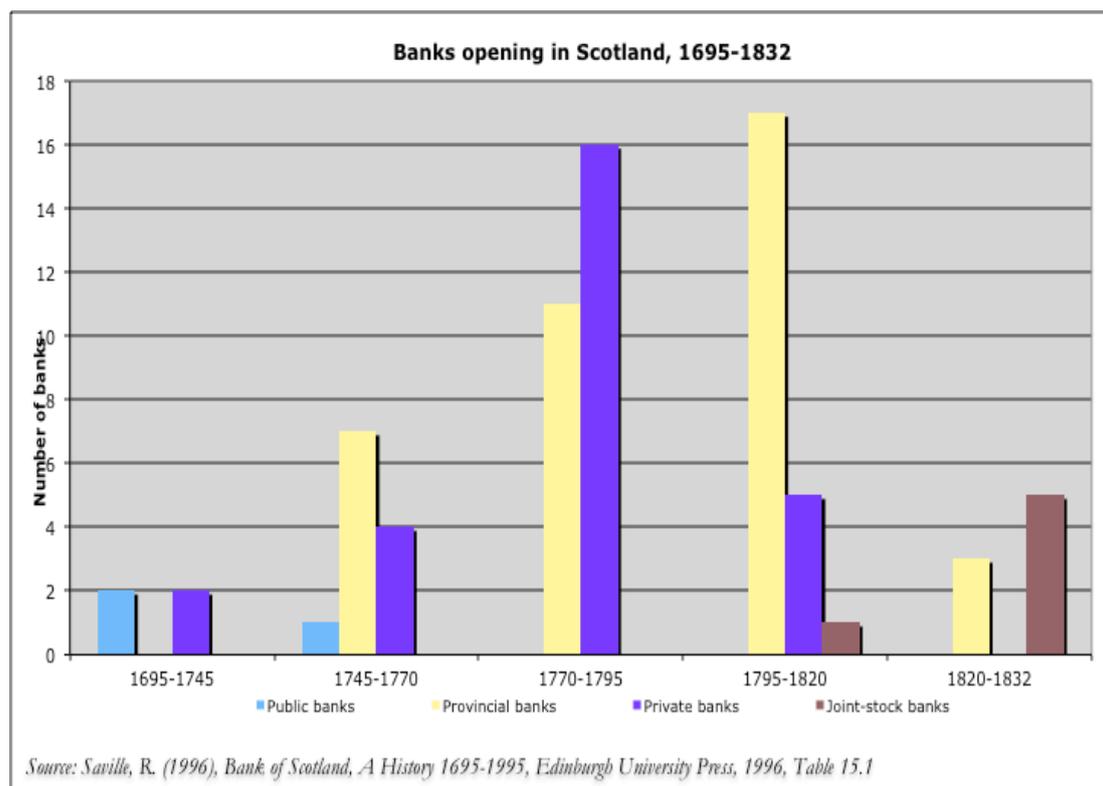
Coutts' asset strategy appears to have imitated, or perhaps supported Dundas' politically motivated strategy of holding stakes in numerous banks of importance to the Scottish banking system, and especially the Bank of England – something rarely seen in other balance sheets. It appears to have been a practice amongst bankers with a Scottish background to regard holdings in Bank of England stock as an appropriate way to invest surplus liquidity, in addition to government securities. Indeed, the Bank of Scotland held £178,163 of Bank of England shares at the time of the first available balance sheet on 27 March 1796 and these more than doubled to £378,730 by 1822. Similarly, Coutts' holding of Bank stock nearly quadrupled during the Restriction, reaching a peak of £184,000 in 1818.

6.4 Growth and stagnation of the Coutts – Bank of Scotland business

Growth in Scottish banking before the Restriction

In the years following the 1772 Ayr Bank crisis there was a substantial expansion in the Scottish economy matched by growth in both the number of banks and in the Bank of Scotland's lending. Thomas Coutts in London was able to tap into this period of growth thanks to his Scottish connections, and in particular with Dundas.

In the seventy-seven years between the creation of the Bank of Scotland in 1695 and the 1772 crisis there were 16 banks formed in Scotland. The subsequent years up to the Restriction saw the formation of almost twice as many banks in a third of the time: 16 new private banks and 11 new provincial banks (Saville, 1996: Table 15.1). Unlike in England, this period *prior* to the Restriction was the most fertile for the deepening of the Scottish banking system. In Scotland the Restriction years did not match this rate of bank formation, but nevertheless produced an expansion in the broad money supply by encouraging a second wave of new provincial banks (Exhibit 6.2). These new entrants were also less likely to have retained the lessons from the Ayr Bank collapse.

Exhibit 6.2 – New bank formations in Scotland, 1695-1832

Growth of the Bank of Scotland and Coutts before the Restriction

It was during this period prior to the Restriction that the Bank of Scotland's activity grew substantially and it began opening a network of branches and agencies that extended to eighteen in 1793. Although we do not have balance sheet records for this period, the growth can be estimated from the revenue records that show them growing from £8,920 in 1772 to £93,063 by 1797, and net profit growing from £6,857 to £76,284, both compounding at annual rates of 10% (Saville, 1996: table A.2). This growth in the Bank of Scotland's lending was supported by a substantial increase in its capital - steered through Parliament by Dundas. The permitted paid-up capital was raised from a maximum permitted of £80,000 in 1772 to £400,000 following the 1793 crisis, then £650,000 by 1796, and finally to £1 million just ahead of the Restriction being introduced - although the March 1797 records show that only £164,409 of the last increase had been paid up. The remaining £196,441 - contrary to the advice of Adam Smith following the Ayr Bank crisis - was treated either as a loan to the proprietors or as due on partly paid shares. Although by March 1800 this last capital increase was fully completed in cash terms, this time it did not

lead to a continuing expansion of the balance sheet. The reasons for this are discussed in (iii) below.

The records show that in 1779 Coutts began a correspondent banking relationship with the Bank of Scotland. Until the banking crisis of 1793, the Bank of Scotland maintained two London correspondents, the other being Kinloch & Hogg, and during that time its deposits represented 3-12% of Coutts' total liabilities. In 1793 the Bank of Scotland closed the Kinloch account, and thereafter we observe a rapid increase in its balances with Coutts. On the eve of the Restriction they accounted for 40% of the Coutts balance sheet, and they remained at that average level until 1814 (Exhibit 6.3). This rapid growth of the Scottish economy and the Bank of Scotland's lending in the years immediately prior to the Restriction had a corresponding favourable impact on Thomas Coutts' bank (Exhibit 6.4) and enabled him to grow the balance sheet at an 11% compound annual growth rate, considerably faster than the average of his London peer group, much faster than the Bank of England, and faster than nominal GDP (see Exhibits 5.6 and 5.7 in the previous chapter).

However, after 1800, for the following decade until the Bullion report, Coutts' balance sheet continues to grow, but this cannot be so clearly attributed to the Bank of Scotland. The Bank of Scotland's reported balance sheet – contrary to the experience of London banks - stagnated during the Restriction (Exhibit 6.4). During the period of fastest expansion in the Bank of England's discounting of private sector commercial paper between 1800 and 1809, the Bank of Scotland's *net* balance sheet (after extracting offsetting (non-cash) items) actually shrunk by 20%. By contrast, Coutts' balance sheet – whether including or excluding the Bank of Scotland accounts – was able to keep growing at 3% p.a., albeit at a rate that was the slowest amongst our sample of Discounters, being little more than half the rate of growth of the Bank of England's balance sheet, and more akin to the growth rates displayed by the Goldsmith banks over that period.

Exhibit 6.3 – Bank of Scotland deposits with Coutts, as a % of Coutts’ total liabilities

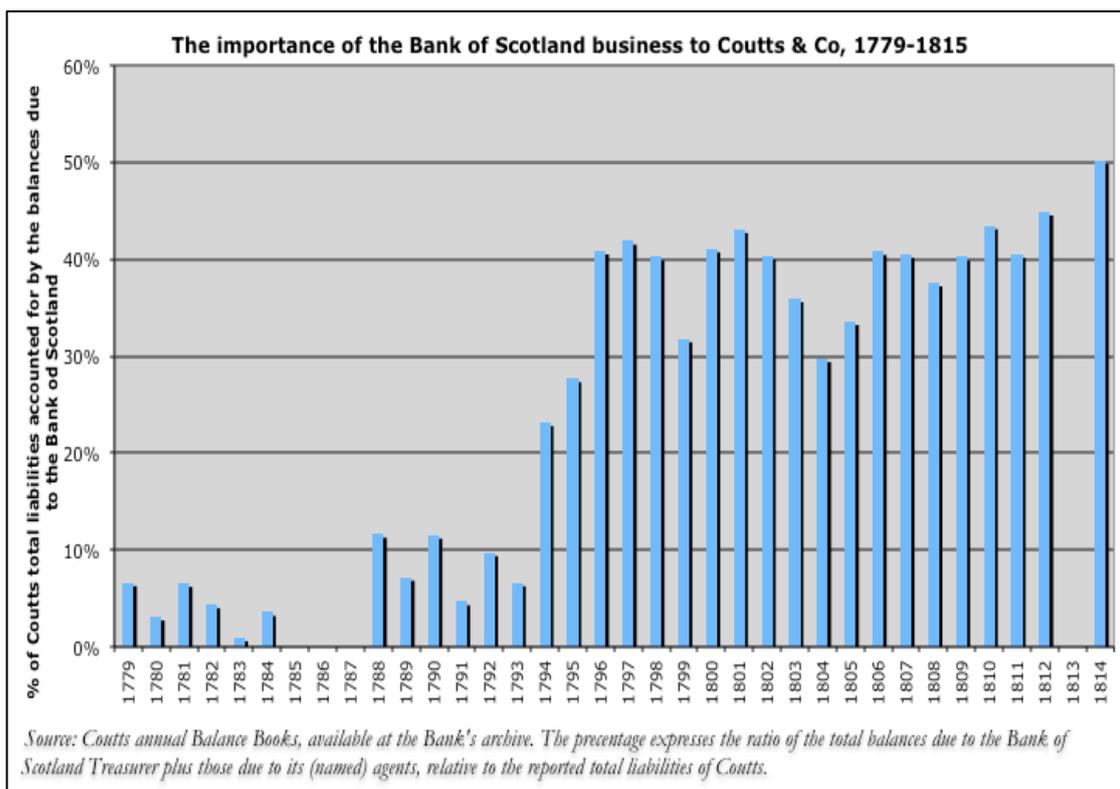
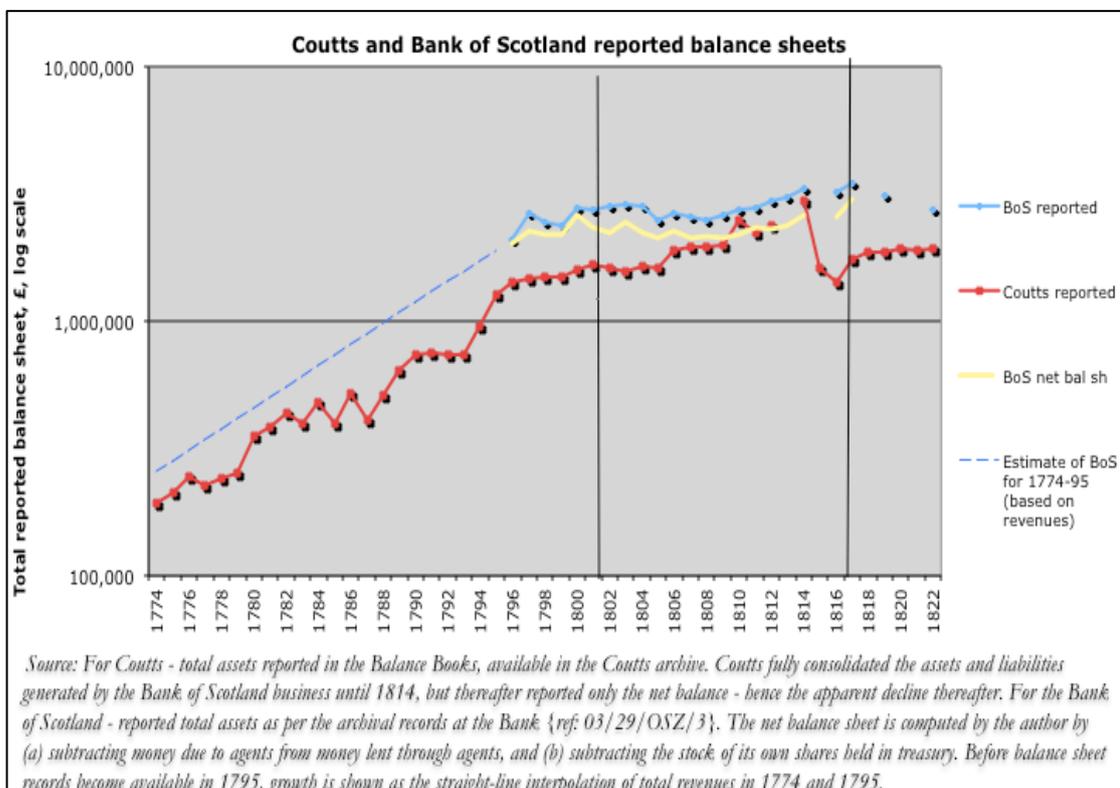


Exhibit 6.4 – Growth of the Bank of Scotland and Coutts, 1774 - 1822

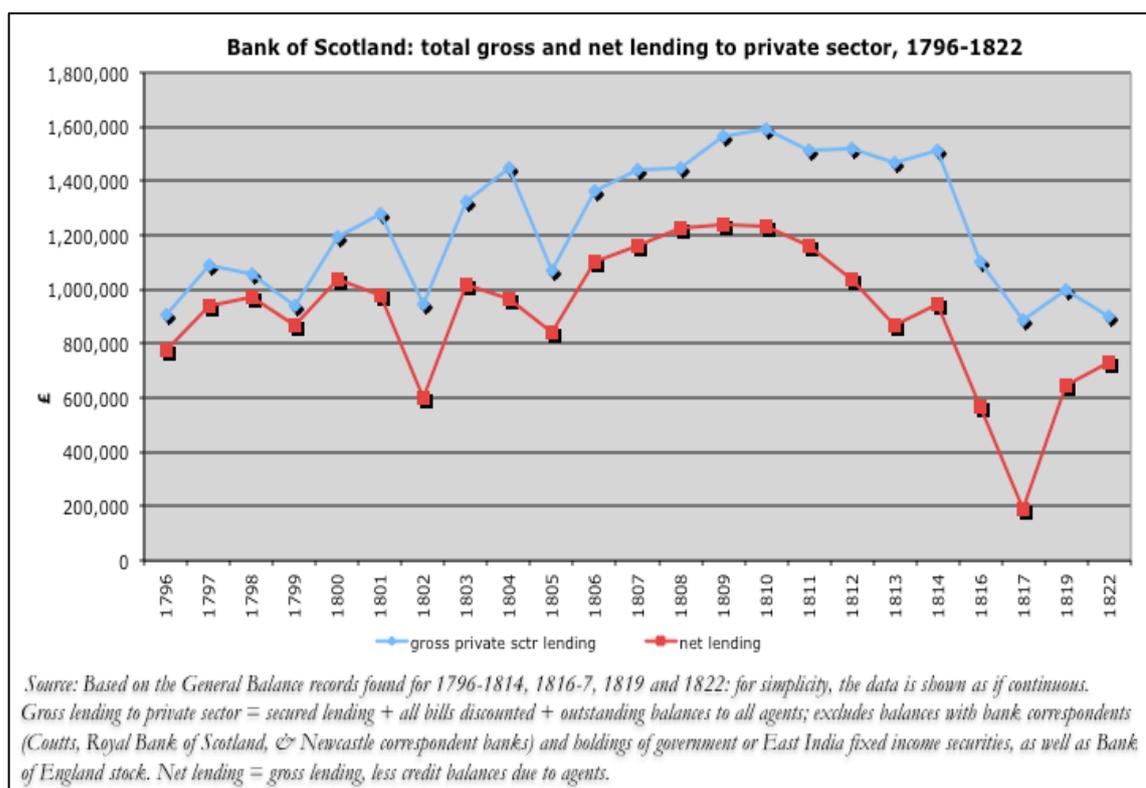


Bank of Scotland lending stagnates during and after the Restriction

Scotland's monetary system did not seem to respect the Bullionist hypotheses: before the Restriction, notional convertibility of banknotes into specie did not impede its largest bank from expanding its balance sheet and note circulation some five times faster than the Bank of England. The Bank of Scotland balance sheet is that of a note-issuing joint-stock company and hence differs from those of other private banks in England. If the Bank of Scotland 'pushed out' its notes in order to fund an expansion of credit in Scotland, it did so mostly before the Restriction. By March 1801 total gross lending assets (all secured lending, plus bills discounted, plus lending balances out to its agents, but excluding overdraft balances on the accounts of Coutts, the Royal Bank of Scotland, and its Newcastle bank correspondents, as well as all (public sector) securities holdings) reached £1.5 million; that level was only slightly exceeded during the years of the Restriction's main credit boom, peaking at £1.6 million in 1810.

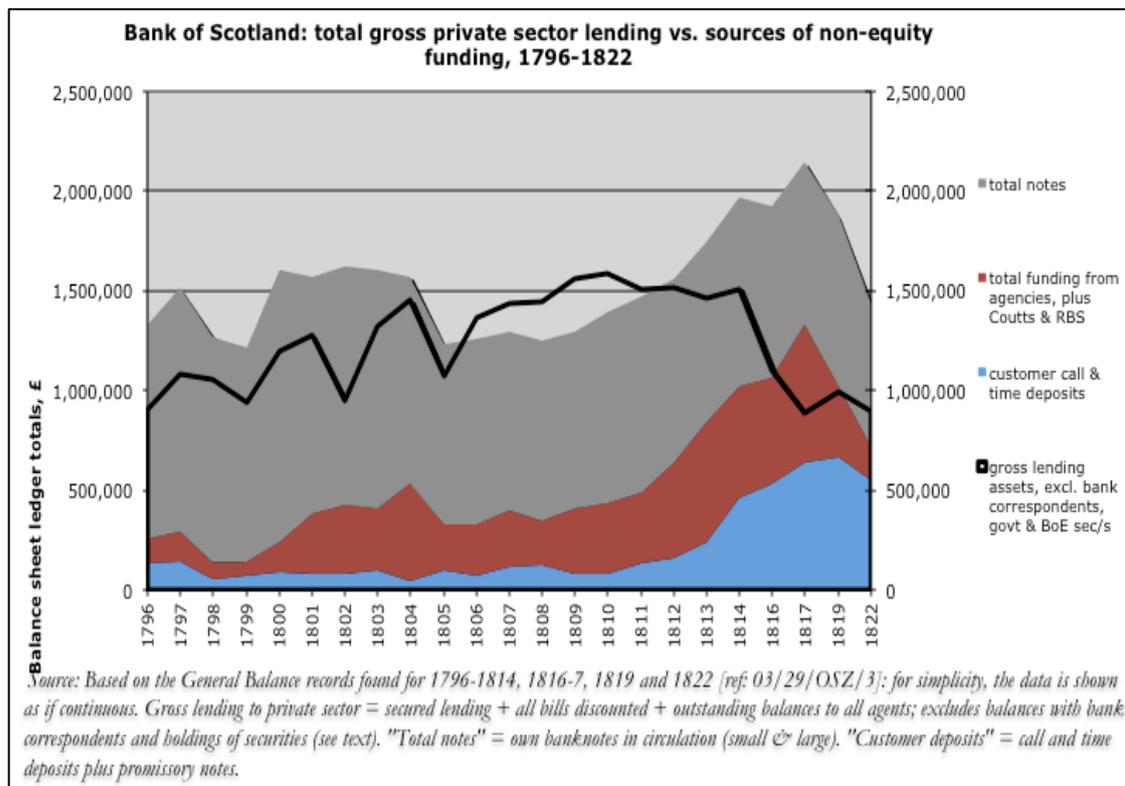
After the Restriction Act, if judged by the period of maximum expansion in the Bank of England's circulation of banknotes by 155% between 1797 and 1814, that expansion could not be blamed for having induced an increase – let alone a proportionate increase – in the Bank of Scotland's note circulation, which declined 23%, nor in the Bank of Scotland's total net lending to the private sector – gross lending minus the portion self-funded by “contra” balances owing on the accounts of agents – which grew by just 1% in total. If judged by the period of maximum expansion in the Bank of England's discounting of private sector bills by 206% between 1797 and 1810, the result is similar: the Bank of Scotland's net lending grew by just 32% (Exhibit 6.5).

Seen through the prism of the Bank of Scotland balance sheet, the Scottish experience during the whole Restriction period does not justify the notion that there was a generalised shortage of funding relative to the demand for credit. Instead, it points to a demand-driven credit market or one where the supply of credit was constrained by other factors such as the perceived availability of suitable borrowers – where the suitability criteria applied to borrowers may have encompassed the need to be a supporter of the Tory interests espoused by Dundas and the directors of the two leading banks.

Exhibit 6.5 – Bank of Scotland gross and net lending to the private sector, 1796-1822

To understand this we compare the bank's total lending to the private sector to its total non-equity funding. Total lending to the private sector is defined as the sum of secured loans, overdrafts, loan balances out to the agents, plus the stock of bills discounted, but not including holdings of government securities and equities of the Bank of England (or of the Bank of Scotland's own shares). Total non-equity funding is defined as the sum of its call and time deposits, promissory notes, credit balances due to the agents plus their drafts payable by the treasurer, and all notes in circulation, but not including equity capital (which the bank called by the wonderful name of "Adventurers"). For the periods 1797-1805 and 1812-22 the Bank of Scotland's total non-equity funding always exceeded total lending to the private sector (Exhibit 6.6). Even during the 1802 crisis the bank was able to maintain unchanged its total non-equity funding. Then, from 1810 until 1819 total non-equity funding grew strongly and yet total lending fell throughout the same period. Only during 1806-1811 does total lending outstrip total non-equity funding, but this did not prevent total lending from experiencing its only period of continuous sustained growth, providing further support for the hypothesis that lending to the private sector was demand-led.

Exhibit 6.6 – Bank of Scotland: total net lending to private sector vs. non-equity funding, 1796-1822



The analysis of the Bank of Scotland's balance sheet partly supports the argument made by Richard Saville (1996), the bank's biographer, that the bank - and the state of Scottish credit markets - flourished while Pitt and Dundas were in power, up until the first peace treaty with Napoleon was signed in 1802; thereafter the bank never fully recovered from the combination of the 1803-4 recession and Dundas' impeachment and loss of political power. Prior to 1802, Dundas' various offices had enable Scotland's businesses to benefit from Britain's wartime contracts for the purchase of food, cloth and iron. Firms such as Carron & Co. operating out of Falkirk in Stirlingshire became the largest ironworks in the country and features regularly in the bank's daily cashbook with large transfers to and from London. This appears to have rendered the Scottish economy particularly sensitive to the ebbs and flows of wartime spending. The peace at Amiens brought substantial cuts in government expenditure by the incoming Whig government of Lord Addington, which induced an economic recession that was felt hardest in Scotland. In its wake came a wave of bankruptcies and loan write-offs.

Saville (1996) blames the 1802-3-credit crisis in Scotland on Parliament's unwillingness to bring assistance to the Scottish banks, which induced the Bank of Scotland in May 1803 to impose a cap on total lending by their agents. But a careful analysis of the balance sheet suggests the main catalyst for the credit crisis lay elsewhere and occurred earlier. Saville argues that with Pitt out of office since February 1801 and Dundas partially side-lined into a peerage, the cause lies in the Whig government's rejection in 1803 of the Bank of Scotland's request to repeat the remedy that had worked so well in the 1793 credit crisis (Saville, 1996: 206-10). As in 1793, the proposal consisted of placing a special issue of Exchequer Bills with manufacturers on the security of their inventory of unsold goods, and the manufacturers would in turn use the Exchequer Bills as security for the repayment of their outstanding bills held by the banks, or simply discount them.

The refusal of assistance from London obviously did not help the Scottish money market, but the timing of the first cutback in the Bank of Scotland's lending precedes the refusal by over a year. It is the balance sheet as at March, 1802 that shows the first sharp cut in total net lending, from £976,793 a year earlier to £603,405. The likely reason for this was the discovery during 1801 that the bank's "late agent" at Haddington, a Mr. Hay Smith, had left £130,984 of bad and doubtful debts – equivalent to 5% of the bank's total assets and enough to wipe out nearly 12% of its capital and reserves. Such losses would certainly have induced a spirit of caution in any bank director. Indeed, Saville recounts how the discovery of these losses led to strict new measures of control being imposed over agents from June 1801, with accountants brought in to draw up weekly accounts and others conducting unannounced inspections (Saville, 1996: 214-5). Two years earlier the bank had begun to set aside what it called "funds to answer losses", a reserve of profits against future bad debts, but the initial sums reserved were a paltry £700, just 0.06% of total net lending. In March 1802 the bank wrote off £7,000 and increased the reserve to £20,000; the following year it wrote off £15,000 specifically against the Haddington agency loans, followed by even larger sums each year until 1806. When the year 1805-6 finally brought a 15% jump in gross revenues, the bank took the opportunity to take the Haddington bull by the horns: it wrote off £35,200 of losses, partly offsetting the hit to the P&L by drawing down its reserve against bad debts from £35,000 to £15,000. The better environment also helped with recoveries and the outstanding Haddington bad debts were more than halved from £107,974 to a more manageable £47,391.

6.5 The Bank of Scotland asset and liability model: implications

The banking system at the end of eighteenth-century could expand the broad money supply through three avenues: pushing out more banknotes, or raising the asset-side gearing to cash reserves, or by increasing the number of banks helping to re-circulate the deposit base through additional lending. Analysis of the Bank of Scotland's balance sheet highlights a mix of these factors different from those present in English banks. Analysing the balance sheet in both gross and net terms from 1796 to 1822 reveals a systematic and prudent policy towards asset and liability management – which has implications for our understanding of Britain's broad money supply and the balance sheet velocity of cash. The bank's operational oversight of its agents' transactions may have been caught out by the Haddington agent debacle, but a generation after the Ayr Bank collapse the management of its overall balance sheet still reflected a better understanding of the lessons learned compared to many of the new English start-ups.

The lessons from the 1772 Ayr Bank crisis led to two lasting biases amongst the Scottish banks operating at the time: an *asset-side bias* against secured term lending, such as was conducted by the Goldsmith banks in London, and a *liability-side bias* against the excessive use of banknotes relative to the capital base. The Ayr crisis had brought home to Scottish bankers both the real-world limitations of the Real Bills theory, and also real-world weaknesses of the assumption that profit and loss incentives would induce the Smithian 'ponds of money' to self-equilibrate.

As described in Chapter 2, Adam Smith had carefully enumerated the lessons learned from the collapse of the Ayr bank. He used these as real-world examples of the caveats to the theoretical propositions of the Real Bills Doctrine and as a warning against taking its normative implications too literally. His analysis was subsequently validated by the conclusions of the official report into the collapse (Anon, 1778b). One of the main lessons learned was the importance of assets having adequate liquidity to match that granted to the bank's creditors. The Ayr bank's failure was attributed primarily to excessive lending against illiquid real assets. In Adam Smith's (1776: 400) words:

“It was the avowed principle of this bank to advance, upon any reasonable security, the whole capital which was to be employed in those improvements of which the returns are the most slow and distant, such as the improvements of land.”

The mistake was to confuse the long-term value of the underlying collateral, taken by the bank as security against its loans, with the capacity of that collateral to be converted into short-term liquidity in the form of a money-instrument (‘cash’) that was acceptable for the extinguishing of the bank’s liabilities. It is a mistake made throughout history: confusing, on the one hand, the degree of solvency based on a bank’s net worth, when this is calculated using estimated asset values as a going concern (or, even worse, the risk-weighted equivalent value of those assets), and on the other hand the bank’s capacity to meet its immediate obligations to redeem or repay its liabilities. Again in Smith’s (1776: 403) words:

“At the first setting out of this bank, it was the opinion of some people, that how fast soever its coffers might be emptied, it might easily replenish them by raising money upon the securities of those to whom it had advanced its paper [notes]. Experience, I believe, soon convinced them that this method of raising money was much too slow to answer their purpose; and that coffers which were originally so ill filled [i.e. the bank had always been under-capitalised], and which emptied themselves so very fast, could be replenished by no other expedient but the ruinous one of drawing bills upon London, and when they became due, paying them with other draughts upon the same place with accumulated interest and commission.”

As shareholders in the Ayr Bank, Dundas and his friends had bitter experience of the bank’s collapse and brought these lessons with them to the two main oligopolistic banks: the Bank of Scotland and the Royal Bank. The balance sheet of the Bank of Scotland reveals these biases – at least during the first decade of the Restriction – and behaves in different ways to other English banks. There is no evidence of an enhanced effort to ‘push out its notes’ after 1797 and the asset-side gearing to cash does not inflate until after 1805; when it does, it serves only briefly to expand lending until 1810. Following the decline in the demand for credit after 1810, the additional non-cash assets are invested in government bonds. And there is strong evidence that the bank worked hard to apply a consistent policy of matching assets and liabilities by their degree of liquidity and the degree of control that the bank had over their redemption or other form of realisation into cash.

Exhibit 6.7 - Bank of Scotland: asset and liability matching, reported gross view 1796-1822

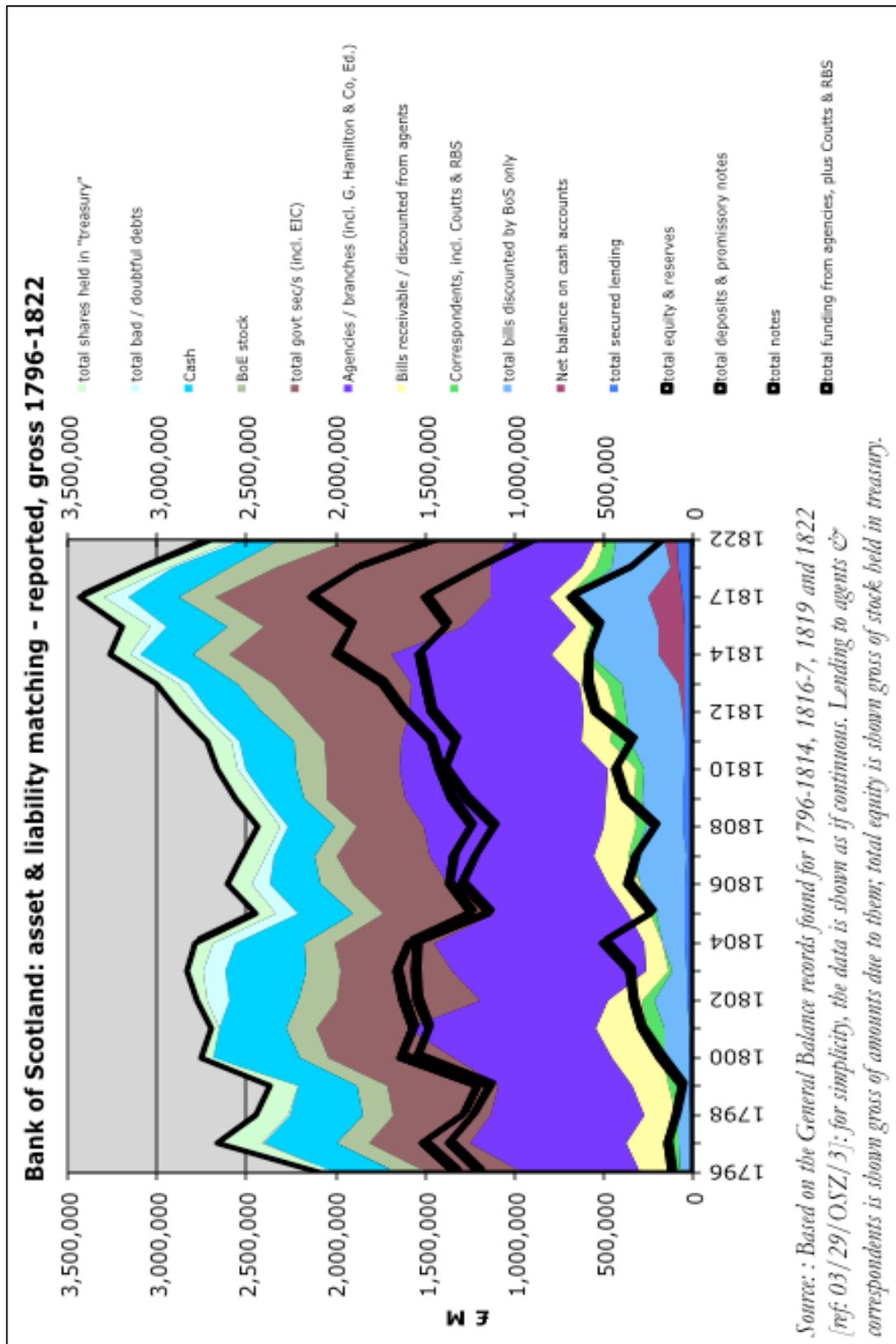
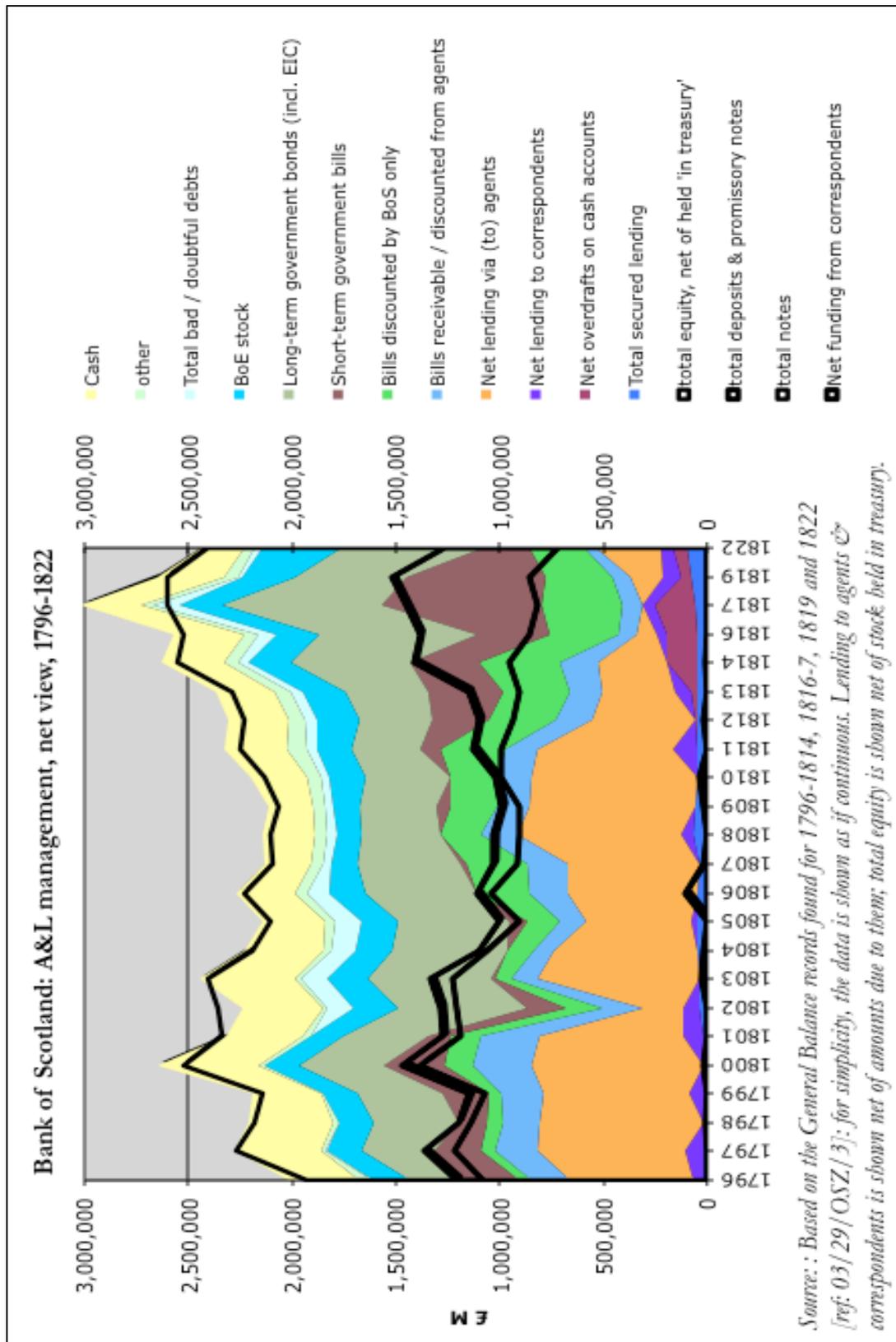


Exhibit 6.8 - Bank of Scotland: asset and liability matching, net view 1796-1822



By re-ordering assets by the degree of control and overlaying the liabilities re-ordered by the degree of permanence or ‘stickiness’, this consistent policy for asset and liability management is revealed in the two charts (Exhibit 6.7 and 6.8) on the previous pages, together with the related example (Exhibit P.1) and the explanatory notes in the Preface to Part III.

Asset & liability policies compared

Compared to contemporary English banks, capital and reserves played a far more important role in the balance sheet of the Bank of Scotland, accounting for 35 – 49% of the total reported balance sheet. The joint-stock company form made it possible to raise larger capital sums by appealing to large numbers of shareholders, while the lessons learned from the collapse of the under-capitalised Ayr Bank provided the incentive for Scottish bankers to use that capability. As a corollary, call and term deposits from clients – the mainstay of funding for most English private banks - played a relatively minor part in the total funding of the Bank of Scotland, accounting for just 10% of gross liabilities in 1796, of which almost two-thirds came via the bank’s agents in the burghs.

Reflecting conservative banking practice, doubtful debts were matched to (a small part of the) equity capital, and the rest was consistently invested in liquid assets (Exhibit 6.8). In addition to cash itself, these liquid assets consisted of government bonds, Exchequer bills and Bank of England shares; all assets for which the timing of any redemption into ‘cash’ was under the control of the Bank of Scotland and could be relied upon to be executed quickly and continuously.

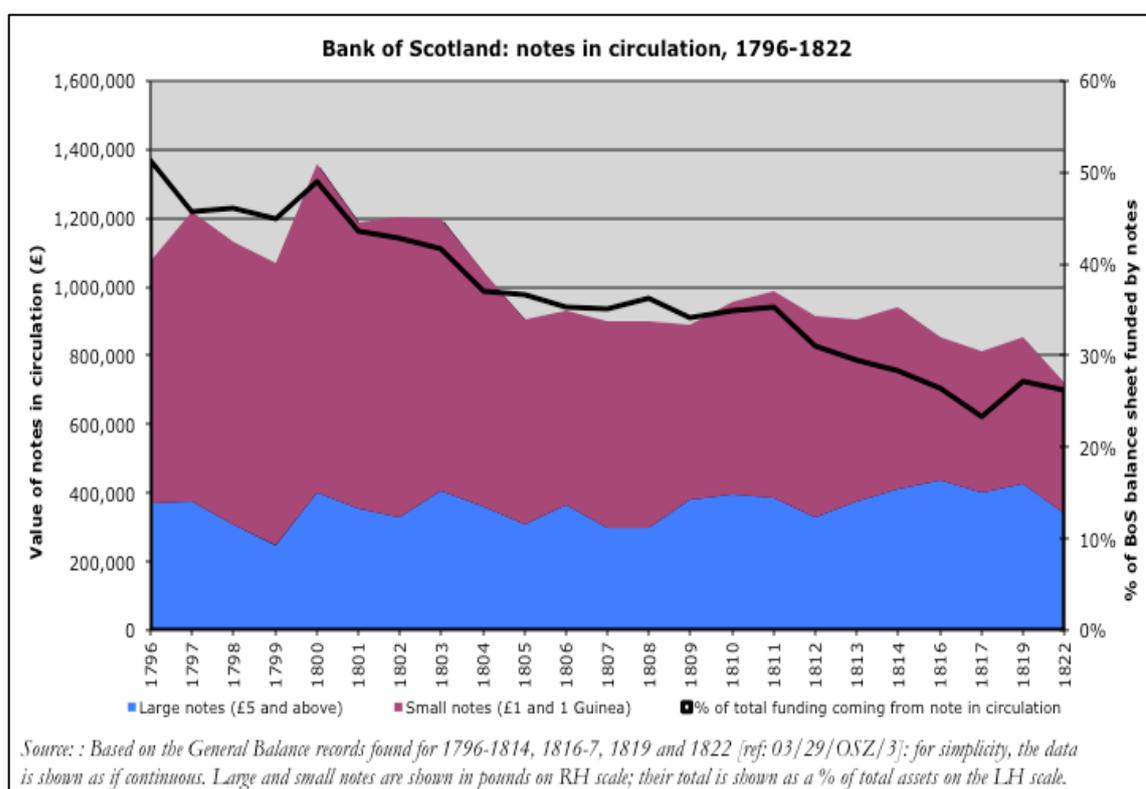
Use of banknotes

Beyond the large capital base, the remaining funding came from the Bank of Scotland’s issuance of notes. The substantial equity cushion supported a note-issuance that was already well developed *before* the Restriction, accounting for 51% of the reported gross liabilities in 1796 (Exhibit 6.9). By comparison, well-managed and well-established private Country banks in England typically did not rely on note issuance to fund more than one-quarter of their balance sheets before 1796 (Chapters 7, 8, 9). Even Smith Ellison & Co in Lincoln, the

Smith group's main engine for pushing out notes, only stretched its funding from banknotes to similar levels of 50-53% of assets *after* the Restriction Act (Chapter 7).

However, in contrast to London banks, after the Restriction Act the Bank of Scotland's note-issuance steadily *declined* as a proportion of total funding. From accounting for half the balance sheet funding before the Restriction, notes declined in importance to less than one-quarter (23.3%) of the total funding by the time Britain decided to return to the gold standard in 1818 and remained at that level thereafter. After 1800 the Bank of Scotland notes in circulation also declined in terms of their total face value and the composition changed as the decline was mostly in the smaller denominations.

Exhibit 6.9 – Bank of Scotland note circulation: total, composition and importance, 1796-1822



It is possible that this change in composition away from smaller notes was at the bank's own instigation as a reaction to the (failed) 1804 attempt by Vansittart, Addington's Chancellor to prevent banks from re-using the notes presented for encashment, which would have made the stamp duty charges on issuing new small notes prohibitive. However, as the decline in small notes began earlier and continued throughout the Restriction, the

more likely catalyst is that after the 1802-4 crisis the ‘ordinary man’ in Scotland was less willing to hold paper money, while the wholesale merchants continued to use the higher denominations to transact their business. In 1796 two-thirds of the notes in circulation were made up of what the bank called “small notes”, namely One Pound and One Guinea notes; “large notes” of £5 or more accounted for only one-third. By 1816 the two types of notes accounted for equal shares of the circulation.

Funding strategy after 1811

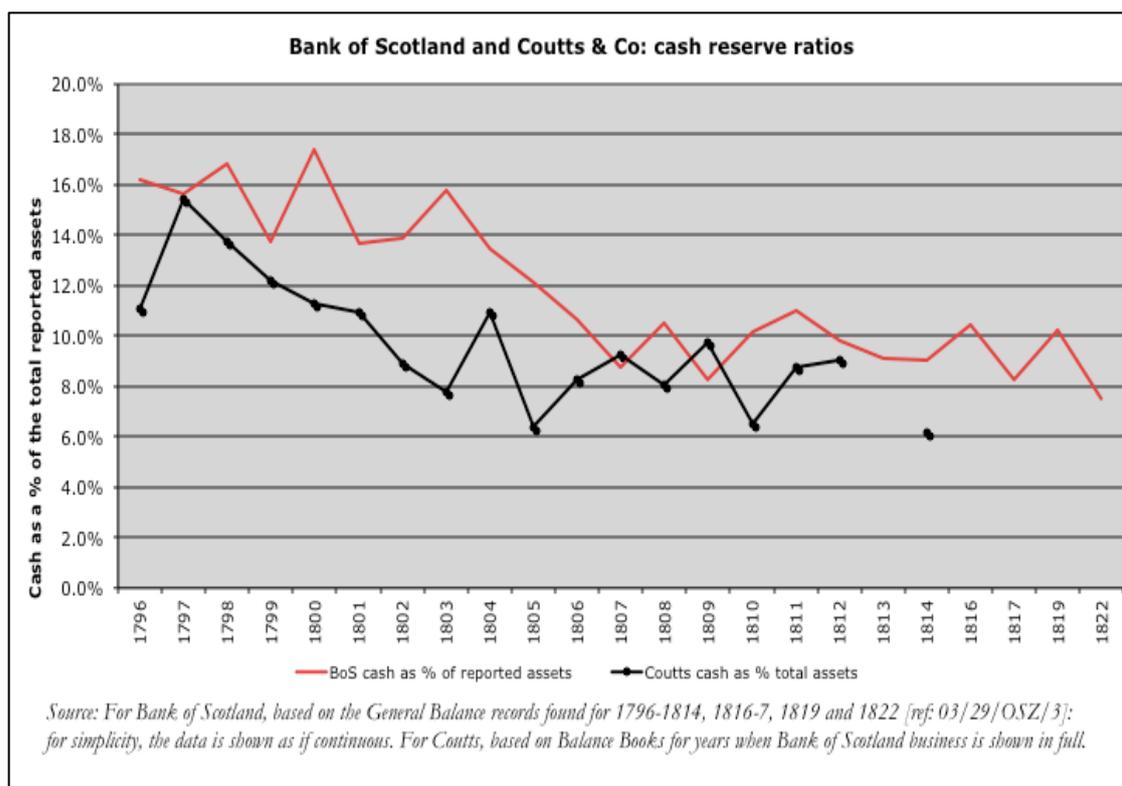
After Dundas died in 1811 the funding strategy changed in response to increasing competitive pressures, with more emphasis put on interest-bearing deposits. Until 1811, non-interest bearing deposits lodged at Edinburgh accounted for just 0.5% to 4% of total liabilities although the bank also issued a small amount of promissory notes paying between 3% and 4% interest, but these accounted for no more than 2% of total liabilities. From 1811 the bank felt obliged to react to the increasing local competition for deposits stemming from the growth in new banks. In 1810 the British Linen Bank, the third public bank created by royal charter in 1746, succeeded in obtaining permission to raise its capital from £200,000 to £500,000. Furthermore, ten of the twenty-three new banks to open in Scotland during the whole Restriction period did so in the period 1805-10, culminating in the creation of the important Dundee Union Bank (1809) and the Commercial Bank of Scotland (1810) – see Exhibit 6.1. The latter, a joint-stock bank, was created with a nominal capital of £3 million and the express purpose of expanding the credit available to the Whig interests in Scotland.

In order to compete, the Bank of Scotland expanded its promissory note programme to include ‘deposit receipts’ paying 4%; this term was used by other country banks and referred to what we would call term deposits. Then in 1814 the bank began paying between 3% and 4% on all deposits. As a result, total deposits (excluding balances from agents) grew from just 1% - 5% of total funding prior to 1810, to over 20% by 1819. As can be seen in Exhibit 6.8, this strong growth in deposits drives an equivalent increase in the total balance sheet, but coincides with a decline in total lending. As a result the additional funding ends up almost entirely invested in Exchequer Bills.

Asset gearing

The Bank of Scotland did not boost its balance sheet by pushing out more of its banknotes on the liability side, but it did expand its asset gearing during the Restriction, although not immediately after 1797, as the London Discounter banks did. On the eve of the Restriction in 1796-7, the Bank of Scotland kept a similar cash reserve ratio (17.7%) to Coutts (18.8%). But in contrast to Coutts, for the first seven years of the Restriction until 1804 it held the ratio almost constant at an average of 17.4%, while by 1805 Coutts' ratio had fallen to a low of 6.4%. Only from 1805 the Bank of Scotland began increasing its gearing and by 1809 it had brought the cash ratio down to the same level as Coutts (10.2% versus 9.8%) – Exhibit 6.10.

Exhibit 6.10 - Comparing the cash reserve ratios of Bank of Scotland and Coutts, 1796-1822



This expanded gearing meant that, *ceteris paribus*, a larger proportion of its total funding (equity, deposits and notes) was being put back into circulation rather than held back as a cash reserve. However, everything else did not remain the same. At first, between 1805 and 1810, the increased gearing allowed total private sector lending to recover to its 1800 level,

offsetting the headwind created by the declining circulation of the bank's notes. After 1810, on a backdrop of a decline in both total lending and notes in circulation, the bank's continuing adoption of higher levels of gearing now meant it was investing a greater proportion of its excess funding in higher-yielding government securities rather than cash (Exhibit 6.8). Because a portion of this excess funding was now generated from customer deposits on which the bank had begun paying 3% and 4% interest, being able to invest in interest-bearing government securities rather than zero-yielding cash would have been an important part of maintaining adequate profitability during the post-war economic slump. The bank rightly surmised that having started to pay very competitive rates of interest on deposits, those deposits could be considered more stable, thereby justifying continuing with the lower cash reserve ratio (higher gearing).

6.6 Turnover rates, the transactional environment and the balance sheet velocity of specie

The high total *value* of transactions flowing between Coutts and the Bank of Scotland points to the high balance sheet velocity of bank cash balances during the Restriction. Specie – and even Bank of England banknotes – played only a minor role. Within the banking system, the majority of transactions did not involve transfers of specie or even Bank of England banknotes, but rather were executed by offsetting accounting entries using other forms of quasi-money instruments.

Inspection of the cumulative monthly transaction volumes from the perspective of Coutts' account at the Bank of Scotland (Bank of Scotland archive ref: 1/103/8, and Exhibit 6.11 below) confirms Thomas Coutts's analysis: in the year to March 1816 a total of £3,965,812 was credited to the Coutts account and £3,901,593 was debited. That same year the Bank of Scotland median month-end balance with Coutts was £22,926. This can be assumed to reflect a deposit of specie initially made by the Bank of Scotland to 'anchor' the account, and to approximate to the target balance expected by Coutts. We know this because in October 1811 Coutts had requested and obtained that the Bank of Scotland "part with [an

additional] ten thousand pounds of Gold specie ... and we have placed the amount to the Bank's Credit."⁴⁸

Hence, The Bank of Scotland's average deposit balance of specie with Coutts was supporting total annual monetary flows 170 times larger.

This particular Smithian 'pond of money' was almost entirely filled, not with specie, but with paper-based forms of quasi-money representing book entries in the accounts of the Bank of Scotland and Coutts. These different forms of paper-based I.O.U vouchers representing book-entries in the accounts of one or the other bank would travel around the country and largely offset each other whenever they came to rest, requiring little change in the underlying stock of specie. On the surface, this 'pond of money' appeared calm and its level constant: of the near £4 million credited and debited by the Bank of Scotland to the Coutts account during the fiscal year 1815-16, only four entries totalling £8,600 constituted Bank of England notes sent up to Scotland, and a further six entries for transfers of silver totalling £1,800. During the entire four years of daily records examined (1812-16), of the total credited to the Coutts account of £14,439,604, only 0.16% constituted specie (£7,300 of silver) and Bank of England notes and "tokens" (£15,709) sent up from London. Travelling in the opposite direction were £5,000 of gold sent from Edinburgh to Coutts on 11th Oct 1813 and £10,000 of Bank of England notes in December 1814.

Liquidity management and the reliance on London

This pond of quasi-money was ruffled only to the extent of 0.04% per annum by the need to execute two-way transfers of specie and Bank of England notes, but below the surface it experienced some dramatic seasonal and structural currents. These major imbalances in the flows in and out of the pond were offset by sales and purchases of government securities. As with other Country banks, it was government securities that acted as a proxy for reserves of specie.

⁴⁸ Coutts & Co Archive: *Coutts Letter Book*, Thomas Coutts' letter of 19 & 25 Oct 1811 to George Sandy requesting, and the Bank of Scotland agreeing to send an additional £10,000 in gold "by the Waggon".

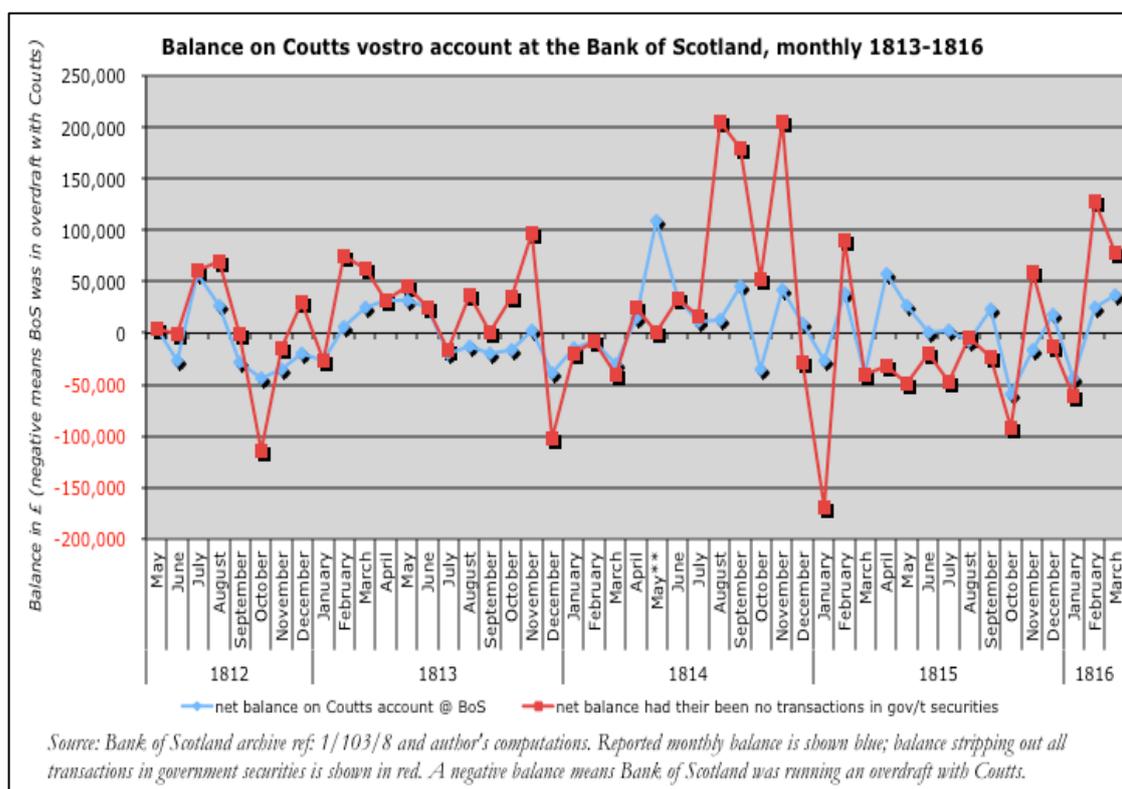
Exhibit 6.11 – Analysis of Bank of Scotland’s account at Coutts, as kept by the former, 1812-16

Coutts' account at the Bank of Scotland analysis of monthly balances													
Year	end mth* of:	Debit side cum volumes	Credit side cum volumes	net balance on Coutts a/c (-ve means BoS was in debit)	net balance shown in fiscal year-end balance sheet	Debit side includes Exch Bills, Consols & India Bonds on behalf of BoS for:	Credit side includes Exch Bills (incl. roll overs), Consols & India Bonds BoS for:	Net inflow from movement in month	Net balance with Coutts had no trades in sec/s	BoE notes	BoE tokens	Silver movements credited to account ("By Weight" or "Specie")	Cumulative clock resets outside fiscal year-end
1812	May	939,606	944,174	4,568	24,047		25,544	0	4,568				
	June	1,163,659	1,136,648	27,011	32,100		25,544	25,544	0				
	July	1,172,189	1,174,175	1,986	24,087		25,544	51,088	26,544	1,000			
	August	1,969,226	1,940,472	28,754	24,087		6,293	48,381	69,317				
	September	2,340,004	2,296,271	43,733	19,968		1,166	29,244	28,078			500	
	October	2,581,014	2,546,115	34,899	15,844		7,228	26,994	19,766				
	November	3,010,969	2,990,812	20,157	2,862		13,029	62,718	49,689			600	
	December	3,527,770	3,533,153	-5,383	2,862		25,618	94,217	68,599				
	January	3,881,167	3,905,200	24,033	24,047		31,803	39,131	39,131	2,000			
	February	3,853,557	3,853,557	0	32,100		162,853	163,230	377				
	March	3,853,557	3,853,557	0	32,100		223,198	236,293	13,095				
	April	3,853,557	3,853,557	0	24,087		49,118	49,118	0				
May	3,853,557	3,853,557	0	19,968		3,776	3,776	0					
June	3,853,557	3,853,557	0	19,968		20,419	20,419	0			1,009		
July	3,853,557	3,853,557	0	15,844		1,016	52,110	51,094					
August	3,853,557	3,853,557	0	2,862		166,027	93,689	93,689					
September	3,853,557	3,853,557	0	2,862		31,078	24,858	-6,220					
October	3,853,557	3,853,557	0	-30,859		92,229	82,000	-10,229					
November	3,853,557	3,853,557	0	108,681		47,139	56,628	9,489					
December	3,853,557	3,853,557	0	32,680		383,338	284,031	0					
January	3,853,557	3,853,557	0	32,680		6,185	6,185	0					
February	3,853,557	3,853,557	0	1,172		192,570	192,570	0					
March	3,853,557	3,853,557	0	44,839		134,738	134,738	0					
April	3,853,557	3,853,557	0	44,839		86,848	86,848	0					
May	3,853,557	3,853,557	0	34,556		212,321	162,576	205,151					
June	3,853,557	3,853,557	0	42,575		81,113	43,435	-37,678					
July	3,853,557	3,853,557	0	9,746		159,117	5,206	-143,911					
August	3,853,557	3,853,557	0	39,438		201,550	201,719	169					
September	3,853,557	3,853,557	0	-39,859		90,533	2,006	-88,527					
October	3,853,557	3,853,557	0	56,801		78,677	3,046	-75,631					
November	3,853,557	3,853,557	0	25,958		143,789	122,877	-20,912					
December	3,853,557	3,853,557	0	240		41,248	41,248	0					
January	3,853,557	3,853,557	0	-6,951		46,437	44,290	-2,147					
February	3,853,557	3,853,557	0	22,660		38,968	6,399	-32,569					
March	3,853,557	3,853,557	0	58,596		38,968	75,032	59,376					
April	3,853,557	3,853,557	0	15,656		34,304	2,500	-31,804					
May	3,853,557	3,853,557	0	18,224		21,053	10,500	-10,500					
June	3,853,557	3,853,557	0	27,485		40,825	40,825	0					
July	3,853,557	3,853,557	0	37,704		40,825	40,825	0					
August	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
September	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
October	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
November	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
December	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
January	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
February	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
March	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
April	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
May	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
June	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
July	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
August	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
September	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
October	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
November	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
December	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
January	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
February	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
March	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
April	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
May	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
June	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
July	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
August	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
September	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
October	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
November	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
December	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
January	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
February	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
March	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
April	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
May	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
June	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
July	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
August	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
September	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
October	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
November	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
December	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
January	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
February	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
March	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
April	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
May	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
June	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
July	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
August	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
September	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
October	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
November	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
December	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
January	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
February	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
March	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
April	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
May	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
June	3,853,557	3,853,557	0	252,003		40,825	40,825	0					
July	3,853,557	3,853,557	0	252,00									

Examining the daily records of the Coutts account with the Bank of Scotland between May 1812 and March 1816, and stripping out the transactions in government securities, reveals that the underlying inflows and outflows could run up substantial imbalances (Exhibit 6.11 and 6.12). Computed this way (red line in Exhibit 6.12), even during the calmer period prior to mid-1814, month-end balances on the account varied from a positive balance (as required by the contractual agreements) of up to £96,551 to an overdraft in excess of £100,000, i.e. twice the agreed contractual maximum.

This pattern in the net balance between the two banks deteriorated after the autumn of 1814. A record Bank of Scotland *credit* balance with Coutts of £205,742 in November 1814, just two months later became a record *overdraft* of £170,002 (January 1815). Thereafter the overdrafts also became more persistent: from December 1814 through to January 1816 there were only two months when the balance was in favour of the Bank of Scotland. In a telling reaction to these changing dynamics, in December 1814 the Bank of Scotland accountant begins to draw up a net position every week instead of just monthly.

Exhibit 6.12 – Bank of Scotland view of their account at Coutts, and net securities trades, 1812-1816



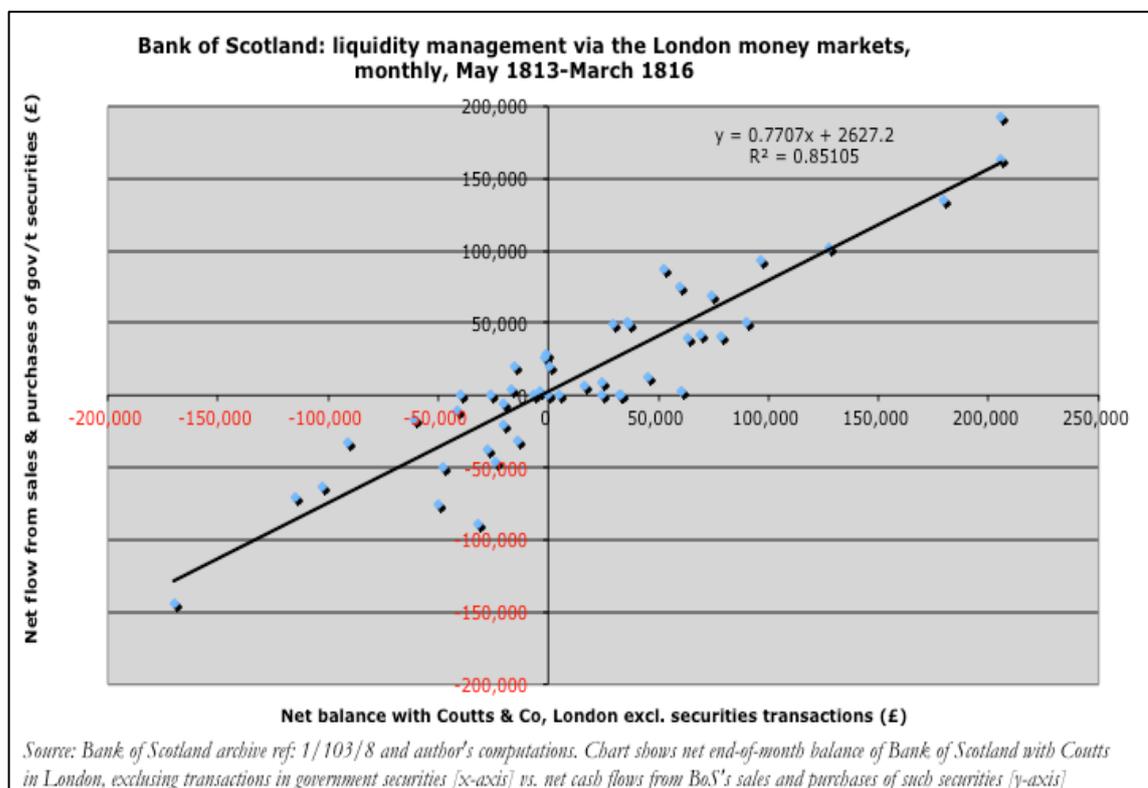
With the war with Napoleon petering out, the ensuing economic slump led to a deflating stock of paper-based quasi-money and a corresponding outflow of liquidity from the Country 'fringe' banking network and towards the core London banks. An analysis of the Bank of Scotland-Coutts net flows are an important litmus test for the ensuing pressures bearing down upon any less well-managed Country bank that was either under-capitalised or over-gearred to its cash reserves. Without the bank of Scotland's ability to call upon sales of its large holdings of government securities (matched against its equity capital), during fiscal year 1815-16 (March to March) the *underlying customer flows* between Coutts and the Bank of Scotland would have caused Edinburgh to have to send a net £205,517 to London in order to settle the payments imbalance. The imbalance was equivalent to 8% of the Bank of Scotland's net balance sheet, 18% of its net capital and reserves, and 68% of its underlying cash reserve (actual balances of specie and Bank of England notes, minus the overdraft with Coutts). If, like the Ayr Bank, the bank had had a smaller paid-up equity capital, or had invested that equity in illiquid assets, then it would likely have had to stop payment by Oct 1815. Even assuming a best-case scenario where the Bank of Scotland was able to meet the obligations in London at least in part with transfers of Bank of England notes and not just with specie - thereby making all of its cash reserves effective for this purpose - the Bank of Scotland would have been relying on cash reserves of £302,578 to meet a net drain of £205,517. In such circumstances it would have struggled greatly to retain the confidence of its customers and avoid a run on the bank at a time when its net note circulation had already been shrinking for some years.

It is not surprising that in 1815 Thomas Coutts was concerned at the creditworthiness of his largest client. Fortunately in 1785 Coutts had sought and obtained that the Bank of Scotland use some of its capital to hold government securities as an additional liquidity buffer, and to place these in custody with Coutts who would have the power of attorney to sell them in the event it became too uncomfortable with the size of the net overdraft balance⁴⁹. In effect Thomas Coutts was accepting that the volume of business now justified overdrafts in excess of the agreed line of credit, but was requesting that the Bank of Scotland collateralize any such excess. The records show that the Bank of Scotland used its stock of government securities to offset both temporary and longer-term structural imbalances in the net flows with its London correspondent. It would sell Exchequer Bills (and sometimes government Consols) when the account went into overdraft and buy them back when the account was

⁴⁹ Coutts & Co Archive: *Coutts Special Letter Book*, 8 Apr 1785

back in surplus. What the records do not show is whether this pattern of behaviour reflects Thomas Coutts' prompt exercise of his power of attorney, or the Bank of Scotland's active liquidity management.

Exhibit 6.13 – Bank of Scotland: revealed liquidity management function,
May 1813 – Mar 1816



Whoever was the initiator, the records over this period reveal a tightly defined reaction function (Exhibit 6.13). Every £1 overdraft (credit) balance on the account would cause £0.77 to be realised from the sale (spent on the purchase) of government securities. The 'target' balance appears to have been zero net of the flow of interest payments accruing to the Bank of Scotland on its average stock of those securities (The regression shows: $y = £2,627 [t=0.72] + 0.771 [t=16.03] * x$, with adjusted R-sq. = 0.85, and where y = net monthly sum realised from sales (used to purchase) government securities, and x = net month-end overdraft (credit) of the Bank of Scotland on the Coutts account. The statistically insignificant constant of £2,627 is nevertheless approximately in line with the expected inflow of interest on the Bank of Scotland's average stock of government securities at an average yield of 4.3%). We interpret this as both banks adopting the rule-of-thumb whereby approximately one-quarter (i.e. one minus 0.77) of any net monthly balance

was assumed to be “noise” caused by random differences in the timing of bills being presented plus the delays in communication between the two cities, and hence likely to be quickly reversed within a matter of days and not warranting the expense of buying or selling securities to cover it.

Transactional environment of correspondent banking vs. the Goldsmith business model

We don't know what proportion of the bills bought by the Bank of Scotland ended up in London for settlement, and some doubtless were never sent down to London and instead settled locally across clients of the same agent, or regionally across clients of different agents of the Bank of Scotland, or lastly across clients of different Scottish banks. However, we can analyse the volume of transactions flowing between the Bank of Scotland and Coutts from 1812 to 1816: these flows were large, and contained many small ‘retail’ amounts. Analysing the *number* and *value* of the transactions flow allows inferences regarding the way the transactional environment influenced the bankers actively involved in correspondent banking; the balance sheet velocity of specie; and the instruments that were acting as proxies for ‘money’ in specie.

The high *number* of transactions flowing between Coutts and the Bank of Scotland reveals the operating mind-set of the bankers that followed a Discounter business model. In a letter from Thomas Coutts to the Bank of Scotland he states that in the year to March 1816 “The amount that has passed through our hands [when acting as agent of the Bank of Scotland] has been about Four Millions received in about ten Thousand different amounts and paid away in Eight Thousand”.⁵⁰ Calculated over a full year of 6-day weeks, Coutts handled almost 60 transactions every day for the Bank of Scotland alone. By comparison, I estimate that over the same period Hoares bank, following a Goldsmith business model, handled no more than two equivalent transactions per day. Hoares’ value of bill discounting was little more than one-tenth the size, and it was of a less ‘retail’ nature, being received in just 200 amounts and paid out in 275. In other words, the volume of transactions handled by Coutts for the Bank of Scotland alone was forty times the total volume of discounts handled by Hoares on behalf of *all* its customers. Such wide discrepancy between the Goldsmith and the Discounter banks in the volumes of transactions, each involving the swapping of specie

⁵⁰ Coutts & Co Archive: Coutts Special Letter Book, letter from Thomas Coutts to George Sandy dated 27 March 1816.

and Bank of England banknotes for other forms of IOUs acting as quasi-money, induced or reinforced an equal discrepancy in the bankers' respective cognitive perception of what constituted 'money'. In particular it encouraged the Discounter to think of 'money' primarily in terms of the means of exchange represented by the different monetary instruments he was exchanging so frequently, each 'carrying' the nominal unit of account called 'a pound' (and to be less concerned by any divergence between the extrinsic value of each of those instruments and the standard of value in the form of specie, since in most cases he was exchanging different paper money instruments between themselves rather than for specie).

In fact specie appears to have played a minor part of these intra-regional flows and many of transactions were completed within the banking system as offsetting book entries. The contrast between these two daily experiences of 'money' can be compared to the differences that exist more recently between bankers inside, say, building society mutuals, handling low-frequency money in the form of cash, deposit passbooks and mortgages, and on the other hand 'bankers' on trading desks inside investment banks, handling high-frequency electronic artefacts representing only second- and third –order derivatives of the monetary values of underlying assets.

6.7 London banks equity capital and credit exposure to the 'fringe'

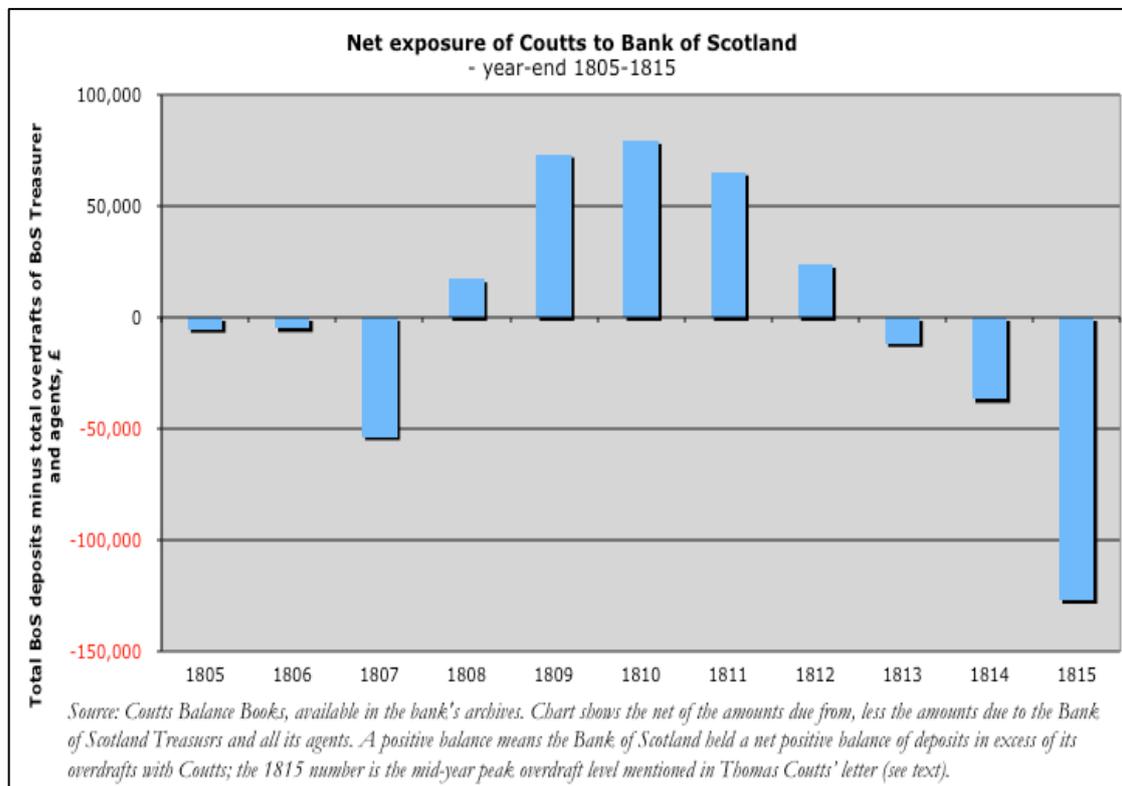
Country bank risk

Thomas Coutts managed his net exposure to the Bank of Scotland in such a way as to contain it to some approximate equality to Coutts' paid-up capital. This ensured that the ever-growing gross throughput volume of bills always generated a growing return on capital-at-risk without the latter becoming so large as to put Coutts' survival at risk in the event of the failure of the Bank of Scotland. This two-pronged risk management strategy - controlling net credit exposure and calling up more equity capital as the business grew – was sensible practice and demonstrates a sophisticated understanding of credit risk, both intra-day and over the medium term.

Coutts had set the daily net overdraft limit at £15,000 in 1777, approximately equal to the average deposit balance of the Bank of Scotland during the early years after the relationship

with Coutts became exclusive. In the same year Coutts increased its paid-up capital from £12,000 to £24,000.

Exhibit 6.14 – Coutts’ net credit exposure to the Bank of Scotland credit risk, 1805-1815



Then, having once again increased the paid-up capital of the bank to £42,000, in 1794 Coutts raised the Bank of Scotland’s credit limit to £50,000. But this barely kept pace with the expansion in the total volumes flowing through Coutts: we know from Coutts letters that the total volume of bills it handled on behalf of the Bank of Scotland was £1.5 million in 1794, whereas by 1816 volumes had grown nearly two-and-half times, and yet Coutts was attempting to operate the account with an unchanged overdraft limit of £50,000. To make matters worse, the Bank of Scotland was no longer maintaining a regular net positive balance on its account at Coutts. The net daily overdraft appears to have been highly volatile and often exceeded the agreed limit: the year-end snapshots available for 1805 to 1814 show a net balance ranging from -£55,575 in 1807 to +£79,510 at the end of June 1810 (Exhibit 6.14). In 1815 Thomas Coutts had to write to the Bank of Scotland complaining that the net overdraft had run up to -£126,150.

From 1813 to 1816 the Bank of Scotland's net flow of funds deteriorated sharply and the overdraft became near permanent, and the financing of it was putting pressure on Coutts balance sheet. We have confirmation of this from Coutts' review of the Bank of Scotland account conducted in 1816 in support of its attempt to raise fees. It showed that "in the first seven years [after 1794] the average charge of Interest on advances did not exceed £300; last year [1815] it was £1,200; this year it is £1,300 and in point of time the advance you will remark has continued for nearly two thirds of the whole year."⁵¹ Shortly thereafter Coutts run an estimate of the interest that the Bank of Scotland would have earned if it had been with a different London correspondent that paid interest (at 4%) on all positive balances, which they estimate would have generated just £456 p.a. for the Bank of Scotland over the previous three years. Hence, between 1813 and 1815 the weighted average overdraft balance was some three times the weighted average of any positive balances.

The safety net of collateralizing the excess credit risk was (and is to this day) a difficult one to implement: when the client was such a large proportion of Coutts' overall business, enforcing the sale of the client's best quality and most liquid collateral is unlikely to enhance the future relationship, especially as the need to do so often occurs at times when systemic problems in the money markets have pushed that collateral to a discount to face value. As the business continued to grow after 1793, Coutts first raised the paid-up capital to £56,000 at the start of the Restriction, and then in 1805 began to capitalise a portion of each year's profits until 1821, by which time equity had reached £200,000 or 10% of its balance sheet, making it perhaps the best capitalised private bank in London. It seems that after 1793 Thomas Coutts decided to leave the 'contractual' overdraft limit at £50,000, conscious that it had become merely a moral stick to wave at his best client, and instead prudently continued to call up additional capital so as to provide a matching second line of defence in case the collateral should fail to cover the excess overdraft in the event of a failure of the client.

The Coutts- Bank of Scotland evidence highlights how, at times of monetary expansion, the locus of credit risk becomes more volatile as the banking system's gearing to high-powered reserves increases. The deflationary deleveraging that ensued after 1815 generated substantial liquidity pressures on the banking system, and Country banks unable to call

⁵¹ Coutts & Co Archive: Special Letter Book, letter to George Sandy dated 27 March 1816

upon the support of well-capitalised London banks became extremely vulnerable to collapse.

PART III

Case studies of Country banks

Chapter 7. The North Midlands and the Smith group

- 1. The importance of the Smith banking group*
- 2. The family history and connections*
- 3. The integrated business model and profitability*
- 4. Organic growth: Smith's policy on capital and profit distribution*
- 5. Cash management and the daily flows between London and Country*
- 6. Policy on banknote issuance*
- 7. Balance sheet and liquidity management*

In this chapter I investigate the balance sheet practices of the important Smith banking group, and its noteworthy business model that integrated London and Country banks under the control of one family, for evidence that behaviour was consistent with the views and hypotheses expressed by contemporary political economists. For the historical background, I draw on Leighton-Boyce's (1958) masterly account of the Smith family bankers, and focus my contribution on quantifying and analysing the actions revealed by the balance sheets.

7.1 The importance of the “Smith Banking Group”

Samuel Smith's group of banks is of particular interest because it is the closest to an integrated banking group operating across the country, comprising a London bank and four Country banks in Nottingham, Lincoln, Hull and Derby linked by common shareholders. What I have chosen to call the “Smith Banking group” comprised the following, in chronological order of when they were founded:

1. The original Nottingham bank, Thomas Smith & Co.: founded in 1658, it was called **Samuel Smith & Co** during the Restriction and owned for 2/9th by Samuel Smith III (1754-1834), 1 1/2 parts each by the latter's younger brothers George Smith II (1765-1836) and John Smith II (1767-1842), and for 4/9th by Rene Payne; Samuel acted as the resident partner, although he split his time between there and London

2. The important London bank, **Smith, Payne & Smiths**: [hereafter “SPS”] founded in 1758, at the time of the Restriction Act it was owned by the same partnership as Nottingham, with Rene Payne as the resident managing partner
3. The Lincoln bank, **Smith, Ellison & Co**: founded in 1775, in partnership with Richard Ellison who was already a partner in an other local bank (Ellison, Cooke, Childers & Swan of Doncaster) and Henry Ellison
4. The Hull bank, **Smiths & Thompson**: founded in 1784, the partnership was reorganized at the same time as London’s, and during the Restriction it was owned for 29.2% by Samuel Smith III, 16.7% each by George and John Smith, and 37% by Thomas Thompson, who was the resident managing partner.
5. The Derby bank, **Samuel Smith & Co**: founded during the restriction in 1806 by way of the acquisition of the local firm Richardson & Co.

The Smith banking group was a substantial component of Britain’s banking system. I estimate⁵² the group entered the Restriction in 1797 with total assets in excess of £1.5 million, making it approximately the same size as the largest English bank in our sample that year (Coutts). The Smith group soon outgrew Coutts during the Restriction: total assets reached £2.8 million in 1810 at the peak of the Bank of England’s discounting boom; and £3.6 million in 1818 when Britain returned to the gold standard [Exhibit 7.1]. In 1813-14, the two years for which we have balance sheets for all five of the group’s entities, total assets were just shy of £3 million. This makes the Smith banking group 50% larger than the largest London banks except Coutts during the Restriction and, together with the Bank of Scotland, the largest banking group in Britain behind the Bank of England. By 1818 the Smith group had become the largest banking group, controlling assets that were one and quarter times larger than either the Bank of Scotland (including branches) or Coutts, whilst remaining a tightly controlled private partnership. Unlike the Bank of England and the Bank of Scotland which were joint-stock banks owned by scores of shareholders, the year Britain returned to the gold standard the Smith group remained under the control of just seven partners. Three members of the Smith family had majority control of all the entities except Lincoln, and four other partners spread across the different entities supported them. Amongst these, just one man, Samuel Smith II, had a pivotal stake across all five entities (albeit not a controlling one) and (I estimate) held some 37 – 40% of the entire group’s paid-up capital.

Exhibit 7.1 – Smith group banks: total assets, 1795 – 1832

Smith group total assets - with interpolated estimates						
	SPS	SPS	SEB	SS	SS	<i>estimated</i>
founded in:	London	Nottingham	Lincoln	Hull	Derby	total assets
	1758	1658	1775	1784	1806	
equation of interpolation:	$y = 34419x + 766173$	$y = 2549x + 244815$	$y = 19343x + 180596$	$y = 16723x + 257416$	$y = 11451x - 53428$	<i>of which Country banks</i>
1795	800,592	250,775	199,939	274,139	0	1,525,445 724,853
1796	835,011	233,711	219,282	290,862	0	1,578,866 743,855
1797	821,407	248,910	238,625	307,585	0	1,616,527 795,120
1798	964,261	273,925	257,968	324,308	0	1,820,462 856,201
1799	938,268	257,560	322,294	341,031	0	1,859,153 920,885
1800	972,687	260,109	296,654	357,754	0	1,887,204 914,517
1801	1,007,106	262,658	315,997	374,477	0	1,960,238 953,132
1802	1,041,525	265,207	335,340	380,445	0	2,022,517 980,992
1803	1,075,944	267,756	354,683	429,020	0	2,127,403 1,051,459
1804	1,110,363	270,305	374,026	324,388	0	2,079,082 968,719
1805	1,144,782	272,854	393,369	428,632	0	2,239,637 1,094,855
1806	1,179,201	275,403	412,712	419,134	38,870	2,325,320 1,146,119
1807	1,213,620	277,952	432,055	527,687	54,582	2,505,896 1,292,276
1808	1,248,039	277,935	394,221	538,297	69,678	2,528,170 1,280,131
1809	1,282,458	283,050	478,474	508,261	102,000	2,654,243 1,371,785
1810	1,316,877	285,599	510,931	601,883	147,425	2,862,715 1,545,838
1811	1,351,296	288,148	557,911	604,420	168,544	2,970,319 1,619,023
1812	1,283,854	290,697	531,141	634,834	190,159	2,930,685 1,646,831
1813	1,439,286	293,246	527,518	539,741	188,431	2,988,222 1,548,936
1814	1,454,553	295,795	529,662	529,484	229,510	3,039,004 1,584,451
1815	1,381,566	298,344	436,038	542,248	206,045	2,864,241 1,482,675
1816	1,478,254	300,893	480,801	625,322	151,211	3,036,481 1,558,227
1817	1,644,357	303,442	709,572	642,045	191,248	3,490,664 1,846,307
1818	1,592,229	305,991	827,964	658,768	216,672	3,601,624 2,009,395
1819	1,626,648		771,016		227,108	
1820	1,815,506		735,417		205,648	
1821	1,809,247		668,256		225,678	
1822	2,161,264		690,393		246,964	
1823	1,905,958		712,328		216,564	
1824	2,083,869		836,981		239,887	
1825			938,026		265,064	
1826			745,822		195,833	
1827			728,062		206,562	
1828			706,968	403,580	249,557	
1829	1,756,626		635,756		193,288	
1830			730,215		197,994	
1831			666,791		184,734	
1832			671,237		203,751	

Sources:

1. For London, Lincoln, and Derby: data collected from RBS archival sources listed in Bibliography
2. For Nottingham and Hull: appendices from Leighton-Boyce (1958)
3. Figures in black are archival data points; figures in blue are by linear interpolation using the equation indicated, up to 1818 only
4. For the year 1813 we have actual archive data for all five group banks.

Archival data for Nottingham and Hull is no longer to be found, but summary balance sheets are recorded in the appendices of Leighton-Boyce (1958); conversely, balance sheet data has come to light that extends the Lincoln data for the whole of 1808-1832, and for Derby for all years from its formation in 1806 through to 1832. In addition, the RBS archivists located a set of loose pages showing the general balance of Smith Payne & Smith, London for most years between 1812 and 1829. When juxtaposed with those for 1797-8 originally available to Leighton-Boyce, these represent important additional pieces of the jigsaw puzzle that allow us to estimate the workings of the whole group through the Restriction and its immediate aftermath.⁵³

Exhibit 7.2 – The Smith Group: balance sheet growth rates, 1797-1821

Smith Group banks: growth rates				
<i>annual compound growth rates</i>	1797-1808	1808-1813	1813-1818	1818-1821
SPS, London	3.9%	2.9%	2.0%	4.4%
SS, Nottingham	1.0%	1.1%	-	-
SEB, Lincoln	4.7%	6.0%	9.4%	-6.9%
ST, Hull	5.2%	0.1%	-	-
SS, Derby	-	22.0%	2.8%	1.4%
est. of total Smith Group	4.1%	3.4%	-	-
<u>Comparison with:</u>				
London banks, average	4.4%	4.5%	0.2%	-2.7%
BoE balance sheet	5.2%	3.5%	-1.0%	-7.8%
BoE circulation	4.9%	6.4%	2.4%	-6.5%
BoE private sector discounts	5.9%	-0.1%	-19.8%	-6.2%
<i>Source: Data collected as described in notes to Exhibit 7.1. Figures in bold are based on complete archival data; other figures are interpolated estimates; no figure is given where this data is inadequate to make an estimate. End-period dates of 1808 and 1813 chosen in order to maximise archival content.</i>				

Individual balance sheet growth rates varied considerably across the Smith group entities (Exhibit 7.2). However, the pattern of growth for SPS, London was similar to that of other

⁵³ These are marked “2nd draft” or “3rd draft” and by their dates appear to have been completed by the end of January. We can be confident these represent accurate final balances because in years where we have more than one trial, totals vary only by a few hundred pounds – the exception being the year-end 1814, where the 2nd trial totalled £1,236,873 and the 3rd trial £1,381,566; but the latter is dated 18th Feb 1815, and we suspect relates to a request to draw up a new general balance in February when conditions were changing rapidly as the Napoleonic Wars approached their climax.

London banks (Chapters 5 and 11) when calculated over the time periods determined by the need to use reference years that contain the maximum amount of Smith data. In the Country, the banks in Lincoln and Derby were the main beneficiary of the Bank of England monetary expansion between 1797 and 1813 and initially survived the contraction in Bank of England discounting during 1813-18. Thereafter the Lincoln balance sheet shrunk back in proportion to the Bank of England during the preparation for the return to the gold standard in 1818-1821.

A holistic analysis of the surviving records provides insight into the costs and benefits of their unique business model that vertically integrated London and Country banks under the control of one family. The analysis here - like that in the previous chapter of the Coutts-Bank of Scotland relationship - provides insight into what is central to our investigations: the connections between Country bank issuance of banknotes; the use of specie and Bank of England notes as reserves; the relationships with the London money market; and the ebbs and flows of the various regional economies. The experience of the Smith group serves to highlight the importance of the correspondent banking relationship between a Country bank and its London agent. When functioning well, in a climate of trust underpinned by the aligned incentives of common ownership, this allowed the Country bank to more profitably deploy surplus resources by transferring them to London and, conversely, provided a lifeline from London when local monetary and credit conditions became unsettled. In doing so, the banks within the Smith group were putting into practice Bosanquet's macro-level Law of Reflux (Chapter 3). The records also allow critical insight into the revealed rules-of-thumb by which Country bankers managed their balance sheets, their banknote issuance, and their liquidity reserves, and to what extent these were consistent with the views expressed by political economists at the time. We analyse each of these in turn.

7.2 The family history and connections

The family's banking success recounted in Leighton-Boyce (1958) reflected its adopted motto, the ambiguously secular "tenax in fide" ('tenacious faith'). The Smith Group dated its origins back to Thomas Smith (1631-1699), a mercer by trade and the first to open a 'bank' in Nottingham - and perhaps anywhere - in 1658. His eldest son, Thomas Smith II

(1682-1727) had five daughters and no sons so, as was the practice of the day, bequeathed the business to his two younger brothers, Samuel Smith I and Abel Smith I, with the former operating as a goldsmith banker in London and acting as agent for the Nottingham bank. It was Abel's eldest son, Abel Smith II (1717-1788) who became the driving force behind the Nottingham bank's expansion after the 1750s following the death of both his father and uncle within a few years of each other. The bank grew to include the important London bank of Smith, Payne & Smiths (founded in 1758) and the three Country banks. A portrait taken from a panel in the Royal Exchange shows a vigorous, physically fit young man, dressed smartly but not extravagantly, with a confident and penetrating stare standing in front of a busy port scene. The picture probably dates from his early working life as managing partner of the import-export merchant house Wilberforce & Smith, a position he had risen to after being apprenticed at the age of fifteen to the famous Russia merchant William Wilberforce in Hull (Leighton-Boyce, 1958: 20).

In a reflection of the family's wealth, influence and connections, all five of Abel Smith II's sons entered Parliament as MPs. Following his death in 1788, the four surviving sons – Samuel Smith III (1754-1834), Robert (1752-1838) and their two younger siblings George Smith II (1765-1836) and John Smith II (1767-1842) continued to grow the business through and beyond the Restriction years. Robert became the trusted friend of William Pitt the Younger (1759-1806) – Prime Minister and Chancellor of the Exchequer from 1783 to 1801 – who elevated him to Lord Carrington in the year before taking the country off the gold standard (Leighton-Boyce, 1958: 3). Further connections came from the Smiths' partners in the London bank: John Payne was chairman of the East India Company; his brother Edward – who became a silent partner receiving half the profits paid to John and later to René - was a director of the Bank of England. In 1805, George Smith II was also appointed deputy-chairman of the East India Company. The Smith group thrived throughout the nineteenth-century and was progressively amalgamated into the Union Bank of London (1902), the National Provincial Bank (1918), National Westminster Bank (1968) and finally today's Royal Bank of Scotland (2000). As late as the 1960s members of the Smith family were still represented on the board of the National Provincial Bank.

7.3 The integrated business model and profitability

Before analysing the balance sheet behaviour and what it can tell us about monetary velocity, we need to highlight the integrated nature of the Smith group business model as certain features set it apart and help explain other Country bank data.

The Smith group entered the Restriction with a balance sheet of similar size to Coutts (Chapter 6). Both banks were unusual in following a relatively conservative approach to managing the equity capital, frequently recapitalizing the paid up capital as their balance sheets grew. Furthermore, both had substantial correspondent banking business flowing through their balance sheets, but in different ways. The Smith group internalized the full extent of the monetary transactions flowing between a London bank and its Country bank correspondents; by contrast, Coutts had a more arms-length correspondent agreement with the Bank of Scotland. Although SPS acted as the London correspondent for other Scottish banks (Thistle Bank in Glasgow; the British Linen Bank, the Paisley Banking Co and Kinnear & Sons in Edinburgh), its correspondent business was dominated by its four sister banks in the northeast Midlands (the Smith's bank in Derby had previously been its correspondent there, Richardson & Co.).

Although differently structured, their size and business mix made the Smith group and Coutts natural benchmarks for each other – and it seems the Scottish banks were happy to share pricing information so as to play one London bank against another. At the time when Coutts was attempting to renegotiate its fee structure with the Bank of Scotland in 1813-15, SPS was attempting to do the same with the British Linen Bank whose annual turnover had risen to £3,781,000. Its manager, E.F Gilchrist writes to SPS on 6th Aug 1813 that he has “endeavour'd more particularly to learn the extent and footing upon which the transactions of the Bank of Scotland are conducted by Coutts & Co [and] I find that ours exceeds theirs by about £300,000 p.ann. for which they pay £1400 receiving no interest for floating Balances...” (Leighton-Boyce, 1958: 113). But clearly the London banks played the same game, for eventually SPS suggests new pricing that mirrors the one Coutts was trying to agree with the Bank of Scotland, namely an increased flat fee of £2,500 combined with a power of attorney to enable the London bank to sell government securities held by the Scottish bank whenever the net exposure exceeded the agreed limit.

The different corporate structure of the two groups appears to have generated a difference in their profitability. I estimate that the Smith group entered the Restriction period with paid-up capital of just under £100,000, about twice that of Coutts despite having similar sized balance sheets. By 1815, estimated capital had risen to £228,000 at the Smith group and £164,000 at Coutts. I estimate Smith group profits in the same year were approximately £100,000, also about twice that of Coutts – in effect, on the eve of the Restriction both banks were earning approximately a 100% return on (paid-up) equity.

Prior to the Restriction, by integrating its businesses, the Smith group needed to employ a ratio of paid-up equity to total assets that was twice as high as that of the arms-length business model of Coutts. This is because the Smith group was also internalizing all of the risks of transacting in the Country as principal, while Coutts was only acting as the Bank of Scotland's agent. Coutts was taking only the credit risk of any net negative balance owed to it by the Bank of Scotland, but not taking the risk of the Bank of Scotland's clients not repaying loans or not making good when bills came due. In effect, the Bank of Scotland's capital protected Coutts from the default by the clients of its Country correspondent; by contrast, the Smith group was taking all of the credit risk of its Country clients and therefore felt obliged to put up more capital. However, importantly, having found an efficient way to carry the extra risk by diversifying geographically and aligning partner incentives internally, the Smith Group was able to generate the same percentage return on equity as Coutts, but on larger equity.

7.4 Organic growth: Smith's policy on capital and profit distribution

The family had been the first Country bank to set up its own London bank, and along the way they had learned how to grow organically whilst maintaining a high rate of return on equity. Having done so, this gave them every incentive to adopt a high rate of reinvestment of profits. This likely explains the Smiths' family policy of regularly delaying the distribution of profits from any new venture until total equity capital reached generous levels. The evidence points to a rule-of-thumb, adopted across all Smith entities, of not distributing profits until the capital ratio reached at least 15% of assets (net of any holdings of their own banknotes), and then not allowing the capital ratio to fall much below 10%. As early as 1765, when René Payne took over from his father as Abel Smith's partner in the London

business, the opening capital of the new firm (£16,963) was largely made up of retained profits (Leighton-Boyce, 1958: 71). The new bank in Derby capitalized all its profits for the first thirteen years of its existence, until it had reached a capital ratio averaging 15% for four years. The Hull bank capitalized all profits for five years after 1803 until it too reached a capital ratio of 20%, and then continued to reserve a quarter to a half of profits from 1812 to 1815, apparently targeting a ratio of 11-13%. And finally, the Nottingham bank recapitalized at some point between 1798 and 1808, bringing the capital ratio back to 22% in 1808.

The only exception – one that proves the rule - appears to have been the Lincoln bank, where paid-up capital remained at £21,800 throughout the Restriction in spite of assets almost tripling. The different policy of the Lincoln bank is explained by the fact that the Smith family did not have a controlling stake. Until 1828, non-family partners, Richard Wilson and Henry Ellison dominated the share ownership. The latter held the largest stake and was already in partnership in another local bank, and therefore would have had incentives less well aligned to those of the Smiths. When Wilson withdrew in 1811, Ellison's son Henry took up his stake, thereby putting the Ellison family firmly in control and Samuel Smith in the minority. An other sign of non-family shareholders driving policy can be seen in the fact that throughout the Restriction period for which we have data (1808-1818) the Lincoln bank lent substantially smaller sums to SPS London than its sister bank in Hull. Lincoln preferred to keep excess liquidity invested in its own name in Government securities, and frequently used these to pay out dividends in kind.

The Smith family policy on equity capital served to both project a sense of financial strength to customers and to generate excess capital in the group that became available to capture new opportunities for organic growth – e.g. to set up new banks in nearby cities. This business model was the brainchild of Abel Smith II, the Nottingham banker responsible for establishing SPS in London and later the banks in Lincoln and Hull. From a letter seen by the family's biographer and written in Dec 1760 to John Payne, Abel's partner managing the London bank, we have evidence of the large resources built up by the family thanks to this reinvestment policy - as well as Abel's personal ambition, confidence and ability to time a commercial opportunity. In the letter he exhorts René Payne to expand the business:

“You already know my sentiments in regard to making our business in London general and wish you had thought this a proper time to make a beginning, as I could bring a capital of £30,000 or £40,000 into the business if it should be wanted, that I think there would not be much hazard in making the experiment. The banking business was begun here before the Revolution [i.e. 1688], which has been carried on to this time with the greatest credit, that I am of opinion, with care and diligence, we should in a few years be equal in credit to the best houses in England” (Leighton-Boyce, 1958: 75).

7.5 Cash management and the daily flows between London and Country

One striking fact observed in the Country bank data is the minor role played by physical specie in the reserves of liquidity held at the bank. The empirical evidence points to these Country banks targeting a specific ratio of cash composed of specie *plus* Bank of England banknotes, as Ricardo argued. But it also points to Country banks managing a broader definition of liquidity, by setting a ratio that encompassed balances with their London correspondent, consistent with Bosanquet’s argument that the London money market acted as a powerful engine for the daily offsetting of quasi-monies issued as by-products of the extension of credit.

The Smith group records for the four years 1806-1809 provide a detailed composition of what was contained in the General Balance entry called ‘cash’ or ‘cash and notes’. These show that during the Restriction, specie accounted for no more than 1.5% of net balance sheet liabilities⁵⁴ – a ratio not too dissimilar to that represented by what we consider ‘cash’ (coins and banknotes) in today’s bank balance sheets, and no economist today would argue that banks manage their liquidity in relation to such a minor part of their liquid assets. In the Derby Letter Book for 1807-09 (analysed below) there is not one request to SPS London to send specie; requests are only for Bank of England banknotes.

The Smith banks differentiated ‘cash’ reserves into the following categories: specie, Bank of England banknotes, banknotes of other Smith group banks, banknotes of other local banks – all of which would be marked “in the Chest” (i.e. held at the bank). Not every bank in the

⁵⁴ The net balance sheet is calculated by subtracting from the total liabilities in the General Balance Books the value of the bank’s own notes held by the bank and included under ‘cash’ on the asset side.

Smith group identifies all these categories of cash separately in all years, but there is enough archival data to point to the paucity of physical specie. The Lincoln bank “specie in the chest” for 1808-12 represents a mere 1.1 – 1.4% of the total net⁵⁵ balance sheet. After 1812, until the end of the Restriction this ratio increases to an average of 3.4%, but the accounting entry changes to “Specie and Bk Notes” indicating it now includes Bank of England banknotes. After the Restriction, the Lincoln bank’s holdings of specie and Bank of England notes are understandably somewhat higher, but still average only 4.4% of the balance sheet.

Pressnell (1956) suggested that Country banks viewed the balance on their *nostro* account at their London correspondent as an integral part of its daily cash reserve management, and the Smith group data supports this. The Smith banks do indeed appear to have included in their cash management the “balance of the cash book” consisting of the net balance of their account with SPS that acted as their London correspondent. This was especially valid for those Country banks like the Smith group who was able to obtain immediate value on their account for bills sent down to their London correspondent. General practice amongst London banks was to enter these as ‘short’ and only credit the Country bank when the bill matured and paid up. Presumably reflecting their cross shareholdings, SPS gave immediate value to its sister Country banks, and would subsequently return to them any bills that failed to be settled, and the Country banks would re-credit the amount to SPS London’s account in their own ledgers.⁵⁶ If we add in the ‘balance on cash book’, the Lincoln bank kept a steady ratio of ‘cash’ to its total balance sheet (net of holdings of its own notes) that averaged 11.1% during the Restriction and 12.9% thereafter (Appendix E). There was a spike in this ratio to 21.6% the year Richard Ellison died, when the bank was being supported from London and presumably kept a higher cash ratio for prudential reasons in order to demonstrate continued strength to its depositors. The ratio was also noticeably higher (14.8%, 14.5%) in the two years following the 1825 crisis.

We can compare these ratios with those of the Derby bank for the years 1806-1809 when here too the accounts identify each category of money that makes up the general balance entry entitled “Cash” (or “Bills and Cash”). These include ‘London bills’, ‘Notes payable in

⁵⁵ The net balance sheet total is calculated by deflating the recorded total balance sheet by the bank’s holdings of their own notes; it is equivalent to the net liabilities of the bank owed to customers and partners (including paid up equity)

⁵⁶ SPS was not alone in offering these more advantageous terms: Pressnell (1956: 98) reports that Bolero & Co, London also offered such terms to the venerable Pease Bank of Hull.

Derby', other third party Country bank notes, and finally other Smith group banknotes. In those four years, consistent with the Lincoln sister bank, specie represents just 0.3 – 1.2% of the total net balance sheet and never constitutes more than one-twentieth of what the bank classifies as 'cash'. Adding Bank of England notes to specie, we observe the ratio of 'cash' to total balance sheet is comparable to that of the Lincoln bank, and also becomes a relatively stable 4 – 5% of the total balance sheet, albeit declining gradually over the 4 years. Lastly, by adding in all other forms of what Derby treated as 'cash' except other Smith group banknotes, we reach a 'top line' cash ratio to the total balance sheet that averaged 16.4% during the Restriction – similar to Discounters in London (Chapter 11) and, again not surprisingly, rose to 22.2% in the fourteen years after the end of the Restriction.

The Derby bank (daily) Letter Book

The Derby bank kept a Letter Book in which it copied in annotated form the near-daily correspondence with SPS London. Every one or two days the Derby bank would write to London acknowledging London's most recent letter, and add: new client payment instructions; acknowledgements of customer payments received; request to send Bank of England notes or their own Smith notes (it appears Derby had theirs printed in London); powers of attorney to collect interest ("dividends") on government securities on behalf of customers (mainly the previous owner, Mr. Richardson and his wife); plus a list of bills drawn on London that SPS should expect to be presented to its tellers for payment [what Thomas Coutts was still asking the Bank of Scotland to supply on a regular basis in 1815 in order to help Coutts manage the expected cash flows]. To these letters, Derby attached a number of bills and notes to be credited to Derby's account with SPS in London. Two days later Derby would receive a reply from SPS London,⁵⁷ although frequent delays with the mail would mean they received two on the same day. These letters reveal how the vast majority of the daily transactions executed with or for clients in London or Derby were settled via offsetting debits and credits passed through the SPS account with Derby (what today Derby would call a *vostro* account) and Derby's account with SPS (*nostro* account). Each bank kept track of both accounts that – much as a reconciliation staff would do today - they would crosscheck at regular intervals to ensure they had the same totals.

⁵⁷ The archival records do not contain the letters received back from SPS London.

Analysis of the Letter Book provides prima facie evidence of a high income-velocity of specie, supported by Bosanquet's powerful offsetting machinery in the London money market that the Country banks accessed via their London correspondent. This Country bank's *nostro* account with its London correspondent was turning over 13.8 times in a year, and the total volumes transacted during a year were equivalent to 4.4 times its total balance sheet – all of this without any inter-group transfers of specie.

As shown in the Coutts-Bank of Scotland correspondence (previous Chapter 6), the London correspondent 'contract' required the Country bank to keep a positive balance on its account in London that would more than cover the payments made by London on its behalf to customers presenting country notes or bills payable in London. In order to maintain the account balance, the Country banks sent to London a regular flow of bills and notes received or discounted by them in the country. In the Derby bank Letter Book that survives (1806-9), a detailed comparative analysis shows that in the two months of April and May 1807 Derby wrote 29 letters enclosing 1,131 bills and notes worth £28,803; in the same two months of 1809, Derby wrote 31 letters enclosing 1,318 bills and notes worth £34,887. *Every month* in 1807, on average Derby was sending down to London paper worth the equivalent of more than one-third of its balance sheet, implying a very high turnover in the quasi-money (bills and notes) that formed part of the broad money supply during the Restriction, consistent with what was observed in the flows between Coutts and the Bank of Scotland. In the same period in 1809 – just before the Bullion report was issued – Smith Derby volumes had increased 21%. The monthly flow of paper instruments to London now represented only one-quarter of the Derby balance sheet, but the implied turnover rate of Derby's account at SPS had remained at 13.8 times per year. The stream connecting the SPS London 'pond of money' with the SS Derby 'pond of money' was running as fast in 1809 as it had in 1807, but the Derby 'pond' had grown larger.

In the Derby Letter Book there is not a single request for specie. All requests are for SPS London to send Derby "accepted Bank [of England] bills" (or, more rarely, "London cheques" or "Bank post bills") and occasionally their "own notes" with the related paid stamps as evidence that the duty had been paid as required prior to issuing them to customers. In the two months of April and May 1807, on seven occasions Derby asks SPS London to send £1,000 of Bank bills, acknowledging receipt of them three or four days later; in the same two months in 1809, Derby receives five consignments of Bank notes

valued at £10,137. Bank bills are also regularly sent back to London (usually two halves sent in separate parcels on separate days), supporting the Ricardian hypothesis that bankers had an approximate target ratio of Bank of England notes (together with specie) as a percentage of the total balance sheet and that any excess was sent back to London. As we saw above, that target ratio was 4-5%.

The Derby bank records show that *the stock of Bank notes in the Derby balance sheet* (£1,579 in 1807 and £2,294 in 1809) on average was turning two to four times every month when taking the total flows in both directions (£6,369 for the two months in 1807 and £16,532 in 1809). The Derby bank was handling 25 to 50 times more Bank notes during a year than it held in stock: its managing partners and cashier would have had plenty of opportunity to observe subtle changes in their availability and adjust their behaviour accordingly, as Ricardo suggested. However, by comparing the net flow of Bank notes towards Derby (£3,055 in the two months of 1807 and £3,742 in 1809) with the net increase in the year-end stock of those notes in the Derby balance sheet (+£430 and -£92 respectively), we can estimate that £17,900 and £22,544 of Bank notes flowed from London *through* the Derby bank and into the hands of the Derby bank's clients in 1807 and 1809 respectively. By 1809, bank notes equivalent to 22% of the Derby balance sheet flowed the Derby bank without a significant change in the net inventory of those notes held by the Country bank: Bosanquet's Reflux mechanisms appear to have been working well, and certainly as regards their content of Bank of England notes the Adam Smith 'ponds of money' were equilibrating well. These Banknotes flowing through Country banks must have circulated in the regions in a manner that was complimentary to the issuance of their own notes by the Country banks, seeing that during this period 1807-9 Derby was successfully increasing the proportion of its balance sheet funded by circulating its own notes from 26% to 31% (Appendix E).

7.6 Policy on banknote issuance

When the Restriction was imposed in 1797 the Smiths asked Thomas Thompson for a report on the Lincoln bank. Thompson was a partner in the Hull bank and his expertise was trusted by the Smiths and was of sufficient renown for him to be invited to give evidence to the House of Commons in April that year. In a letter seen by Leighton-Boyce (1958: 161-3), on the 13th Dec 1797 Thomas wrote to Lord Carrington (Robert Smith) what amounts to a summary of best practice for Country banks and is here reproduced almost in full. Thompson confirms that experienced bankers managed the note issuance as Adam Smith had described: the aim was to minimize transaction costs and keep Smith's ponds of banknotes in circulation at a constant level. However, Thompson recognizes that the Restriction offers an opportunity to expand the note issuance with less risk than in the past, as long as certain rules-of-thumb are followed in regard to the overall balance sheet liquidity and maturity mismatches. Thompson's letter also reveals a particular cognitive perspective of medium-term (secured) lending (the Goldsmith business model) that sees it as illiquid and risky in comparison to the alternative business of discounting of bills with two to four weeks to maturity (the Discounter model). Thompson's experienced had formed a cognitive bias aligned with that of the Discounters in London, in direct contrast to that of the Goldsmith bankers.

“My Lord,

I am inclined to think that the chief, if not the only business of the Lincoln house, should be the circulation of Notes: and in order to increase that, I am confident that it will be much more prudent to relax in charging discount than to lend money. Whether you ought to give 14 days or a month to the holders of bills when you exchange paper with them, must be determined by circumstances at the time, and if by marking the Notes and watching the channel through which they return for payment, Mr. Moore [the chief cashier] should find that he is imposed upon in a few instances the future remedy is easy and the present loss trivial.”

Thompson is advocating testing the limits of the customers' willingness to absorb their own notes believing that, if they should overstep that limit, corrective action can be taken quickly and, *given the Restriction*, at little cost. This would certainly have been true by 1806 when, as

shown above, the average stock of reserves of specie and Bank of England notes was turning over once every week.

The letter reveals a strong cognitive bias against term lending. In stark contrast to the older London banks following the “Goldsmith model” who disliked bill discounting because they viewed it as a more costly business and a threat to the credit risk they bore (Section II), other bankers like Thompson instead disliked term lending because they saw as a threat to the appropriate liquidity position of a (Country) bank. In Thompson’s case, this trenchant cognitive bias seems to have originated in the searing experience of the banking crisis of 1793:

“The cry that the country ought to be accommodated by lending money should be entirely disregarded, both in *war & peace*. If what happened in the year 1793 has not convinced Country Bankers of the folly of such a system, nothing will and they must take the consequences. What Attorneys and such people say is not worth a moment’s attention.”

Consistent with the notion advanced in the final paragraphs of Chapter 5 that cognitive frames can cause strategy makers to triage new information by selecting only that which is consistent with their cognitive bias, the same 1793 crisis that had induced the new partners of Goslings to reverse course and largely shun the discounting of bills, by contrast had induced Thompson to shun secured medium-term lending. Thompson later insists further with his prescription to avoid term lending, referring to the recent banking crisis in Newcastle – the same events referred to by Ricardo as the catalyst for Parliament’s decision to impose the Restriction [see Introduction] – which Thompson blames on their over-use of fixed term lending:

“I firmly believe that the credit of the Newcastle Banks was ruined by their lending. They pursued the system so far that although the partners possessed large landed property they were utterly unable to stand against the effects of ignorant popular rumour. Whether they can now get in the money owing to them or whether they will ever regain their former credit is very doubtful.”

After advising on what policy to adopt towards agents, at the end of the letter Thompson returns to the subject of the appropriate policy on asset and liability management, and

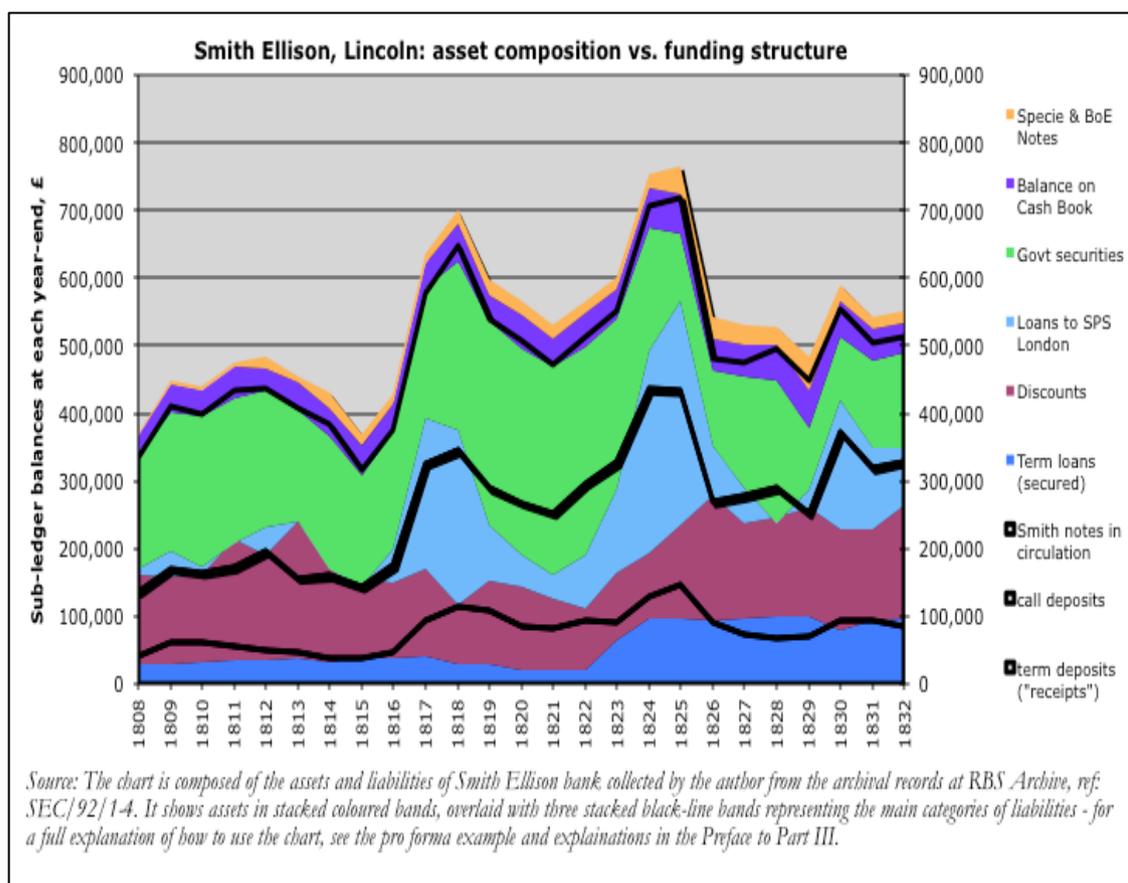
suggests ‘pushing’ the Note issuance beyond the amount that would be issued when discounting only bills that came easily to the bank’s door. Thompson now elaborates on his views on liquidity management and the (Smithian) profit incentive for ‘pushing out’ notes. Such enhanced banknote issuance would expand the Country bank’s balance sheet beyond the sum of its customer deposits and its paid-in capital, whilst leaving more of those customer deposits to be transferred to SPS London, where they could be profitably and safely invested – without the loss of liquidity - in government securities, either directly or by lending overnight money on a secured basis to the bond brokers.

“And although this business [operating through agents employed, but on commission] cannot be conducted without considerable exertion & expence it is certainly worth while, *in these times*, to use exertion and spend a little money to keep out [i.e. in circulation] £20,000 or £30,000 extraordinary in Notes when *in reality there is less danger in being run upon for the payment of them than ever was since country Banks existed*. By calling in all the money owing to S[mith] & T[homas in Hull] – *by lending none*, and by pushing out Notes, your Lordship will have observed that the Acct. in London [at Smith Payne & Smith] is from £30,000 to £40,000 better than it was 12 months ago. *Money in London is always within reach & yet may always be employed*; and it is the greatest satisfaction to me to reflect that all S & T’s resources are in your Lordship’s hands, and not dispersed through the country” [*my italics*].

Thompson recognized that the Restriction was creating more favourable conditions for the issuance of paper money throughout Britain, and that the wisest way to maximize the profitability of that issuance was to channel a major portion of the corresponding asset-side growth into London, where the sister bank could earn high rates of interest without investing in illiquid secured term loans to Country customers. This remarkable strategy allowed a Country bank to generate substantial net interest margins whilst avoiding the sort of maturity mismatch between its assets and liabilities that caused all the difficulties at times of crisis – but it was hardly the banking practice implied by the Real Bills Doctrine. It was an example of pure rent seeking: the bank was using its financial strength as perceived amongst its local customers in order to ‘manufacture’ additional near-costless IOUs that customers could use as the local means of exchange, but which the bank could largely invest through its London correspondent in government securities yielding in excess of 5% p.a.

Each of the three components of the strategy ensured that the average maturity of the asset was shorter than the average maturity of the liabilities used to fund them. Thomas's balance sheet strategy can be understood as follows: (a) offer a small amount of secured term lending at 5%, funded with the more permanent part of the bank's customer deposits, on which it paid no more than 2% interest; (b) lend at 2-4 weeks by discounting bills on which it would earn average rates of over 5% compounded, financed by the issuance of Notes whose only cost was printing plus the stamp duty or, if it wanted to 'exert' itself more, the 2% commission paid to contracted agents to expand its reach to more clients in smaller surrounding towns; and (c) channel the excess, shorter-term and interest-free deposits into SPS London where they could earn yields in excess of 5% in the securities market, without loss of liquidity.

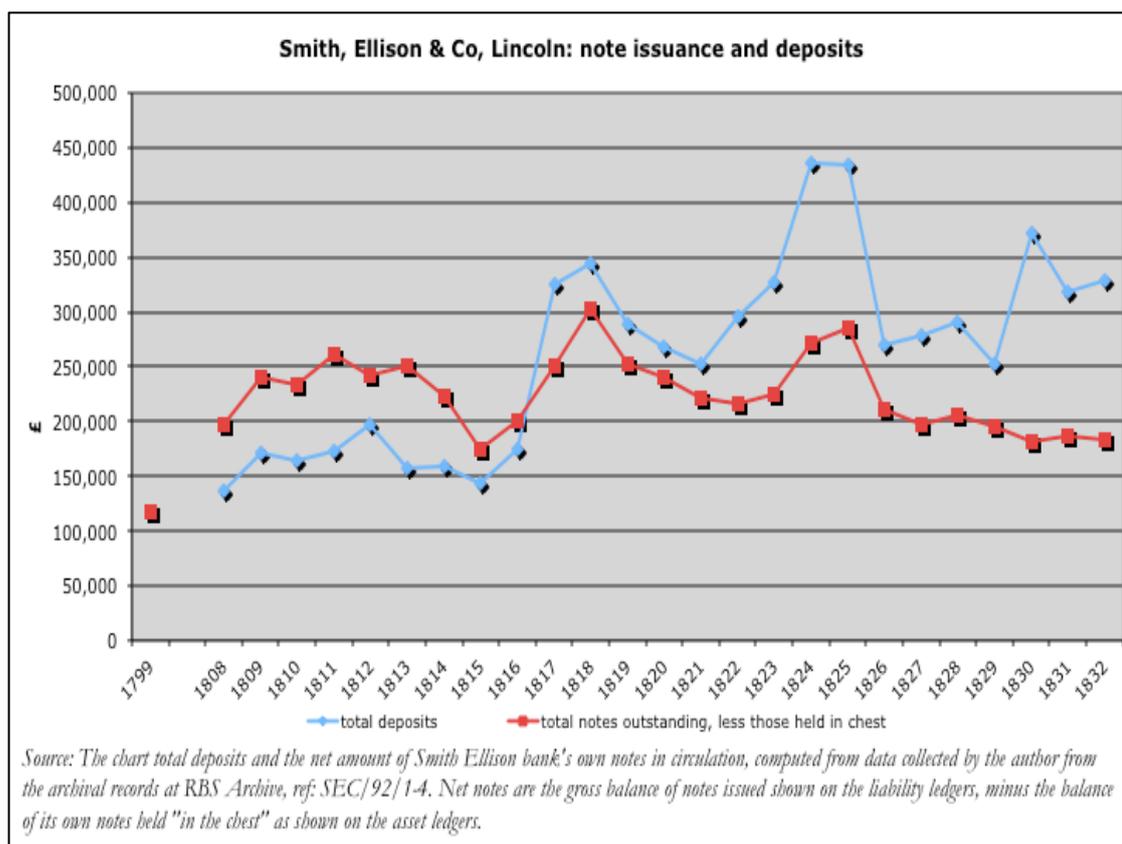
Exhibit 7.3 – Asset and liability strategy: Smith Ellison, Lincoln, 1808-1832



This policy is closely reflected in the actual practice of the Lincoln bank observed in its balance sheet composition over the years 1808 to 1832 for which we have data. Exhibit 7.3 above shows the *asset* composition as a coloured stack; superimposed over those are the

stacked black-line bands representing the sources of funding on the *liability side* as explained in detailed in the Preface to Part III. The latter start at the bottom with term deposits, then call deposits and finally the net amount of the Lincoln bank's notes in circulation.⁵⁸ We observe how term deposits (the stickier liabilities) more than covered term loans (the least liquid asset) throughout these 25 years except for a brief period in 1827-9. Furthermore, in a manner recalling the Bank of Scotland, in all years except 1811 and 1813, total lending - i.e. term loans plus the discounting of bills - was held to a level less than the quantity of financing available from total deposits (i.e. fixed term deposits and call deposits). Whenever total deposits rose sharply, the excess was systematically lent to SPS London. These loans were then run down whenever deposits fell back. Finally, the net volume of its own notes that could be successfully 'pushed out' - and kept out - was used to invest in the government securities, or lent to SPS London in the years of peak balance sheet growth (1817-18, 1824-25, 1830).

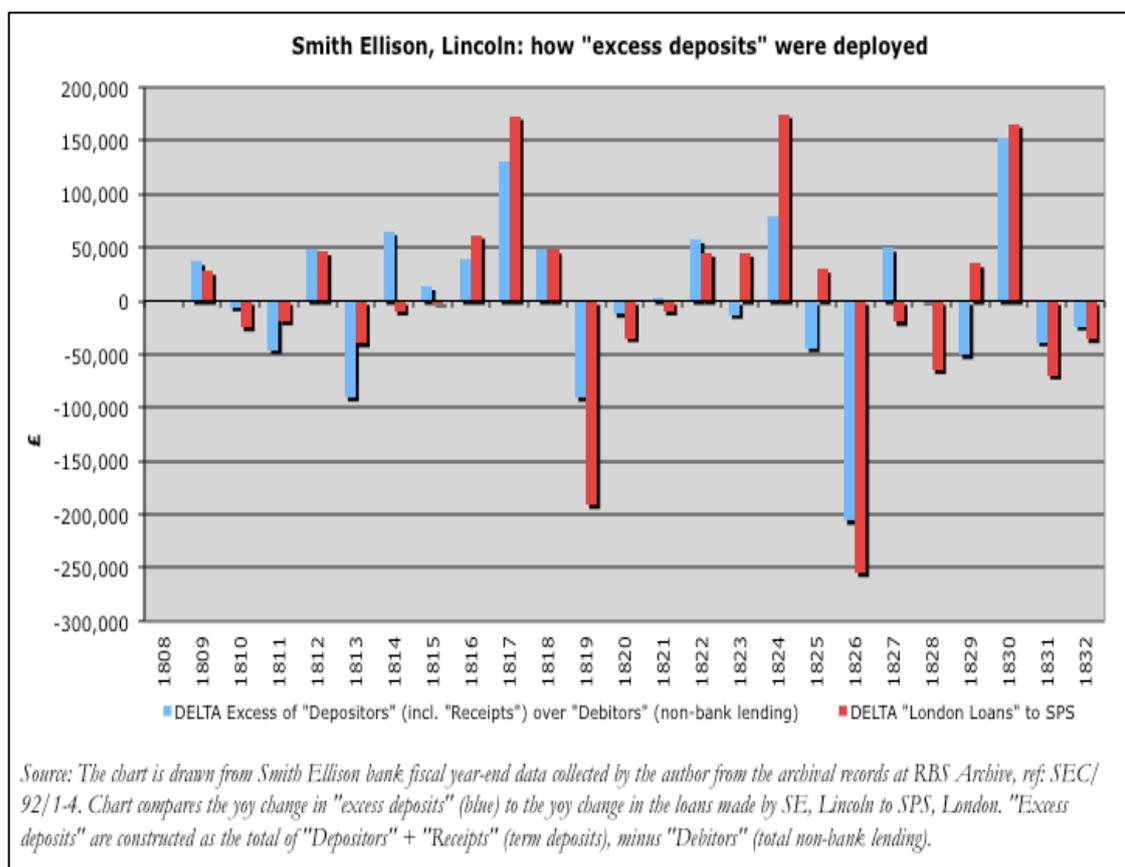
Exhibit 7.4 – Smith Lincoln: deposits and net notes in circulation, 1799 and 1808-1832



⁵⁸ For simplicity we do not show the equity component of liabilities, and this accounts for the marginal difference in heights in the chart.

The Smiths not only followed Thompson's suggested strategy of "pushing out Notes", but continued to expand it as the Restriction period was prolonged. Notes in circulation accounted for over half the Lincoln bank's net balance sheet throughout 1808 to 1815, and the bank went from being a net borrower of £25,000 from SPS London in 1797 to being a net lender of £53,881 in 1801 (although, as noted above, during the Restriction it systematically preferred to place most of its excess liquidity directly into the government securities market). During this later period of the Restriction, the sister bank in Derby, although only formed in 1806, was already lending London £84,357 or 16% of its balance sheet - on the back of Note issuance that had expanded to £70-80,000 from £10-20,000 before the Restriction. Also during that period, the Hull bank (where Thomas was partner) was lending SPS London an average of £141,110, two to three times the average amount before the Restriction [Appendix D].

Exhibit 7.5 – Smith Ellison, Lincoln: "excess funding" vs. lending flows back to London
1808 - 1832



Presented with this picture, it is difficult to conclude anything other than that in this period it was not so much the growth in Country bank lending that drove the expansion in the supply of broad money, but rather that it was the public's acceptance of the use of large quantities of banknotes issued by (the more trustworthy) Country banks that allowed Britain to finance the growing government debt – see *Monetizing government debt* in Chapter 12). Consistent with these strategy components, regressing the annual change in Smith Ellison's lending to non-bank entities on the annual change in the sources of funds on the liability side, shows weak relationships with both the change in deposits and the change in net notes outstanding, but more strikingly the relationship is negative to the change in total deposits. There is also a separate correlation between deposits and the issuance of notes: note issuance expanded and contracted in ways that partially followed the expansion and contraction in deposits, whereby a £1 change in deposits was associated with a £0.36 change in net notes outstanding (Exhibit 7.4). Broadly, when local real economy is doing well it generates a growth in deposits and the bank takes the opportunity to push out more of its notes despite a reduction in the demand for loans, and the excess deposit funding is reinvested through London. When demand for loans is high relative to deposits, the bank cuts back its note issuance at the margin and brings liquidity back from London to make up the difference. At least for the Lincoln bank, it seems its lending to the private sector was not driven by the supply of funds, but by the demand for loans and the bank's judgments regarding the creditworthiness of the potential borrowers.

The Restriction allowed the Smith bank to increase the average stock of its banknotes in circulation, but whenever customer deposits exceeded the demand for loans from the local creditworthy private sector, which was often, the excess was largely flowing back to London where it was used to fund the growing government debt, either directly or via its London bank (Exhibit 7.5). The London bank in turn would first redistributed the excess funding towards any of the sister banks that were experiencing the opposite conditions, before investing the remaining part in government securities.

Ricardo's Goods-Specie-Flow was functioning not only through the "*vix mediatrix*" of the flows of goods, specie and Bank of England notes, but also through Bosanquet's "*vix mediatrix*" of the Law of Reflux operating through the agency of the correspondent banking system.

This combination of incentives and capacity of Country banks to expand the note issuance relative to the flow of deposits acted as a powerful multiplier of the monetary expansion during the Restriction. It also acted as a multiplier of the contraction after 1818. Through the Restriction period, the Lincoln bank was able to expand its net note issuance faster than total deposits until it became the largest source of funds, with average levels 43% greater than deposits until the end of the war in 1815. As the return to the gold standard approached, at first net note issuance continued to grow, but more slowly than deposits, becoming a smaller source of funds forever thereafter. From 1818 net issuance began to decline steadily in absolute terms into 1832, with the short exception of the boom of 1824-5 (Exhibit 7.4).

7.7 Balance sheet and liquidity management

In addition to the policy of building a strong (paid-up) capital buffer, the Smiths buttressed the low reserve ratio of specie with a policy of ensuring a strong overall liquidity position. They did this by concentrating into the London bank any excess liquidity generated by the different group entities in the Country – where “money was always within reach and yet may always be employed”, i.e. where money could be deployed in interest-bearing government securities that were easily turned into cash even at times of financial stress.

At the start of the Restriction, the Smith banks in Nottingham and Hull have loans outstanding to SPS in London totalling £131,381, of which about half is coming from the original ‘parent’ bank in Nottingham, which is transferring no less than a quarter of its entire balance sheet to London. In spite of the Lincoln bank being a net borrower from SPS London in the first two years of the Restriction, on aggregate the Country banks within the Smith group were already funding the equivalent of 20% of the total lending undertaken by SPS London. This would rise to 25% during the Restriction despite the rapid growth in SPS London’s total lending (which grew at 4.5% p.a. compound from £609,924 in 1797 to £1,472,314 in 1817). Inspection of the individual ledger in Lincoln accounts shows these loans were usually for a fixed term for specific dates up to six months and secured on government securities held by SPS London: sometimes short Exchequer or Navy bills, sometimes longer dated Consols. In effect, the Country banks were delegating to SPS

London their cash management, and SPS was using that to trade in the government securities market, participate in new bond issues, and to finance any related inventory.

By 1808, the year before the Bullion Committee and the only year we have explicit figures for all four Country banks in the group, loans to SPS London had more than doubled since the start of the Restriction, to £321,854, with the Nottingham and Hull banks contributing over 90%. The Derby bank was only two years old and not yet large enough to contribute large amounts, although it is already lending to London 20% of its small balance sheet. The Lincoln bank preferred to invest directly in government securities rather than place money with SPS London, consistent with the Smiths not having control. During the Restriction, the Lincoln bank was just as likely to be a net *borrower* from London (in 1811, 1814 and 1815), but this may also have been because it was growing twice as fast as the rest of the Smith group: from 1797 to 1818 its balance sheet grew at 6.1% p.a. versus 3.4% p.a. for the rest of the group. Lincoln would become a major and regular net lender to SPS London only after 1817, after the war and towards the end of the Restriction. The records show that the same year Richard Ellison for the first time becomes a net creditor of the Lincoln bank, having been a borrower throughout the Restriction – it is therefore possible to speculate that in the midst of the post-war economic difficulties Richard Ellison decided the Smith group was, after all, a better credit risk than his other Lincoln-based bank. After the Restriction, at the peak of the boom and bust years of 1824-5, Lincoln lent SPS London the huge sum of £330,000, indirectly allowing SPS London to provide liquidity support to the Derby bank (a loan of £60,000, and net support of £31,601) and - the data suggests - at least one other of the group's Country banks. Later in 1828, after the crisis had passed, it was the Lincoln bank that benefited from the ability to obtain support from London when there was temporary uncertainty following Richard Ellison's death and before the Smith family could complete the acquisition, introducing as new partners (A.L. Melville Smith and Abel Smith) that left Richard Ellison (Junior) with only a minority stake.

Comparing the 1808 Country bank data with the SPS London data for subsequent years recording the receipt by London of these loans from the Country entities (Exhibit 7.6), it appears that the flow of liquidity slowed down between 1808 and the end of the Napoleonic Wars, falling by 27% to £234,111 by 1814. This occurred as the Bank of England sharply reduced its discounting of private sector bills and switched to buying government securities (Chapter 10). During this later part of the Restriction the Bank of England's increased stock

of banknotes flowed into the British economy via the Treasury and the different military departments, which meant that the entry points for the additional monetary creation became less driven by the regions sending commercial bills for discounting at the Bank of England, and instead became more dependent on where the war departments chose to locate their wartime expenditure. Regions supplying more of the wartime food and goods experienced increased demand, paid for with Bank of England notes or government bills payable in London (e.g. Navy Bills, Ordinance bills, etc), while the rest of the economy would have experienced a shrinking ability to discount their bills of exchange. London banks would have experienced the shrinking willingness of the Bank of England to discount, but seen it compensated by the still-growing net inflow of Bank of England banknotes, as well as a greater liquidity injected into the government securities market in which they were more active participants than the Country banks. All of this will have had the effect of concentrating more of the country's money flows into London, but until the end of the war in 1815 the overall effect on the Country banks was partly offset by the continuing improvement in the financial conditions of individuals and companies supplying the war effort with its needs. Judged by the internal flows of the Smith group, the net effect on the Country banks was nevertheless to reduce their excess liquidity – but this was merely transferring the rolling stock of government securities from the private Country bank balance sheets and onto the Bank of England's balance sheet.

After the end of the war, again judged by the flows within the Smith group, there is a renewed acceleration in the flow of excess liquidity from the Country into London, with total loans from the four Country banks rising to the peak of the period of £374,869 in 1817. Here we have the first concrete evidence of why the London banks' aggregate balance sheet stopped moving in synchronization with that of the Bank of England after the end of the war: there was a reflux of money from the Country back into the core of the banking system in London in search of greater safety in terms of both credit risk and liquidity. The broad money supply was shrinking, but as it shrunk it also flowed out of the Country back to London. In Chapter 12 we show that this shrinkage in the money supply circulating in the Country (deposits and banknote circulation) occurred in conjunction with a transfer of bank liabilities from the weaker to the stronger Country banks, leading to substantial bankruptcies.

Exhibit 7.6 – The Smith Group: inter-group lending

Analysis of Smith group inter-group loans, 1795 - 1832					
	Loans to SPS London	Loans from: SPS Nottingham	SEL Lincoln	SSH Hull	SSD Derby
SPS records: Balance of "Country Credits" minus (smaller) balances on "Country Debits"		"London balances" [= London Loans + SPS a/c balance]	"London Loans"	"London Loans" + balance of "Smith, Payne & Smith"	"London Loans" + balance of "Smith, Payne & Smith" + "SS notes paid in London"
1795	-	70,823	-	-	-
1796	-	54,259	-	-	-
1797	131,381	65,573	-25,250	30-50,000	0
1798	149,695	91,826	-5,250	63,119	0
1799	-	-	28,015	-	-
1800	-	-	52,904	-	-
1801	-	-	53,881	-	-
1802	-	-	19,630	39,387	-
1803	-	-	37,754	-8,548	-
1804	-	-	-	97,432	-
1805	-	-	-	148,731	-
1806	-	-	-	58,394	8,683
1807	-	-	-	61,509	16,388
1808	321,854	139,527	10,000	158,472	13,855
1809	-	-	38,000	115,027	18,303
1810	-	-	13,000	153,179	40,041
1811	-	-	-6,256	163,962	55,112
1812	272,605	40,426	40,000	114,912	77,267
1813	246,294	152,998	0	34,971	58,325
1814	234,111	83,758	-10,000	75,996	84,357
1815	-	-	-12,000	55,037	65,269
1816	322,024	-	50,000	-	52,241
1817	374,869	-	223,371	-	96,929
1818	-	-	271,385	-	118,030
1819	-	-	80,000	-	82,514
1820	278,473	-	45,000	-	86,806
1821	292,529	-	35,000	-	98,717
1822	342,419	-	80,000	-	107,369
1823	355,374	-	125,000	-	60,867
1824	243,281	-	300,000	-	70,887
1825	-	-	330,000	-	-31,601
1826	-	-	75,000	-	22,921
1827	-	-	55,000	-	50,795
1828	-	-	-10,000	61,352	86,312
1829	305,645	-	25,000	-	34,485
1830	-	-	191,000	-	42,827
1831	-	-	121,000	-	14,355
1832	-	-	85,000	-	27,693

Source:

- 1 RBS Archive records for SPS (ref: SPS/164 & 301), SEL (ref: SEC/92/1-4), SSD (ref:SSD60 & 69)
- 2 For Nottingham and Hull, Leighton-Boyce (1958) Appendix
- 3 Numbers in black & red were drawn from actual balance sheets
- 4 Numbers in blue were estimated from other available data that year
- 5 Years in red boxes are those where complete picture can be observed
- 6 Data in the first column is taken from the SPS view of the accounts; data in the other columns is viewed from the accounts of each of the Country banks

PART III

Case studies of Country banks

Chapter 8. The South and South West

1. *Case study: Old Bank, Bristol*
2. *Case study: Barnard & Co, Bedford*

The Old Bank, Bristol is of particular interest as the only Country bank for which any significant data records exist for a number of years before and after 1797, albeit unfortunately not a continuous series. This case study reveals an example – perhaps typical of Country banks – that expanded lending during the Restriction failed to generate additional profits for the single bank, but merely increased business risk, a dynamic that is logically inconsistent with the Real Bills Doctrine. I begin with a brief summary of the history of the partnership, drawing on Cave (1899), before analysing the detail of the financial records.

8.1 Case study: Old Bank, Bristol

History of the partnership

Old Bank was the first established in Bristol in 1750 and so named after a second bank set up a year later. The Old Bank became an important bank in the busy port area, eventually merging with another local bank with which there were numerous family ties, Miles, Cave, Baillie & Co. When the Restriction began there were seven banks serving Bristol and, consistent with our nationwide data (Chapter 12), these were rapidly joined by numerous new entrants until the number peaked at 13 in 1811, declining back to five by 1826 (Cave, 1899: I, 19 and II, 20-22). During this period Bristol was a major gateway for the importation of wine, sugar and tobacco, as well as the two-way trade in wool and corn (mostly with Ireland) and the transportation of servants, convicts and slaves to the plantation colonies. For example, in the year 1789, Minchinto (1957: 53) records 379 ships arriving in port (and 319 leaving), almost half of which came from Ireland, but others from all over the continent and as far a field as Africa (20), Newfoundland (23) and Turkey (3).

When the records begin in 1773 three of the original founders had died: Onesiphorous Tyndall, Thomas Knox and Matthew Hale. The latter had been the managing partner, a position that entailed a ‘carrot and stick’ pair of incentives: he lived above the banking house free of rent and taxes and received an annual salary of £250 in addition to his share of the profits, but was also contractually obliged “to make good [any] bad money and the balance of the cash” (Cave, 1899: 43). In 1773 the three other founding partners were still in place: Hartford Lloyd (great uncle of Joseph Hartford, who was to become partner of Miles, Cave & Baillie in 1786), Isaac Elton, and William Miller. The three were senior partners together with Thomas Tyndall, who had replaced his father in 1757. Each senior partner held a $4/18^{\text{th}}$ share, with the rest held by two junior partners that had replaced Knox and Hale in 1764: Benjamin Gillam and John Edye (each with $1/18^{\text{th}}$ share), keeping the total to the maximum permissible of six. John Edye had been promoted to partner from the position of clerk in 1764, thus initiating a practice of promoting from within – a practice we find little evidence of amongst the London banks. The Old Bank repeated this in 1790 with the appointment of his son, Joseph, and more notably in 1815 when it promoted two more of its diligent clerks, James Palmer and William Edwards, allocating them a 6% stake.

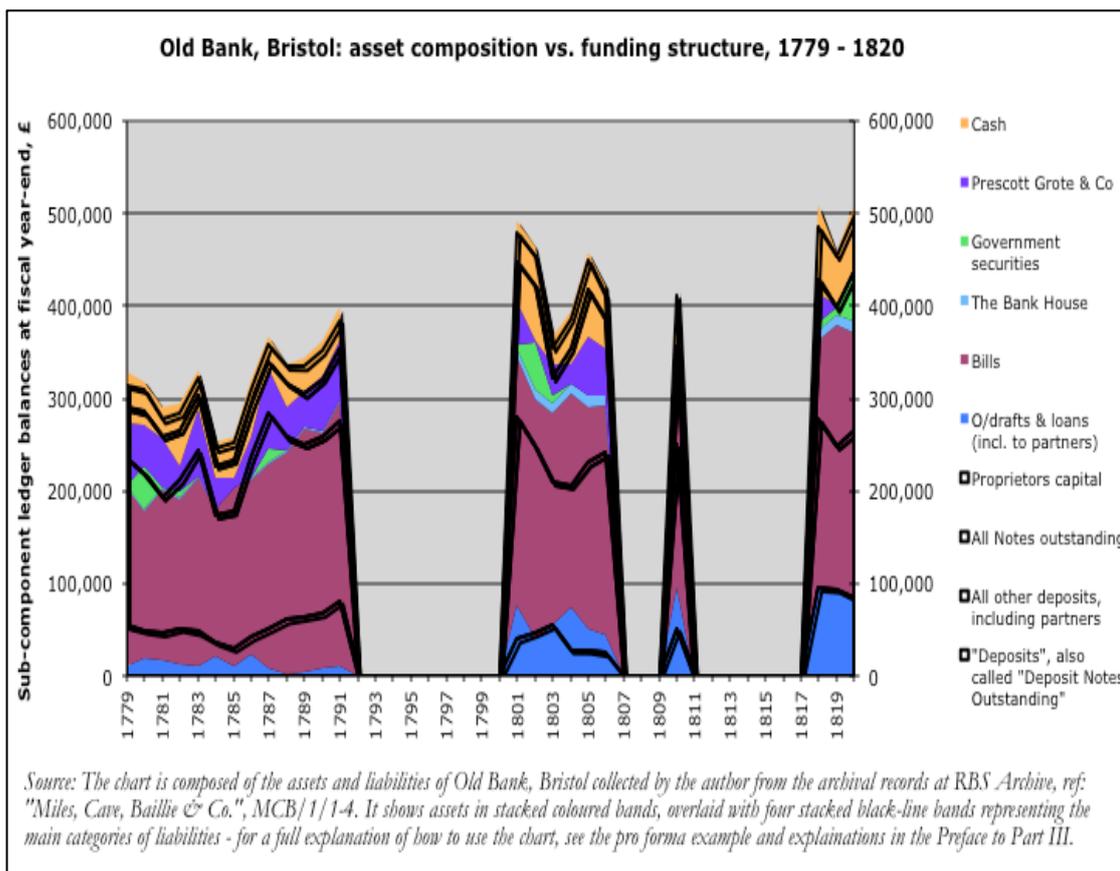
Between 1788 and 1795 *all six* partners died or exited the business, and hence the Old Bank entered the Restriction led by five completely new partners, two of whom were gone before the Bullion Report. In 1797 each held an equal 20% share: Thomas Tyndal II (the 33-year old son of the founder, who had only taken over from his father two years previously), Sam Edwards (a 50-year old grocer by trade), Joseph Edye (the son of the first clerk to have been promoted partner, but someone who had already held the office of Sheriff of Bristol in 1794 and went on to be mayor in 1801), Isaac Elton II (the 26-year old son of the founder) and William Skinner. Tyndal II would die young in 1804 and his widow, Marianne was allowed to hold on to his share until their son, Thomas Tyndal III came of age and joined as partner in 1809. Isaac Elton II was to provide the only continuity throughout the Restriction, remaining as partner from 1790 to 1837. By the end of the Restriction in 1818 he had become the senior partner with a 26% share; all other four partners from the 1790s had died or exited, replaced by Hugh Baillie, James Baillie, Thomas Tyndall III (each with a 21% share), and James Palmer and William Edwards as junior partners (with 6% each).

Balance sheet strategy

Both before and during the Restriction, the Old Bank followed a balance sheet management policy similar to that advocated by Thomas Thompson at the Smith group. Before the Restriction, the bank made few term loans or overdrafts, and the longer-term deposits always more than covered these.

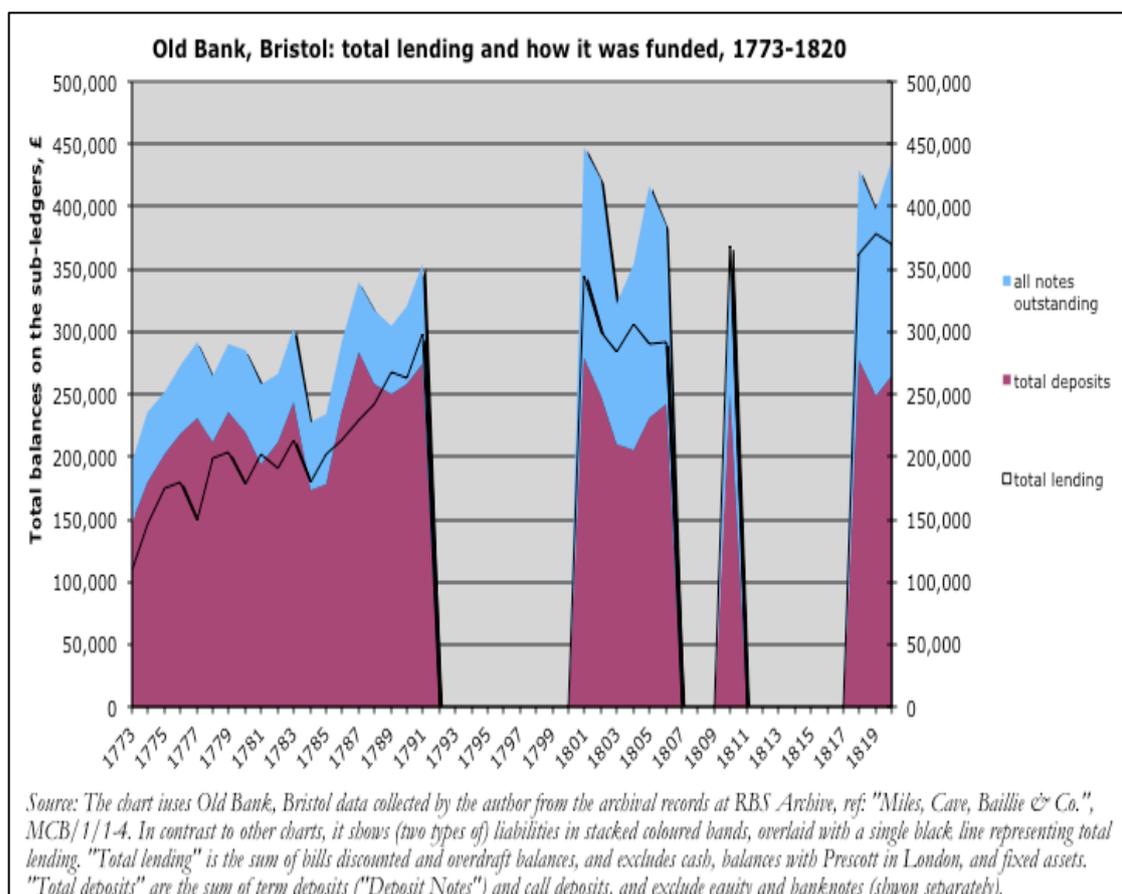
Before the Restriction, total lending - including the much larger activity in bill discounting - tracked closely the available supply of *all deposits* (Exhibit 81). In the few years where deposits fell short of total lending, the amount financed by the note issue was *de minimis*. The quantity of their own notes in circulation was never more than 22% of the net balance sheet and almost always matched entirely to their holdings of the most liquid assets, namely a combination of cash, their *nostro* balance at their London correspondent (Prescott Grote & Co – see Chapter 5), and occasionally some government securities.

Exhibit 8.1 – Old Bank, Bristol: asset and liability composition, 1779 - 1820



After the Restriction, the Old Bank was able to contribute to an expansion in the broad money supply by allowing its balance sheet and its lending to grow more than its inflow of deposits, funded by ‘pushing out’ their own banknotes. When the Restriction came, total deposits seems to have not grown or even declined slightly, but total lending grew thanks to a larger volume of own notes successfully ‘pushed out’. In the five years 1801-7 total deposits averaged £235,850, *down* 10% from the five years 1786-1791; in spite of this decline in deposits, total lending (loans, overdrafts and bills discounted) grew 20% over the same period, from £252,176 to £302,822. How was this financed? By a major expansion in the quantity of the Old Bank’s banknotes in circulation that grew by 155%, from an average of £61,006 to £155,537 (Exhibit 8.2). During the Restriction over half of the notes in circulation were funding the discounting of bills and accounted for all of the increased volumes.

Exhibit 8.2 – Old Bank, Bristol: total lending and how it was funded, 1773 - 1820



Profitability

The balance sheet policy should have generated a rise in profitability per unit of assets, but this was not the case for the Old Bank due to a significant rise in operating costs and a regular flow of loan losses and asset write-downs – although net profits did become more stable (Exhibit 8.3). Gross revenues grew faster than the balance sheet (the average for 1801-10 was 53% greater than the average of 1783-91, compared to a 31% increase in total assets), but net returns to proprietors failed to keep pace (up 31%, the same as assets). As such, its revenue and cost dynamics were similar to that of its London correspondent Prescott & Grote that followed the Discounter model. The Old Bank’s business was also predominantly the discounting of bills, which during the Restriction accounted for 55-65% of its net balance sheet assets; 77-90% of interest-bearing assets; and generated 89-100% of its revenues, excluding the interest that partners paid to themselves on their own capital. As with the London Discounters, the *gross* profitability of bill discounting rose during the Restriction due to the accelerating velocity in the turnover of bills. Gross margins on the year’s average balance of bills rose from 5.46% in the five years 1787-91 to 7.58% in 1801-06. However, also mirroring the London Discounters, three-quarters of this 208 basis point improvement in the revenue margin was offset by a rise in direct costs (“Disbursements”); the other one-quarter of the improvement was lost through deteriorating loan losses.⁵⁹

These direct costs included salaries, rent, legal costs, stationery and postage, coal and candles, builders and plumbers, glaziers and painters, insurance of the premises, travel costs to London, and taxes (including the wonderful “Lamp & Scavenger Tax”). The increase in these operating costs during the Restriction can be put down to the following chief factors: (1) salary costs in 1805-6 (£1,261 yearly) were as high as *all* direct costs had been in 1790-1 (£1,267) because staff increased to eight; in an early example of what today is called the “double-hating” of employees, the Old Bank began paying up to £52 towards the costs of one of Prescott’s clerks in London who presumably was considered dedicated to maintaining the Old Bank’s *nostro* account ledger; (2) despite the positive balance shown at year end on the Old Bank’s account at Prescotts, the bank must have run substantial overdrafts during the year as it now paid interest to Prescotts of £1,713, although this declined to £354 by 1806; (3) the expansion in transaction volumes and the issuance of its

⁵⁹ Constructed from RBS Archive: ref. Miles, Cave, Baillie & Co (Old Bank) Bristol – MCB/1/1-4

own notes (subject to stamp duties) meant that ‘stamps’ and postage alone cost £1,063 in 1805, 6% of gross revenues from discounts ; and finally (4) the bank was now paying interest on money deposited by a few corporate customers, chief amongst which was the associated family firm of E(van) Baillie & Son (Exhibit 8.3).

These “disbursement” costs rose to absorb an average 31% of gross revenues compared to 11% prior to the Restriction, which left the gross profit margin up more modestly from 5% to 5.5%. However, the reported direct costs are not fully comparable between the two periods because the bank’s treatment of interest paid on deposits by partners and third parties is not entirely consistent. Hence the best comparison is made taking operating profits net of “disbursements” *and* “interest on deposits” in both periods. On this basis, gross profit margin after interest paid on deposits (*but before write-offs*) rose from 4.57% before the Restriction to 5.16% during the Restriction. In short, the Old Bank retained only 60bp of net profit improvement from the 208bp gross improvement. The bank’s capacity to capture *some* of the rise in top line margin in the form of a higher net margins was due to the bank being able to issue more of its own notes, which reduced the relative proportion of its total lending funded by interest-bearing deposits from the partners and commercial customers.

Unfortunately write-offs continued to be a problem during the Restriction in spite of the easier credit conditions, and this on average left both the return on assets and the return on partner paid-up capital largely unchanged.

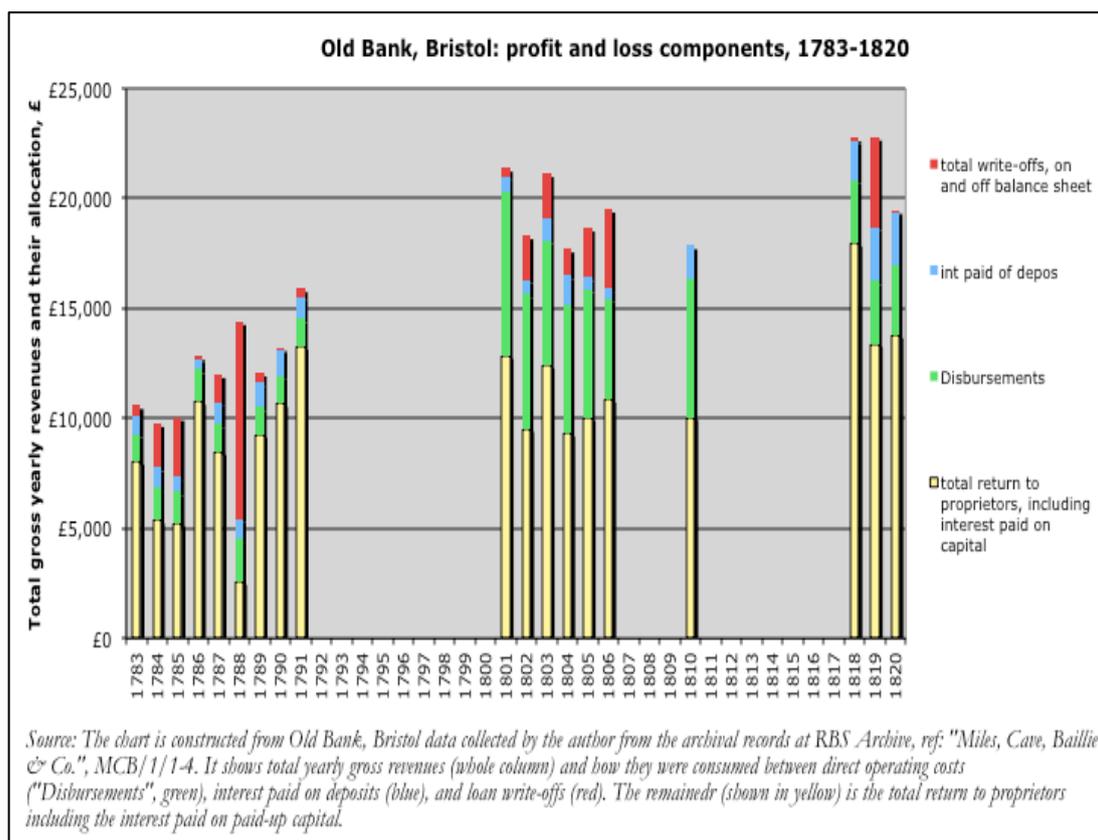
Loan write-offs and the Real Bills Doctrine

During the Restriction, the average return on assets rose just 0.05% to 2.17%, but the average return on paid-up capital actually fell slightly from 37.3% to 35.3% when making the more conservative comparison that includes the large loss on T. Keefe & Sons suffered in 1788.

The write-off experience of the Old Bank in the years 1783-1791 averaged 0.87% of the average stock of bills discounted when including the 1788 loss (0.49% p.a. if excluding it)

and 14.7% (8.7%) of average annual revenues.⁶⁰ In the Restriction years for which we have records (1801-6), write-offs were 0.79% p.a. of average discounts and 10.0% of average annual revenues. There is no clearly specified rate of write-offs on bank lending that defines the boundary between what is acceptable statistically noise consistent with the Real Bills Doctrine and what is sufficiently high to contradict that hypothesis; however, persistent annual write-offs (even when leaving out major frauds like that of Thomas Keefe) equivalent to 9% to 10% of revenues are difficult to describe as mere noise.

Exhibit 8.3 – Old Bank, Bristol: profit and loss components, 1783 - 1820



The comparison before and during the Restriction is hampered by a near-fatal loss suffered by the Old Bank in 1788. The details recorded in the balance sheet of that year provide a still image, like a photograph, of a typical network of monetary transactions as if frozen at the instant in time when the local merchant Thomas Keefe & Sons went bankrupt. The partners had unpaid debts of £9,650 due from the merchant, equivalent to over half the

⁶⁰ In order to observe the true underlying profitability of the business, when calculating the return on equity we include the interest paid to the partners on their paid-up capital; by contrast, when calculating the write-off experience we divide total write-offs (on and off balance sheet) by the total revenues excluding the interest paid to the partners on the paid-up capital

paid-up capital of the bank. Either the bank had made one of the oldest mistakes in banking – relying on the collateral security of the loan rather than the creditworthiness of the borrower – or it was the victim of one of the oldest challenges in banking: how to avoid allowing the true exposure to a failing borrower to build up rapidly and surreptitiously in the final days before the demise.

The proprietors of the bankrupt firm appear to have run off to Ireland, and the Bristol courts were still calling upon them to appear at a meeting of the creditors in May the following year. The Old Bank records show the debt outstanding was made up of 28 different bills for amounts ranging from £196 to £1,000; 24 of these were drawn by 9 different companies located in Waterford, Liverpool, Dublin, and Porto, mostly upon a certain James Roje, and all endorsed by the bankrupt firm. The remaining 4 bills were both drawn and endorsed by Thomas Keefe & Sons, a form of circular bill frowned upon by Adam Smith (Chapter 2). The Old Bank wrote off £8,126 of these debts, as they were only able to recover £1,524. Of this, just £24 came from the balance on Keefe & Sons' account, and the remaining £1,500 from three Notes of £500 due from different individuals, payable in London and Ross (near Waterford, Ireland), endorsed by Thomas Keefe & Sons and deposited with the Old Bank as “Security for such payments as we shall have made on Bills placed in our Hands & discounted.”⁶¹ Given the round sums of the three notes, these probably represented contingent capital loans extended to Keefe & Sons by silent partners and /or its trading counterparties in Ireland. In effect, Old Bank had partially collateralized the discounting of Keefe & Sons' bills – paid in its own banknotes - using the security of yet more IOUs issued by third parties. *Such credit expansion based on increasing the supply of one form of quasi-money collateralized on another form of quasi-money is how the lung of 'fringe' banking expands.*

The loss wiped out almost an entire year of the Old Bank's net profit. It was a stark reminder of the risks borne by bank proprietors operating under unlimited personal liability, and probably explains why in the following year the partners took the painful decision to call for an increase in paid-up capital from £18,000 to £30,000.

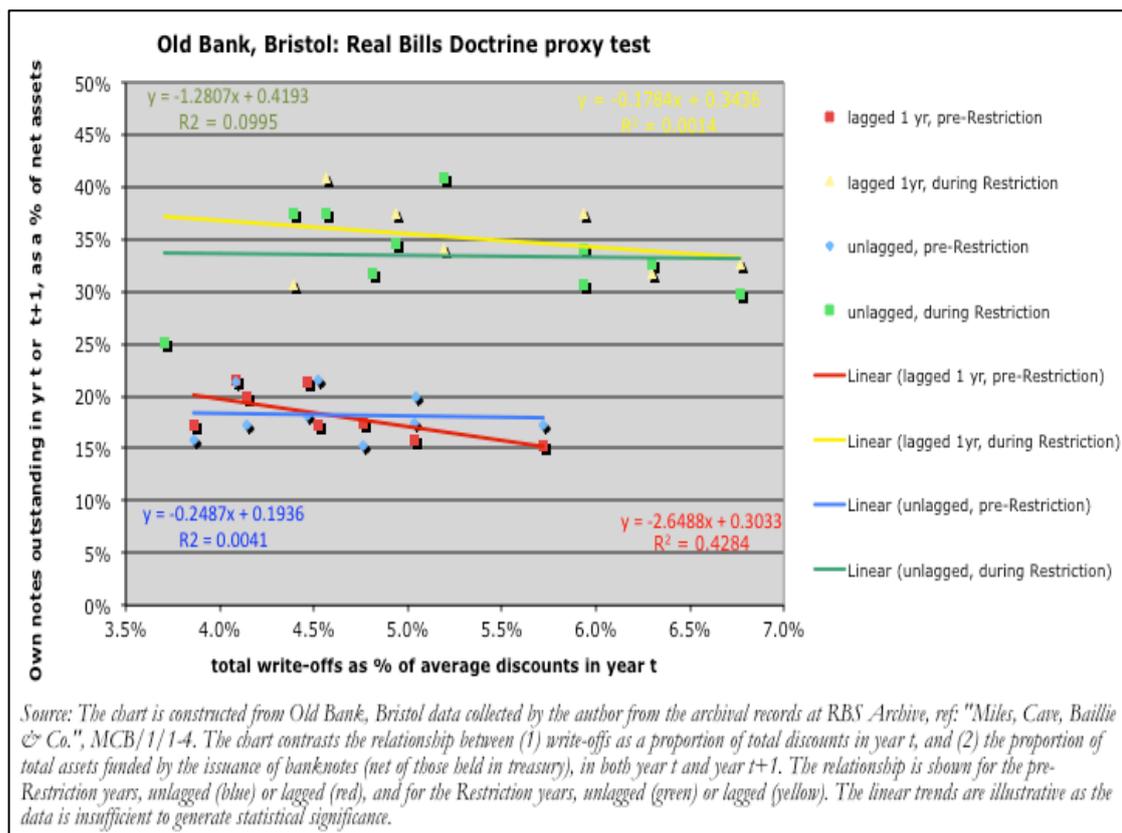
With so many different parties involved in the financial arrangements of Thomas Keefe & Sons, all of whom had an interest in monitoring the latter's creditworthiness, *such a collapse into bankruptcy with so little in the way of compensating assets, cannot be viewed as consistent with the*

⁶¹ Miles, Cave & Baillie archive records, General Balance for Midsummer 1788, p.11

'simplistic' form of the Real Bills Doctrine, but rather with Adam Smith's warning that the information "discovery [process] is not altogether so easy when [the borrowers] discount their bills sometimes with one banker, and sometimes with another, and [...] occasionally run the round of a great circle of projectors, who find it for their interest to render it, upon that account, as difficult as possible to distinguish between a real and a fictitious bill of exchange" (Smith, 1776: 398).

For the Real Bills Doctrine to have been an active constraint, we would expect to find relationships between, on the one hand, profitability or the incidence of write-offs, and on the other hand total lending or the issuance of the bank's own notes. I find there is the expected negative relationship, both before and after the Restriction, between the extent of the write-offs as a proportion of the average holdings of discounted bills in year t and the proportion of the net balance sheet funded with the banks own note issuance in year $t+1$, but the relationship is weak and the data insufficient to establish statistical significance.

Exhibit 8.4 – Old Bank, Bristol: proxy test for the Real Bills Doctrine



What is more obvious is that the relationship went through a radical shift after the Restriction was imposed. As Ricardo postulated, the effect of institutional changes brought about by the Restriction upon the bank's note issuance behaviour dominated the weak reactions to any change in the yearly loan loss experience.

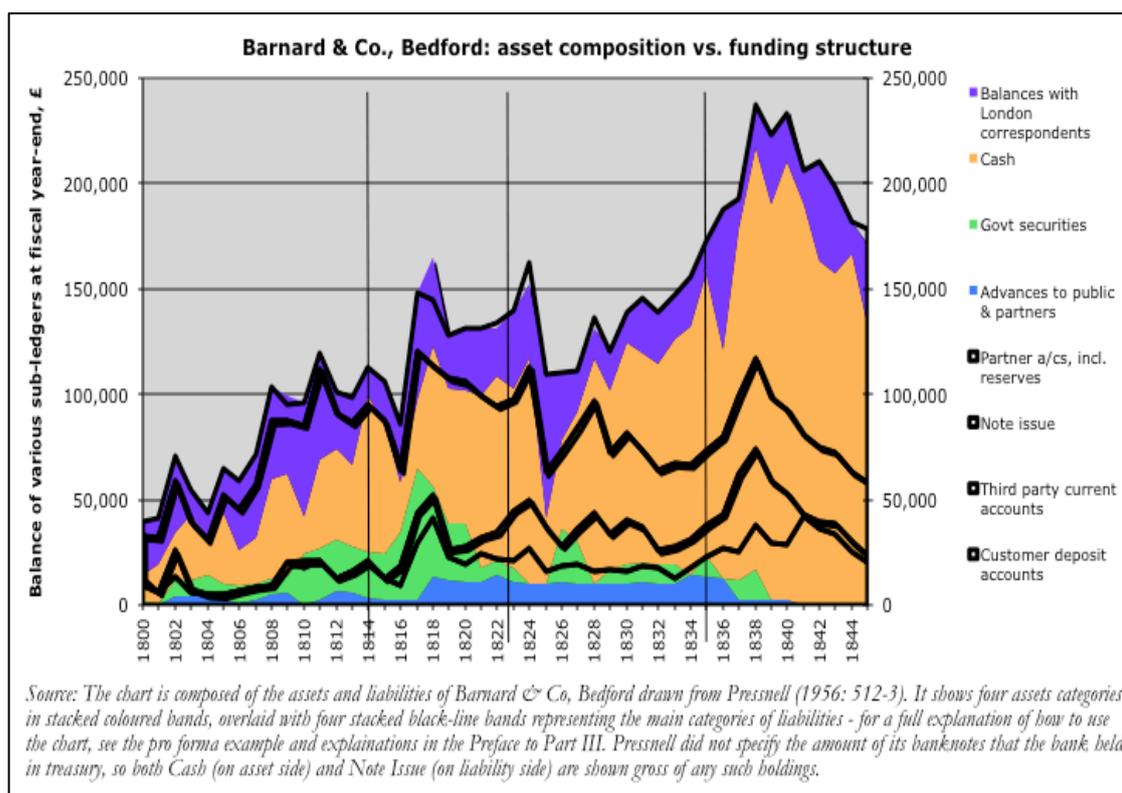
For any given write-off experience in year t , the proportion of the net balance sheet in year $t+1$ funded by the bank's own note issuance was 15-20 percentage point higher during the Restriction than before it (Exhibit 8.4). In a hypothetical year after no write-offs were experienced, before the Restriction the bank could be expected to finance 19% of its balance sheet by issuing its own notes, but 42% after the Restriction began. Albeit based on these statistically insignificant coefficients, when managing its note issuance the Old Bank's reaction function to a worsening of the write-offs was only half as strong after the Restriction. Any given deterioration in the proportion of gross profits lost to asset write-offs engendered half the reduction in note issuance after the Restriction than it had before it. In summary, if the profit signal stipulated by the Real Bills Doctrine existed at all, it was (a) weak, (b) radically altered by the Restriction.

8.2 Case study: Barnard & Co, Bedford

The balance sheet records of Thomas Barnard & Co. represent the only complete data sets of Country bank collected by Pressnell (1956) and I use his data in the following analysis. The bank was the epitome of a conservative institution designed for 'family and friends'.

The Barnard family of Bedford established Barnard & Co in 1799 and, like so many Country banks, it was born with a small capital (£10,000) alongside their commercial interests, in this case in coal. The bank's balance sheet management can be subdivided into three periods: the early fast growth during the Restriction up to 1818, funded by an expansion of the note issue, but with little change in lending to the public; a subsequent decade of no growth, during which note issuance remains a significant part of total funding; and a final period after 1828 when the balance sheet is growing again, but funded mostly with money from partners, while note issuance declines (Exhibit 8.5).

Exhibit 8.5 – Barnard & Co, Bedford: asset and liability management, 1800 - 1844



In the years of the Restriction up to 1818 Barnard's balance sheet expanded rapidly (6.4% p.a.), despite the wobble in 1816 (when it contracts by 18% in one year). This rapid growth matches that of the two fastest growing London Banks (Chapter 10), and was funded by the rapid growth in the quantity of banknotes it 'pushed out'. In its first year of operation it issued £20,000 of notes, a relatively aggressive 50% of its liabilities, but this was made possible by its risk-averse asset policy that included a 31% cash reserve. The note issue expanded faster than the balance sheet until it reached a peak of £91,580 in 1811, representing 77% of liabilities. This increase in note issuance was *not* redeployed to expand advances, but was partly invested in government securities, with the balance placed with Barnard's correspondent in London. This level is much higher than those seen amongst the other banks in our sample, but Barnard supported it by keeping a highly liquid asset portfolio and continuing to hold a third in cash. As the Restriction and the war progressed, Barnard matched an increasing portion of its note issuance to cash held at the bank, and deposited less with its London correspondent. It is possible that the accounting exaggerates the cash reserve: Barnard, in keeping with the other Country bank accounts analysed here, probably included a stock of its own notes on both sides of the balance sheet (under 'notes'

on the liability side and in the ledger called ‘cash’ on the asset side), but Pressnell data does not allow the unpicking of the two components.

Up until the financial crisis of 1825, when Barnard & Co still functioned as a bank, its balance sheet size had a strong correlation to the aggregate balance sheet of the London banks in our sample ($R\text{-sq} = 0.83$, see Appendix I – as did the estimated aggregate of all Country bank liabilities, see Chapter 12). This relationship broke down after 1823. However, unlike London banks, Barnard fails to grow in the decade after 1818 as Britain returns to the gold standard. Between 1818 and 1828 its balance sheet shrinks by -0.5% per annum, more in line with the decline of the Bank of England’s of -1.5% p.a. The bank survives this difficult decade by shifting the balance sheet into what eventually became little more than a cash management service for partners (and their close associates). By 1828, equity and deposits from partners account for 30% of total liabilities, and note issuance has declined to 41% from its peak in 1811-2 when it constituted more than three-quarters of all funding. On the asset side, more than 80% of the balance sheet is held in cash. By 1838, the bank had essentially ceased to be one, with partner funding accounting for half the liabilities, note issuance down to 18% of liabilities, and over 90% of the assets held in cash or government securities. By 1838 Barnard & Co. had become David Hume’s (1752: 35-6) favourite type of bank: one that “locked up all the money it received, and never augmented the circulating coin”.

Please note that an additional case study of Locke, Hughes & Saunders, Devizes from the Bristol area has been placed in Appendix N.

PART III

Case studies of Country banks

Chapter 9. Leyland & Bullins and the North West

1. Case study: Leyland & Bullins, Liverpool

2. Case study: A. Heywood, Liverpool

In this chapter I investigate the remaining records of three banks in the northwest region of Lancashire where banks did not issue their own notes. The region was centred on the major port of Liverpool and Manchester, the two largest towns after London each with a population of approximately 80,000 in 1801. Little remains in the way of continuous records with the exception of the important bank of Leyland & Bullins. Together with those of Barnard & Co of Bedford (Chapter 8), this data were the best records collected by Pressnell (1956) and my contribution is limited to analysing his data from the perspective of what it can tell us about the behaviour of the money supply. Some minor additional evidence was obtained from the original records of A. Heywood & Co, Liverpool and from Williams, Jones & Hughes in Chester.

9.1 Case study: Leyland & Bullins, Liverpool

I begin with a brief history of the bank drawing principally from Hughes (1906), before analysing the balance sheet data.

History of the partnership

The bank of Leyland & Bullins [hereafter “LB”] was formed in 1807 by the prominent and wealthy self-made merchant, Thomas Leyland (1752-1827) and two of his nephews, Richard and Christopher Bullins: the first joined from the start, and the second in 1815 (Orbell and Turton, 2001: 322). Leyland had served as the town’s mayor in 1798 and did so again in 1814 (apparently under protest) and 1820 (Crick and Wadsworth, 1958: 408-16). The bank remained in private hands until 1901 when it was amalgamated into the North and South

Wales Bank⁶². For five years prior to founding the bank, Thomas Leyland had been a partner in Leyland, Clarkes & Roscoe. The latter descended from “William Clarke, banker and linen draper” that was the first to be called a ‘banker’ in the Liverpool Directory of 1774 (Hughes, 1906: 2). William Clarke’s wife died in 1781 and the same year he took the decision to sell his linen business and concentrate on banking together with his two sons, William II and John. The bank survived the 1793 crisis, but had the misfortune of losing its founder on the 5th February 1797 just as it faced a change in the ‘rules of the game’. The historian John Hughes (1906) writes that at the time the bank’s London correspondent, Esdaile & Co., held some £200,000 of Clarke & Sons’ paper and were concerned that the business might fold; so they brought back from retirement a 44-year old local attorney, William Roscoe,⁶³ to audit the bank and act as the London bank’s independent eyes and ears. Roscoe did such a good job that the Esdaile partners insisted – against his wishes – that he become a permanent partner or they would put the business into bankruptcy. Thomas Leyland joined as partner in 1802, but left at the end of 1806, just ten days before he set up as Leyland & Bullins. Hughes makes the reasonable suggestion that Leyland’s abrupt departure was due to Roscoe being elected as local MP, standing on a ticket in favour of the abolition of the slave trade, whereas Leyland had for many years been active in that trade (Hughes, 1906: 58-64).

The newly formed Leyland & Bullins thrived during the Restriction: already in 1814 the balance sheet reached £1 million just seven years after being founded. Thomas Leyland made the ideal banker of the day, being a prominent and wealthy local merchant. Already in 1793, when the Mayor of Liverpool called a meeting of the Special Council to discuss what actions could be taken to relieve the credit crisis, Thomas Leyland was one of the ten men appointed to the joint “Committee of Merchants and the Council” charged with finding solutions. It was this Committee that hatched the plan to have the Corporation of Liverpool borrow £100,000 from the Bank of England, and when this failed, the successful plan to seek Parliament’s permission for the Corporation to issue its own notes up to a value of £300,000 collateralized on the Corporation’s revenues and assets (mostly unbuilt land).

⁶² The bank was eventually absorbed into the Midland Bank and then today’s HSBC Bank.

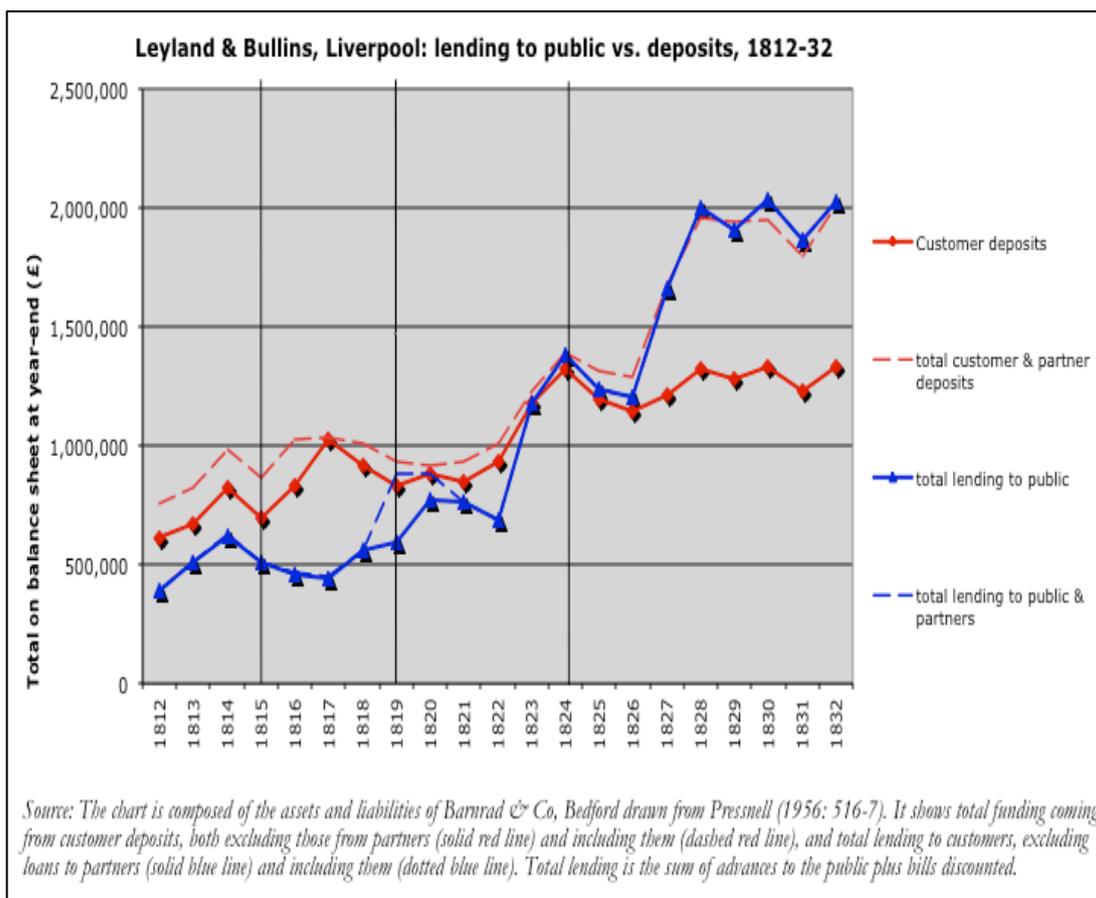
⁶³ William Roscoe was a man with many talents, with interests in art and architecture, and there is still today a “Roscoe Professor of Architecture” named after him at the University of Liverpool

Balance sheet strategy and Stable Fringe Velocity

The Liverpool banks did not issue their own banknotes. In 1807, the year LB began operating, the Liverpool Advertiser wrote what amounts to a re-statement of Adam Smith's warning on why the Real Bills Doctrine might not work, but made the warning apply only in the case of banks able to issue their own notes:

“We have been of the opinion (and our opinion is justified by daily experience) that the circulation of provincial bankers' paper is highly injurious to the public interest, because *it enables speculative, designing, and often penniless men to create a false capital, and thereby to enter into schemes which too frequently involve thousands in ruin*; for, having nothing to lose themselves, they run, neck or nothing into the wildest and most extravagant adventures, careless of the consequences. To the honour of Lancashire be it known, not a single note is issued by any banking house in the county; and notwithstanding the magnitude of its manufactures, commerce, and population, nothing is current but Bank of England paper and sterling specie: nor is the least inconvenience experience in consequence of this wise regulation” (Hughes, 1906: 110) [*my italics*]

Without the possibility of expanding the bank's funding by ‘pushing out notes’, LB's lending during the Restriction closely followed the flow of deposits (Exhibit 9.1). In this sense lending was supply-driven and *the bank was not manufacturing broad money at an accelerating rate; it was merely one of the cogs that contribute to the credit multiplier of fractional banking*. In the four years 1812-15, total lending to the public (advances plus bills discounted) was kept at a steady 63-76% of deposits from the public (51-63% of total deposits including those from partners). This cautious strategy meant that one-third to one-half of the deposits were invested in liquid government securities or held in cash or as balances with the London correspondents.

Exhibit 9.1 – Leyland & Bullins, Liverpool: deposits and lending, 1812 -1832

In the five years that followed the end of the Napoleonic Wars (1816-20) this relationship changed in ways that are more consistent with lending to the public becoming driven by the demand for loans. At first loans declined despite a significant rise in deposits, and subsequently increased despite a decline in deposits. Finally, after the Restriction ended in 1821, and until Thomas Leyland's death in 1827, the original relationship was re-established, only now typically 100% of deposits from the public were re-lent out. After 1826 the bank was contributing to a modest rise in the velocity of money compared to the Restriction period by the operation of the fractional banking multiplier. After Leyland's death the composition of deposits changes, with a much larger share made up of deposits from partners, but the relationship between total deposits and total lending remained close to a ratio of 1:1. Between the end of 1826 and the end of 1828 partner deposits rose from £136,567 to £634,794: the most likely explanation is that after his death Thomas Leyland's fortune was gradually consolidated into the bank, the increase of some half a million being consistent with the total assets of £736,531 recorded in his personal books a few months before his death, a quite extraordinary sum for that time (Crick and Wadsworth, 1958: 413).

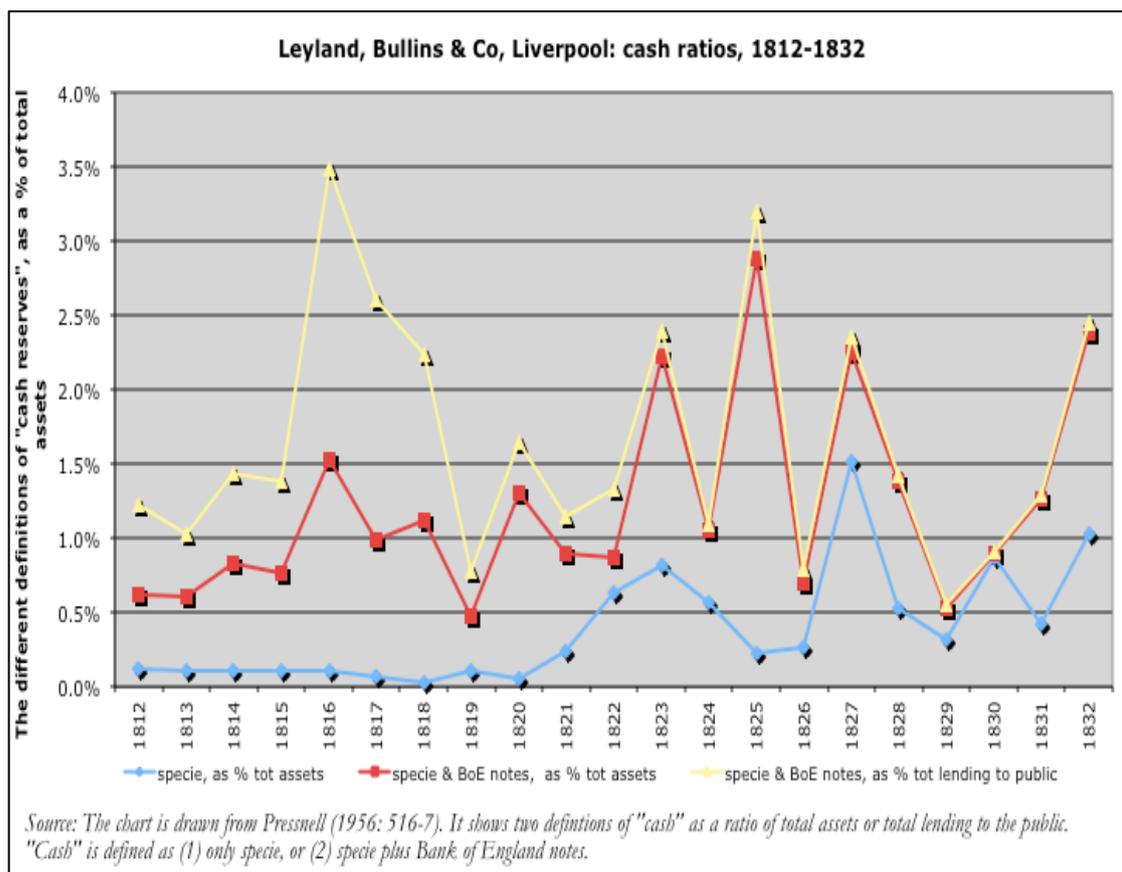
Cash management and Stable Fringe Velocity

The LB balance sheet is the only Country bank to show for all years 1812-1845 a separate line item on the asset side for both specie and Bank of England notes – in keeping with the region's preference for having only these two types of money circulating. The LB records therefore give us the longest insight on the holdings of these two types of 'cash'.

Here the records once again reveal that during the Restriction specie played almost no part in bank balance sheets. Between 1812 and 1820, specie accounted for no more than 0.1% of total assets. Consistent with other Country banks, Bank of England notes played a more important part of total 'cash', but nevertheless the sum of specie and Bank of England notes together accounted for between 0.5% (1813) and a maximum of 1.5% (1816) of total assets. As with other Country banks, the cash reserve was very small if compared to the reserves kept by the London banks (Chapters 6 and 11).

The balance sheet velocity of specie was neither low nor constant. However, consistent with one possible interpretation of Ricardo's texts, the average balance sheet velocity of the reserves of specie *plus* Bank of England notes combined, although also low, did not change significantly during the 1812-32 period. Not surprisingly, the return to the gold standard in 1821 caused the bank to hold a larger stock of specie, but still *de minimis*: 0.6% of the balance sheet compared to 0.1% during the Restriction. The balance sheet ratio of the combined stock of specie plus Bank of England notes was also higher after the Restriction, but the change in the average level remained small, from 0.9% to 1.6%. When measured as a ratio of specie plus notes relative to total lending to the public, the change was still insignificant, from 1.8% to 1.6%. The main effect of returning to the gold standard was to make the ratio of total cash to total assets some five times more volatile,⁶⁴ suggesting it was more of a residual to the core activities, rather than their driver, as postulated by the Stable Fringe Velocity hypothesis proposed by the Bullionist/Scarcity lobby.

⁶⁴ Variance 1812-20 = 1.23178E-05; variance 1821-32 = 6.08334E-05

Exhibit 9.2 – Leyland & Bullins: cash ratios, 1812 - 1832

Because the Liverpool banks did not issue their own notes, they had less means to expand their balance sheets independently of the supply of specie and Bank of England notes. Hence we would expect the Liverpool banks' management of their balance sheet liquidity to have been more dependent on their access to the rediscounting of bills with their London correspondent, and therefore their balance sheets to behave more like Ricardo's hypothesis, namely to be more correlated to those of the London banks. Between 1812 and 1832 the LB balance sheet shows a 0.82 correlation to the six London banks with data over the same period, similar to that of Barnard & Co, Bedford. Perhaps more surprising given LB's mix of business, the correlation is higher with the London Goldsmith banks (0.75) compared to the Discounter banks (0.43) – see Exhibit 9.3.

The inference is that amongst Country banks there was (with the exception of Scotland) one monetary pathway for the issuers of banknotes and another for Lancashire where banks did not issue their own. In particular, there was one monetary pathway for banks like LB and the Goldsmiths that relied on deposit growth to determine their asset growth, and another pathway for those banks that had acquired an element of (endogenous) discretion

to ‘manufacture’ new bank liabilities (banknotes) and invest them in liquid forms of lending to either the private sector (bills) or public sector (government securities).

Exhibit 9.3 – Leyland & Bullins: correlations with London business model clusters,

1812-32

Leyland Bullins: Correlations with London banks		
	1812-1825	1812-1832
<u>Goldsmiths</u>		
Hoares	0.88	0.79
Goslings	0.78	0.63
Drummonds	0.81	-
Childs	0.74	0.84
<u>Discounters</u>		
Prescotts	-0.29	0.44
Barclays	0.73	0.60
BHHB	0.63	-
Herris Farquhar	0.79	-
Smith, Payne	0.50	-
Coutts	0.47	0.25
average with Goldsmiths	0.80	0.75
average with Discounters	0.47	0.43

Source: Chart shows the correlation of total assets (and therefore also total liabilities) between Leyland Bullins, Liverpool (which did not issue notes) and each of the listed London banks. Total assets were collected as described in the Introduction and Chapter 4, and sources for each are listed in the Bibliography.

9.2 Case study: A. Heywood & Sons, Liverpool

This is an important private bank established in Liverpool in 1773 by Arthur Heywood, an international merchant, which appears to have traded continuously under that name until the Bank of Liverpool acquired it in 1883 (Orbell and Turton, 2001: 272). Only semi-annual balance sheets for 1787 to 1790 survive. These show the bank had already reached sizable total assets of £371,773 in June 1787 and was still growing fast, reaching £542,163 three and half years later, making it as large as Prescott in London and almost as large as Goslings. One remaining balance sheet for 1845 shows that by that year it had grown to £2,218,729, making it twice as large as the two London banks and the same size as Hoares.

This limited window into the bank's balance sheet nevertheless yields some corroboration of the evidence from other case studies:

1. Even at this early date prior to the Restriction this Country bank held small reserves of 'cash' of just 0.5% to 2.8% of total assets; in 1845 it was little different at 2.9%.
2. The bank was a major lender to businesses, not just individuals, and it typically did so by a combination of loans and overdrafts (two-thirds of its assets) and one-third by discounting bills. By 1845, with bills of exchange now ubiquitous components of the supply of quasi-money, the mix of business had inverted and the discounting of bills dominated two-thirds of the assets.
3. In June 1788 Heywood recorded "dubious debts" of £7,042 or 2.1% of total lending.
4. Like the Smith group of Country banks, Arthur Heywood followed a policy of each year capitalizing (a portion) of the profits, thus increasing paid up capital from 3.6% to 6.5% of total liabilities in just this short period. By 1845 paid up capital had risen to a very conservative 18% of liabilities, almost double the 10% ratio targeted by Thomas Coutts in London.

PART IV

The Restriction, the banking system, and monetary theory

PART IV

The Restriction, the banking system, and monetary theory

Chapter 10. The Bank of England and the Restriction

1. *The postulates of the theoretical debate*
2. *Data construction*
3. *How could bank behaviour affect the income velocity of specie?*
4. *First order effects: the Bank of England*
5. *How did the Bank's balance sheet change after 1778?*
6. *How did the Bank finance the large increase in its balance sheet?*
7. *Bank of England asset gearing to cash*

In Part IV I contribute to the history of money by constructing aggregated views of the data previously presented for the individual banks. It brings together the firm-level analysis of individual London and Country banks presented in Parts II and III with the better-known Bank of England data, and recent GDP data, in order to assess how the 1809-10 debate amongst political economists described in Part I reflected and interpreted Britain's changing banking and monetary system. Parts II and III 'looked for big things in small places'; Part IV constructs inferences about 'big things' from the evidence found in those 'small places' and compares those inferences to how contemporary political economists theorised about them.

10.1 The postulates of the theoretical debate

In Part I the critical analysis of original texts showed how classical monetary theory relied on the three tenets of the Price-Specie-Flow (quantity theory of money based on money being only specie), the Real Bills Doctrine (the supply and demand for credit are determined by economic agents blessed with accurate expectations about future real values), and Smith's early micro-economic form of the Law of Reflux (individual banks have a profit incentive not to push out their own banknotes beyond the propensity of the public to hold them in preference to specie – and such propensity was 'modelled' as being, if not zero, then low and stable over a loosely defined complete production cycle). The banking system

was viewed through the Humean lens as a mere intermediary of real resources (specie) between savers and “projectors” (entrepreneurs) for the financing of working capital, and not as a potential independent ‘manufacturer’ of broad money supply in the form of IOUs, created through the provision of credit to projects that might fail (to meet expectations). In short, classical theory conceptualised the banking system as if it had remained unchanged since Hume’s times, and contained only banks that operated with a low-risk version of the Goldsmith business model, having low and stable gearing to cash reserves (Part II).

After the Restriction Act, political economists responded by bifurcating the classical theories of money into two paradigm according to which monetary outcome they sought: the relative scarcity or abundance of money relative to the cumulative (nominal) value in exchange of all (potential) economic transactions occurring over a given period of time. Part I revealed more precisely how Bullionists advocated for the (relative) Scarcity of ‘base money’ and Anti-Bullionists advocated for the Abundance of ‘broad money’. The Bullionists postulated a stable relationship between Country banknotes and Bank of England notes in circulation, and advocated for a stable relationship between the Bank of England notes (and hence also Country bank notes) relative to real GDP. By implication, if the growth in the supply of all banknotes plus specie exceeded the growth in *real GDP*, then the resulting rise in prices could only be due to an excessive issue of Bank of England notes. By contrast, the Anti-Bullionists postulated an endogenously determined and stable relationship between the broad money supply and nominal GDP, and advocated for a *laissez faire* approach to the banking system based on the Real Bills Doctrine. They specified no *a priori* appropriate compositional mix of the broad money supply - between specie, Bank of England banknotes, Country banknotes or anything else that people chose to use as circulating media. Such compositional mix was said to be determined endogenously by the *London Transfer and Set Off* clearing system’s capacity to ‘instantly’ offset the supply and demand for each type of instrument and, implicitly, to also match any resulting net demand for specie to its available supply. By extension, for a given level of deposits, any increase in the banknote circulation could be assumed to reflect demand for additional lending and a matching willingness of the population to use the additional banknotes.

This Part IV investigates the weight of the evidence for and against these two competing views of the functioning of the monetary system through the lens of bank balance sheets. As there is no reliable estimate of specie outside the banking system, I focus on the

contribution to changes in ‘the money supply’ made by the change in total bank liabilities. I am using total bank liabilities as the best approximation (see explanation in Chapter 12) of the observable change in what political economists at the time referred to as the stock of ‘circulating media’. In the closing sections of Chapter 12 I return to the issue of specie outside the banking system.

I first enumerate four possible mechanisms by which the banking system can contribute to changes in the income velocity of specie, and then examine the evidence pertaining to each in order to understand the changes that followed the Restriction Act. Chapter 10 examines the evidence pertaining to the balance sheet actions of the Bank of England. Chapter 11 investigates the differentiated response of London Discounter and Goldsmith banks to the Bank of England’s expanded discount window. As a by-product of this analysis, I am able to establish confidence in the business model taxonomy. Finally, in Chapter 12 I use the sample bank balance sheet data to construct two consolidated data series that approximate the aggregate balance sheet of, respectively, the London banks and (more tentatively) the Country banks. The relation between these two data series and Bank of England circulation and recently published British GDP are examined in order to draw inferences regarding the questions posed by the theoretical debate between Ricardo and Bosanquet in 1809-10. The chapter concludes by drawing out some implications for the long-standing debate over the role played by the large government borrowing to finance the war with France in ‘crowding out’ the private sector lending demanded by the industrial revolution.

10.2 Data construction

In answering questions regarding the Restriction’s impact, I compare various bank balance sheet data series to the overall British economy. As the scalar, I use recently available data for British real and nominal GDP. Since the publication of annual GDP estimates in *British Economic Growth, 1270-1870* by Broadberry *et al.* (2015) it is now possible to scale the different balance sheet data by real GDP, as well as to deflate them by nominal GDP, according to the question being investigated. The above authors construct their GDP series ‘bottom up’ using a mixture of direct and proxy historical evidence to estimate the total output for agriculture, industry and services, with the respective shares of value-added estimated using nominal input-output shares for 1841, interpolated with those for six earlier

(distant) benchmark years (1801 being the one that falls during the period analysed here). The real values provided for GDP are converted into nominal GDP data using their base-year estimate of £76.01 million for 1700 (Broadberry *et al.*, 2015: 227) and adjusted using the related GDP deflator kindly provided by the authors.

When normalising the bank balance sheet series constructed here and the GDP series (real or nominal), it is important to ensure the two categories of data are not derived from the same inputs, as this might pre-analytically create spurious evidence of co-movement. I have investigated the overlap in the construction of the GDP series and our balance sheet data, and found this to be immaterial. Broadberry *et al.* (2015: 172-3) explain that the share of “financial services” output is set at (only) 5% of total service sector output for the entire period analysed in this thesis, and hence equivalent to only “around 1.7% of GDP”. From the mid-seventeenth century onwards, the value added from this financial sector sub-component of the GDP series is constructed from “an unweighted average of the number of country banks from Pressnell (1956: 11) and Pearson’s (2004: 374-5) fire-insurance series, interpolated using the drawing accounts of the Bank of England from Mitchell (1988: 658, 665).” In subsequent verification, the authors have confirmed that they chose Bank of England circulation data as the interpolating factor in compiling their final series because drawing accounts are available as a separate series only until 1797.⁶⁵ The Pressnell series for Country banks used in the GDP data is one of the independent variables investigated here. However, the fire-insurance series that makes up half the “financial services” output data does not form any part of the money supply measures constructed here. Hence, I estimate the overlap between the genesis of the GDP data and that of the bank balance sheet series constructed here is at most 1%. Furthermore, this is present only in comparisons involving either the Bank of England circulation or Country banks, but not those involving London banks.

The data series for London and Country banks are constructed by drawing on the archival work analysed in Chapters 1,4,5,6,7,8, and 9 of this thesis. By contrast, data for the Bank of England has long been available through the work of Mitchell and Deane (1962) who drew on the work by J.H. Clapham (1970). Until 1777, asset data is only for bullion holdings, so the total balance sheet is estimated using the three available components of liabilities:

⁶⁵ For the same reason, drawing accounts are included in the circulation data used here (unless otherwise specified) in order to ensure better consistency with data after 1797. I am grateful to Prof. Broadberry for his clarifications.

circulation, drawing accounts, and the Rest (equity). From 1778, the series for ‘drawing accounts’ is replaced by the series for ‘total deposits’ that runs to 1844. On the asset side, the values for government securities and total securities become available from 1778, and a series for private sector discounts is constructed from the difference. Constructed this way, total liabilities equal total assets.

10.3 How could bank behaviour affect the income velocity of specie?

The income-based velocity of high-powered money is shaped by three factors that have repeatedly challenged monetary economists: financial innovation in bank business models, practices and instruments (including communications); the role of credit and the ‘fringe’ banking sector; and the nature of the incentives operating upon individual economic agents. These factors were all present after the Restriction Act of 1797, and here we assess their impact. Viewed through the accounting lens of bank balance sheets that has guided the analysis in this thesis, I investigate the following four potential mechanisms by which the banking system could contribute to changes in the income velocity of specie at the time of the Restriction Act:

I. The Bank of England could (successfully) increase the proportion of its Banknotes put into circulation relative to its stock of bullion in reserve [investigated in this Chapter 10].

This could occur by way of accommodating more customer demands for credit (i.e. for the discounting of bills of exchange) or by buying more Exchequer bills, for any given stock of bullion held by the Bank. While such ‘manufacturing’ of broad money supply is the same process as the second factor below, the Bank of England’s actions are examined separately because of its relative size and the potential (highlighted by Ricardo) that its Banknotes, once redeposited into other (Country) banks, would be treated as reserves in lieu of specie, i.e. treated as high-powered money, and hence have greater multiplier effects. If this were so, as explained at the end of Part I, we would expect to see changes in the aggregate London and Country balance sheets being positively correlated to changes in the stock of Banknotes.

II. Other banks could increase their average balance sheet asset gearing to specie reserves, in the absence of any initial change in total balance sheet liabilities or their composition [investigated in Chapter 11].

Independently of what the Bank of England did, other banks could decide to hold lower specie reserves and lend out more of their deposits. This could result from a mix of any of the following: (a) a reduced need to meet withdrawals in specie, (b) use of Banknotes in lieu of specie reserves, (c) a perceived improvement in the ‘shiftability’ of other non-specie assets, such as bills of exchange and government securities, (d) a redistribution of existing British customer deposits towards banks already operating with lower specie reserve ratios. I show all these factors were present during the Restriction period.

III. An increase in the number of banks (‘financial deepening’) [investigated in Chapter 12].

Each bank would have contributed additional equity capital to the system (paid-up or implied) used to support the lending out of previously idle cash balances over the accounting time period over which velocity is measured. At the level of the whole banking system, each new bank would add fresh capacity to absorb liquidity and credit risk, as well as additional capacity to gather more and better information about prospective borrowers.

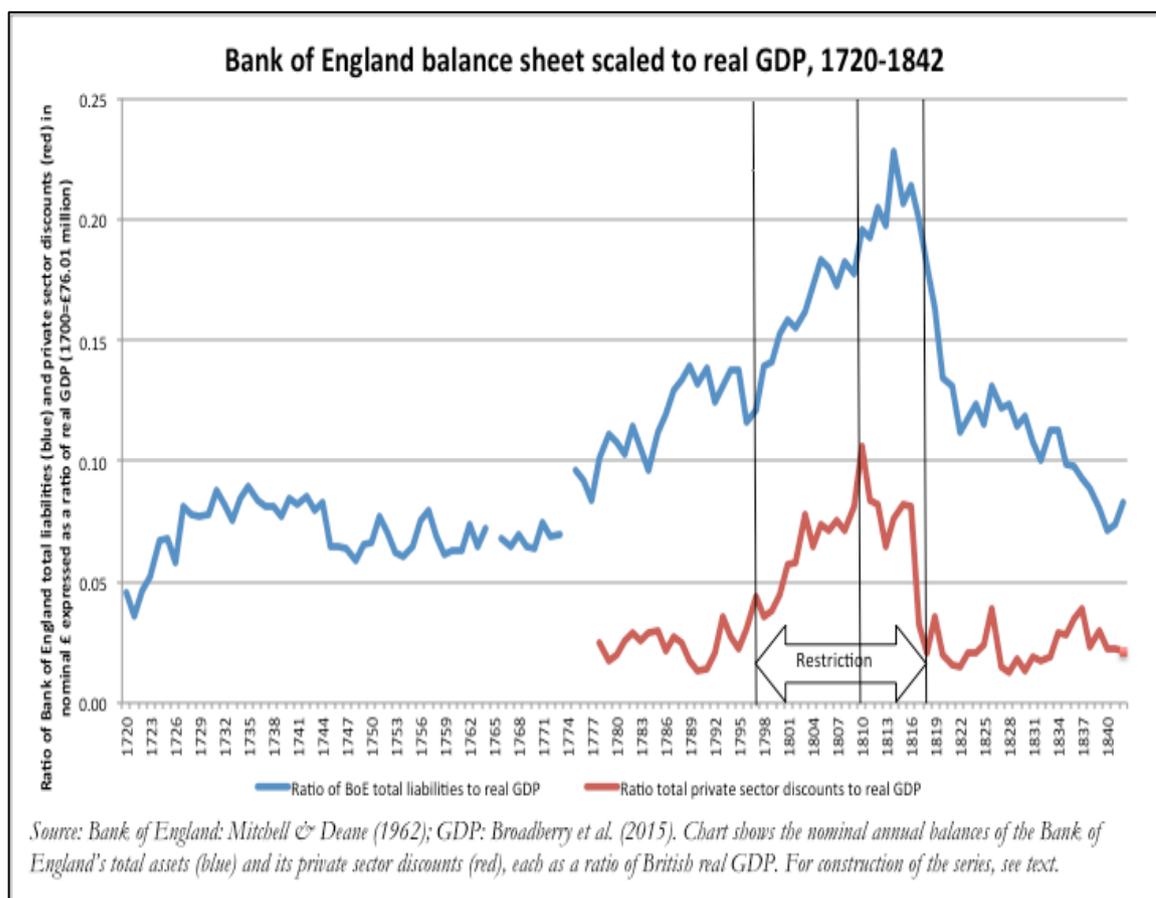
IV. Country banks could (successfully) increase the quantity of their own banknotes put into circulation [investigated in Chapter 12].

This would typically occur as the result of an increased accommodation of customer demands for credit, with such borrowers [and the public] accepting to be credited in banknotes. This was tantamount to ‘manufacturing’ an increase in the total balance sheet liabilities, thereby contributing to an increase in the income velocity of specie. However, it could also have resulted from the banks ‘pushing out’ more banknotes with unchanged total lending and total liabilities [i.e. pure rent-seeking]. This would have resulted in an increase in a bank’s stock of specie and Banknotes, which we have not observed during the Restriction, or an increase in the transfer of the same down to their London correspondent for investing in interest-bearing government securities, which we did observe (Part III).

10.4 First order effects: the Bank of England

The first factor influencing the total supply of money during the Restriction is the expanded lending by the Bank of England financed by printing Banknotes. The Restriction proved to be the catalyst for an unprecedented expansion in the Bank's balance sheet, and in particular its discounting of private sector commercial paper in the years up to 1810. The increased lending by the Bank led it to operate with a higher asset gearing to its reserves of bullion and hence, *ceteris paribus*, contributing to a higher income velocity of specie.

Exhibit 10.1 – Bank of England balance sheet, scaled to real GDP, 1720-1842



The Bank of England's balance sheet played a pivotal (if not 'central') role in the banking system because of its relative size; its monopoly over banknote issuance inside a 65-mile radius around London; and because its Banknotes had the potential to act as high-powered money. The latter was due to the contention, at least partially accepted by both sides of the theoretical debate, that Country banks held its Banknotes as liquidity reserves in the place of specie – which Part III showed had been the case. By 1795, Mitchell and Deane (1962: 442-

3) show the Bank of England balance sheet had grown to £22.5 million, backed by estimated capital and reserves of £3 million. Of the other £19.5 million of liabilities, just under half (£8.7 million) were banknotes in circulation. On the asset side it held 25% in bullion reserves, plus £16.9 million of securities, most of which were government debt (£13.2 million) and only a small component of discounted private sector bills and notes (£3.7 million). By comparison the largest London bank had reached approximately £1 million of assets (Child & Co, Coutts & Co, and Drummonds), but the more typical size was still only a quarter to half a million (Chapter 4). Outside London (Part III), with the exception of Scotland (Chapter 6), only a few of the largest Country banks reached half a million in balance sheet (such as the Old Bristol Bank and Heywood & Sons in Liverpool, described in Chapters 8 & 9), and most are estimated to have been less than £100,000, supported by equity capital of £10,000 or less (Pressnell, 1956: 226-7).

The removal of the legal constraint to redeem banknotes with gold coin upon demand, together with the ruling that even deposits by customers of specie could be returned one-quarter in banknotes (Chapter 1), led to a significant increase in the Bank of England's balance sheet assets and, on the liability side, in the quantity of its banknotes in circulation. The Bank's banknotes entered into circulation in one of two ways: lending to the private sector via the London banks, or supporting the short-term "unfunded" government debt. Either the Bank bought private sector commercial paper presented for discounting by a London bank, or it exchanged its notes for Navy and Ordnance bills drawn on government departments by the suppliers of goods (mostly for military purposes). As described in Chapter 1, direct term lending to the Exchequer was prohibited under the terms of the Bank Act of 1797. During the first part of the Restriction between 1796 and 1810, the Bank doubled the size of its balance sheet to £41.5 million, and yet there was almost no change in the Bank's reserves of bullion (£3.3 million versus £2.6 million at the nadir of 1797). Until 1810 the increase in assets was mostly accounted for by a major expansion in the Bank's discounting (i.e. purchases) of private sector bills and notes, which increased from £5.1 million to a peak of £22.4 million (an 11.0% annual growth rate).

The change can best be viewed through the long-run lens of the Bank's total balance sheet normalised to British real GDP from 1720 (Exhibit 10.1). After some fifty years during which the size of the Bank's balance sheet had maintained a relatively stable average of 7% of real GDP, after 1774 its nominal size begins a long period of expansion relative to the

size of the real economy that peaks forty years later in 1814 at 23% of real GDP. Similarly, during the Restriction, the volume of private sector discounting rises from 2-3% of real GDP to a peak of over 11% in 1810. Over the following decade the Bank's balance sheet shrinks back to 11% relative to the real economy, eventually returning to a ratio of 7% in 1840. By contrast, it takes just seven years after 1810 for commercial discounts to revert to 2-3% of real GDP, and just 5 years between 1817 and 1822 for Banknotes in circulation (not shown) to return to their pre-Restriction norm of 7% of real GDP. Judged by the Bank's balance sheet actions, this was indeed a long cycle of monetary Abundance, followed by a short and brutal retrenchment back to monetary Scarcity relative to the underlying volume-based measures of exchange transactions.

10.5 How did the Bank's balance sheet change after 1778?

The Restriction period is distinguished by a rapid growth in the Bank's discounting of private sector bills that account for more than three-quarters (£17,246,000 or 78%) of the rise in the total balance sheet (£22,109,000) from 1796 to 1810 (Exhibit 10.3). The table in Exhibit 10.2 shows the average composition of the Bank's balance sheet on both the asset and liability side for the three five-year periods of 1781-5; just before the Restriction Act; and before the peak in the Bank's private sector discounting. Viewed as 5-year averages, the composition of the Bank's *liabilities* is relatively stable, with 'capital and reserves' (called "rest") of 14%, and deposits stabilizing around one-third, and banknote circulation around one-half of total liabilities respectively. While Britain was on a gold standard, technically the Bank still acted in line with its original 1694 mandate. In the two decades prior to the Restriction, Banknotes in circulation were backed by bullion (or 27% on average and government securities for 53%), and hence the average ratio between the two oscillated around an average of 1:2. This was technically consistent with that originally legislated in 1694, but already holdings of discounted private sector bills of exchange had become part of the Bank's asset backing, although the latter oscillated between just £2 and £4 million (except 1796), compared to the peak levels of £22 million reached barely a decade later. By contrast to the liabilities, the composition of the *assets* goes through greater change during the Restriction period, and the proportion held in private sector commercial paper rises to nearly half the balance sheet (45%) in the peak period of 1806-10, more than double what it

was (18%) in the five years before the Restriction Act and also nearly double what it was in 1781-5 (26%).

This substantial change in the composition of the Bank's assets towards private sector discounting during the first decade of the Restriction period, funded by a mix of liabilities that was largely unchanged since before the Restriction Act, points to a Bank enjoying greater demand for private sector credit and unruffled by any difficulties in having the increased (net) issuance of its banknotes accepted by those private sector counterparties and by the public.

Exhibit 10.2 – Bank of England: composition of assets and liabilities, five-year averages, 1781-1810

Bank of England balance sheet 5-year average composition	1781-5	1791-95	1806-1810
Assets			
private sector discounts	26%	18%	45%
government securities	58%	52%	40%
Bullion	16%	30%	15%
Liabilities			
Circulation	46%	55%	54%
Deposits	40%	31%	32%
"Rest" (equity)	14%	14%	14%

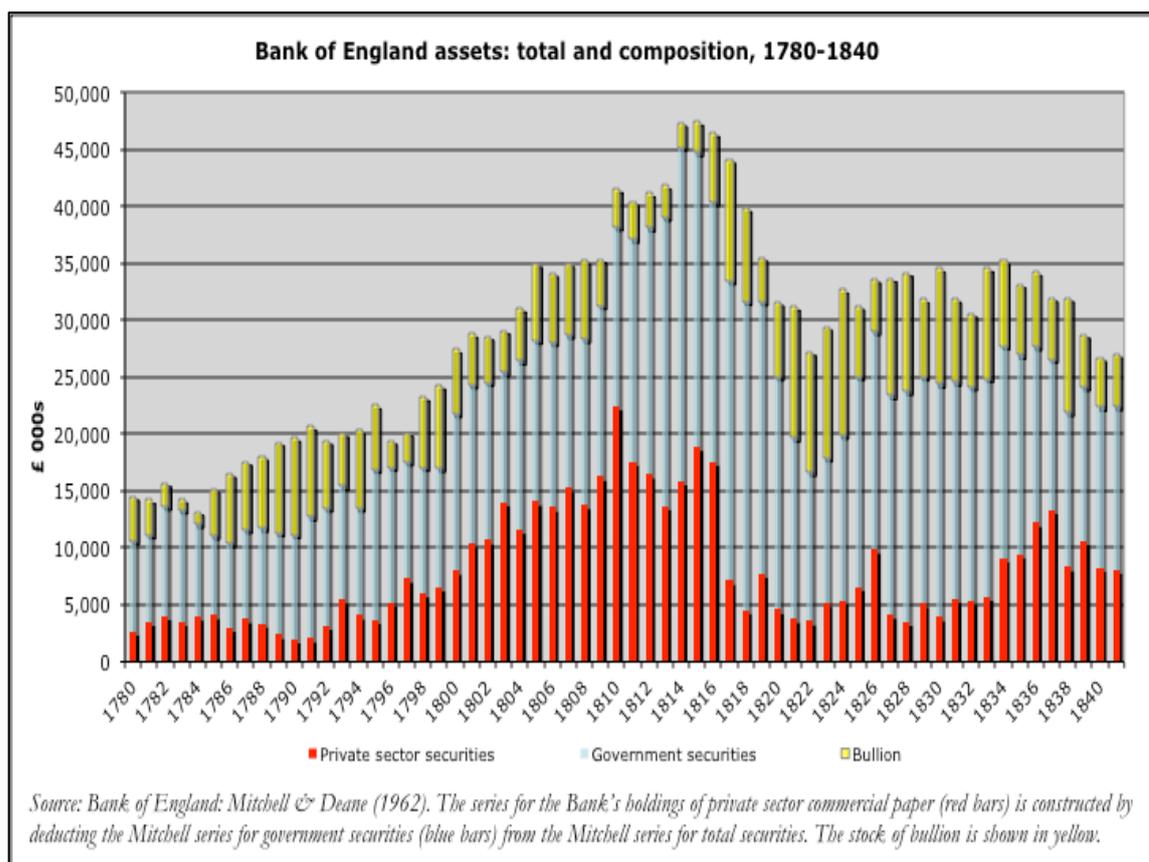
Source: Mitchell & Deane (1961)

At the peak, the ratio of nominal private discounts to real GDP rose to 11%, compared to an average of 2.4% before and 2.3% after the Restriction (Exhibit 10.1). Such a fourfold increase in short-term⁶⁶ lending to the private sector relative to the underlying volume-based measure of exchange transactions was unlikely to be consistent with the Real Bills hypothesis, unless one or more of the following four attenuating circumstances were present (all other things being equal). First, the Bank could be increasing its share of an unchanged total bills discounted; in fact, as shown in Chapters 7-9 the opposite was true. Second, the economic mix of output could be shifting towards industries requiring more working capital per unit of output; given any reasonable estimate of working capital requirements as a proportion of total 'sales' (i.e. GDP), this would require an implausible

⁶⁶ The analysis of BHHB discount book in Chapter 5 showed that the typical average maturity of these bills was one month.

degree of change in the economy in such a short period of time. It could have occurred to individual businesses experiencing longer delays in their accounts payable, but this can only happen on a net basis at the level of the whole economy if the payment delays affect exporters, but not the volume of their exports (which would reduce the denominator, real GDP); Bosanquet's arguments concerned the inability to export, not delays in payment. Third, it could occur due to an exogenous increase in prices, requiring a greater amount of nominal working capital per unit of real output; this is possible, and I will return to it further below. Lastly, the private banks could be recycling part of the Bank's increased private sector discounting into additional lending to the government; this is the favoured hypothesis following the analysis of the correspondent banking flows between the Bank of Scotland and Coutts (Chapter 6) and within the Smith banking group (Chapter 7). Such backdoor financing of long-term government debt with issuance of Banknotes was indirectly doing the same as the issuance of the *assignat* had done in France, and not what was intended by the Real Bills Doctrine.

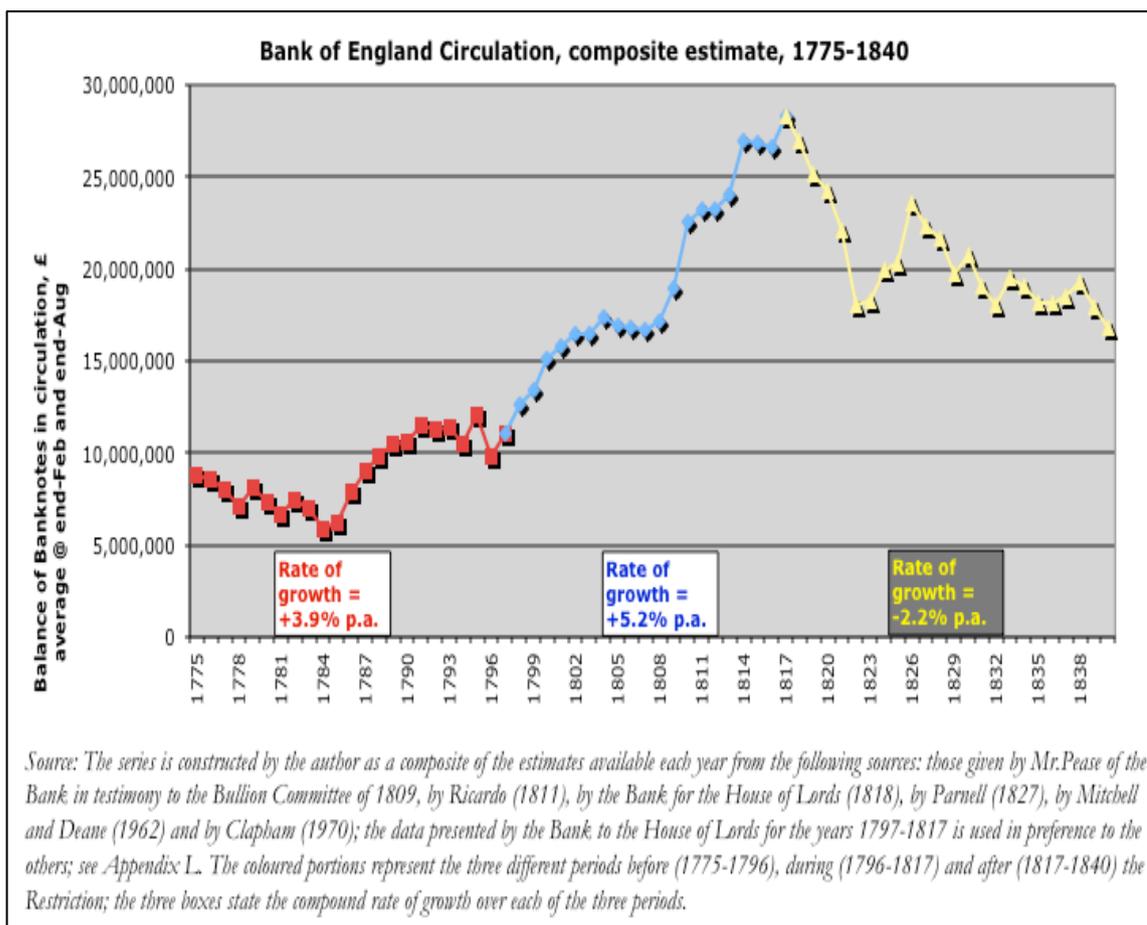
Exhibit 10.3 – Bank of England assets: total and composition, 1780-1840



10.6 How did the Bank finance the large increase in its balance sheet?

No less than 75% of the increase in the Bank of England's discounting was funded by a £13 million increase in Banknotes in circulation. With the average London bank in our sample having a balance sheet of approximately half a million pounds in 1796, the increase in Banknotes in circulation represented the equivalent of 26 more banks or approximately 40% of those actually in existence. It was this increase that concerned Ricardo and the Bullionists. Although he did not have the full data available, he had seen at least five data points given in evidence to the Bullion Committee by Mr. Pease of the Bank, which gave the broad outline of the increase since 1797 (see Appendix J); and Ricardo would also have developed a sense of this increased supply of Banknotes through his brokerage company's dealings in the London securities market. The concern was understandable: such a large rise in the stock of Banknotes circulating at first in London where 'money was always within reach' could be expected to lead to multiplier effects to the extent that Country banks treated these Banknotes as potential reserves.

Exhibit 10.4 charts this composite estimate of the Bank's notes in circulation from 1770 to 1840, distinguishing the three sub-periods before, during, and after the Restriction. After 1797 there was acceleration in the trend rate of growth of Banknotes in circulation, from 3.9% p.a. to 5.2% p.a., followed by a complete reversal once preparations began in 1818 for the return to the gold standard. During the entire expansionary period of Abundance, Banknote circulation increases by +4.9% p.a.; in contrast, during the entire contraction period of Scarcity it declines by -2.2% p.a. The expansion in Bank of England money during this period of Abundance can be broadly subdivided into three periods each lasting 7-9 years, and separated by two pauses lasting approximately 4 years: 1785-1793 (paused in 1794-7), 1798-1804 (paused in 1805-1808), and a final period of growth during 1809-1817. The first two phases are of similar strength (+7.6% and +7.9% p.a.), with a somewhat weaker growth in the final phase (+5.6%). When measured using the Bank of England circulation, the period of near-uninterrupted Abundance lasts 33 years (from 1784 to 1817). The subsequent period of Scarcity lasts 24 years and is subdivided into two periods of rapid decline in the Circulation lasting 6 years and 14 years, separated by a short reversal of 3 years in the run up to the 1825 financial crisis.

Exhibit 10.4 – Bank of England: total (notes in) circulation, composite estimate, 1775-1840

The stock of bullion was no longer a determinant of the way the Bank managed its balance sheet during the Restriction, while private sector discounts became a determinant of Banknote issuance. During the Restriction, until 1810 the Bank let its note issuance be driven by the demand for credit, which its directors justified to the Bullion Committee by invoking the Real Bills hypothesis. After 1810 its note issuance was driven by the government demand for unfunded short-term borrowing, reflecting the sharp rise in the government's net annual borrowing requirement. I estimate the Bank bought 20% of the cumulative net new borrowing by the government of £69M during the four years after the Bullion Report (1810-14).⁶⁷

What did the large increase in Banknote issuance signify for the relationship between Banknotes and bullion postulated by classical theory and advocated by the Bullionist-Scarcity lobby?

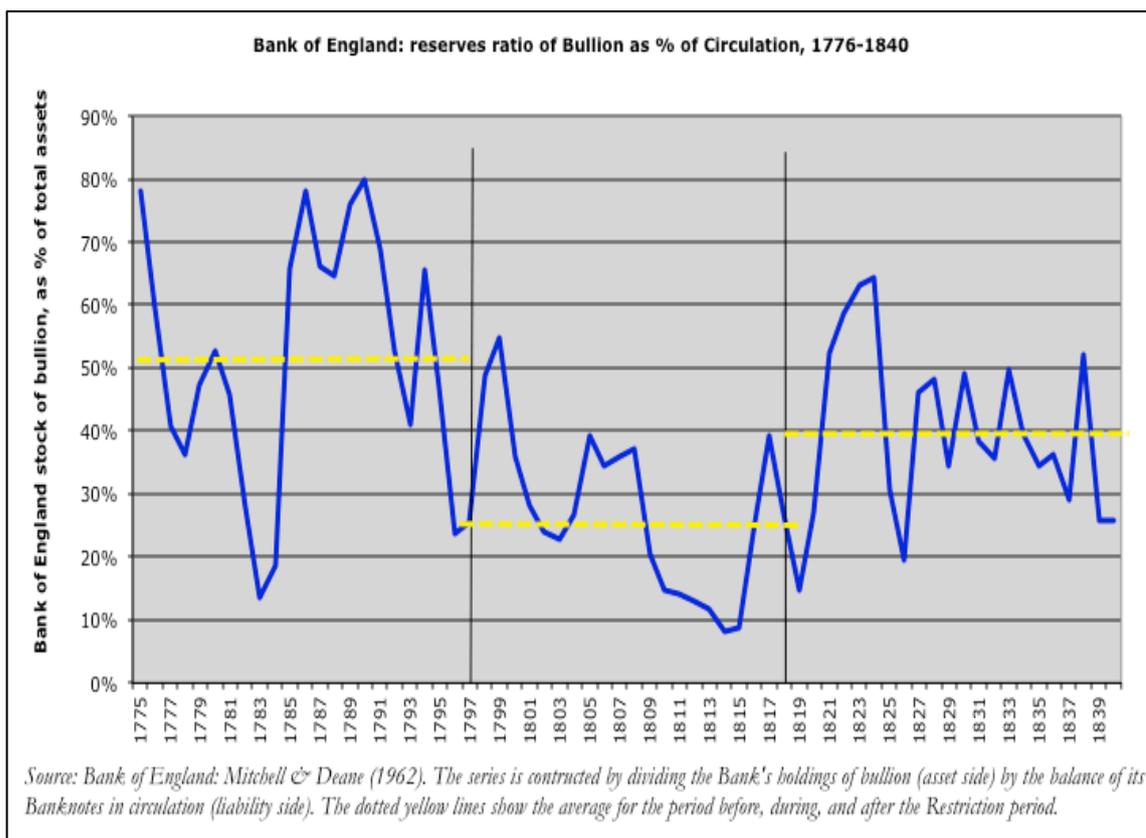
⁶⁷ See section on *Monetizing war debt* in Chapter 12.

10.7 Bank of England asset gearing to cash

The Restriction enabled the Bank of England to achieve this monetary expansion by operating with a different balance sheet structure that was no longer influenced by the stock of bullion. The Bank's average ratio of bullion reserves to total banknotes in circulation fell from 52% to 27% (Exhibit 10.5). From the perspective of monetary velocity, the balance sheet velocity of Banknotes in circulation relative to its bullion reserves doubled during the Restriction, from 2x to 4x. This change was only partially reversed in the twenty years after the decision was made in 1818 to restore convertibility into gold. The banking system and the Bank of England had learnt to operate with a higher average gearing in relation to what was considered high-powered money prior to the Restriction.

The gearing ratio of notes to bullion examined above appears to be stationary around its average when measured between 1775 and 1797. It is therefore possible to argue, as Ricardo did in his 1810 'weak form' of the quantity theory, that already prior to the Restriction in "Britain so many means of economizing the use of circulating medium have been adopted" that the income velocity of specie had risen to a new, yet *stable* plateau measured over a complete economic cycle. But it is *not* possible to maintain the same argument after 1797. During the Restriction years of 1798-1815, the ratio of notes in circulation to the stock of high-powered bullion was on average twice that practiced in the twenty years prior, and the Bank's stock of bullion stops being a significant factor in determining its new note issuance. Instead, note issuance becomes entirely explained by the changes in the discounting of private sector bills or additional short-term lending to the government. After the Restriction, at first the Bank makes a one-off reduction in its balance sheet and shifts its asset composition back towards bullion, but there is no return to the *status quo ante* in its dynamic balance sheet behaviour.

Britain returned to the gold standard, but the monetary system now operated largely on the premise that the money unit of account when represented by a Bank of England note was backed mostly by a nominal unit of government debt: it was no longer possible to argue that it could be modelled as a temporary replacement for gold. As Heywood (1812: 78) noted, the 'system of currency' had become based on "circulating credit".

Exhibit 10.5 – Bank of England reserve ratio of bullion to circulation, 1775-1840

Nevertheless, if Ricardo was correct in saying that Banknotes were acting as the reserve asset for Country banks, this first-order effect in the form of the Bank's large injection of such new high-powered money during 1797-1810, equivalent to nearly 3% of nominal GDP in 1797, and then switching in just two years to monetizing government securities instead, and finally fully reversing the entire 'excess' in three years - - could be expected to have had significant consequences for the rest of the banking system and the broad money supply.

SECTION IV

The Restriction, the banking system, and monetary theory

Chapter 11. The London banks and the Restriction

1. *Context, sample robustness and expected effects*
2. *Exposure to bill discounting*
3. *Cost and incentives to use the Bank of England discount window*
4. *Asset gearing to cash*
5. *Government securities as surrogate liquidity reserves*
6. *Implications for balance sheet growth rates*
7. *Conclusion: the divergent reactions to the Restriction*

In this chapter I analyse the differential response of London bank balance sheets to the changes brought by the Restriction. I use data collected for the core sample of nine London banks (see *Data contribution* in the Introduction) and a newly available document from the Bank of England archives to quantify three paths by which the London banks were impacted by, or acted as accelerants to the Bank of England's monetary expansion. These were the expanded use of the Bank of England's discount window; the adoption of lower specie reserve ratios, especially by banks following the Discounter business model; and the increased use of government securities to manage liquidity risk. These offer an opportunity to isolate the second-order effects of monetary expansion operating via the London private bank sector.

11.1 Context, sample robustness and expected effects

The previous chapter showed how, until 1810, the increase in the Bank's balance sheet took the form of a major expansion in its discounting of private sector bills and notes, and how the associated £13 million increase in Banknotes in circulation represented a monetary injection directly into the London money market equivalent to adding 20 new large banks to the existing 70 London banks. It is hardly surprising that this monetary injection should produce significant change in the London money market that disrupted the *status quo ante* according to whether a bank followed the Goldsmith or the Discounter business model

presented in Chapters 5 and 6. This chapter answers the question: how did the additional Banknotes enter the monetary system and what impact this did have on the rest of the banking system?

The empirical robustness of our analysis can be expected *ex ante* insofar as the total number of London banks did not change greatly during the Restriction, and is supported *ex post* by the triangulation with Bank of England data discussed further below. Clapham (1970: 1) estimated that the number rose from 69 in 1797 to 77 in 1808. The Bank of England records show it recognised 68 banks in 1809.⁶⁸ We have a further point of reference for 1814 from the records of the London bankers Cocks, Biddulph & Co. The records reveal how the bank's partners were keen observers of the competition, asking their clerks to investigate the competitor volumes going through the London Clearing House and, most usefully for us here, keeping the relevant cuttings from the 1814 *List of Bankers in London* printed in Pigot & Co's "London and County Directory".⁶⁹ Their record listed 75 London banks, but such directories often overstate the number of true and functioning entities with meaningful turnover. Hence, we can make the operational assumption that there were a constant 70 London banks during the Restriction and any expansion in that portion of Britain's total money supply accounted for by the London banks will be observable almost entirely via the behaviour of their balance sheets and not in the expansion in the number of banks⁷⁰. As a further advantage, we can exclude the presence of survivorship bias in our analytical sample. The empirical robustness of our sample of banks is further supported by the triangulation of individual bank balance sheets with the Bank of England's records of its dealings with London banks, as explained below.

The London banks followed two business models, the Discounter and the Goldsmith (see Part II) with radically different balance sheet structures that we would expect *a priori* to react differently to the Bank's monetary injection. Firstly, we would expect a Discounter's balance sheet to have had a higher beta to any increase in the volume of Bank of England discounts, because of the higher proportion of its assets invested in the discounting of bills as compared to the proportion lent out in secured medium-term loans. Secondly, we would expect a higher proportion of any increase in deposits at a Discounter to be re-lent out

⁶⁸ See section 10.2 below.

⁶⁹ Barclays Bank archives, ref: 230/85.

⁷⁰ When constructing the longer data series in Chapter 12, we make one adjustment to account for the bank failures of 1825-6.

because Discounters kept a lower cash reserve against their lending due to the average maturity profile of their assets being shorter than that of Goldsmiths. Thirdly, the Bank's monetary injection would enhance the 'shiftability' of all forms of (short-dated) quasi-money instruments including the bills of exchange, rendering them suitable alternatives to holding liquidity reserves in cash, and inducing different reactions across banks in the way they managed their lending for any given level of deposits. We show below that all these were relevant determinants of a London bank's contribution to monetary expansion.

11.2 Exposure to bill discounting

The records available show that the banks following the Discounter business model were the conduits to a very different monetary transmission pathway compared to the Goldsmith banks.

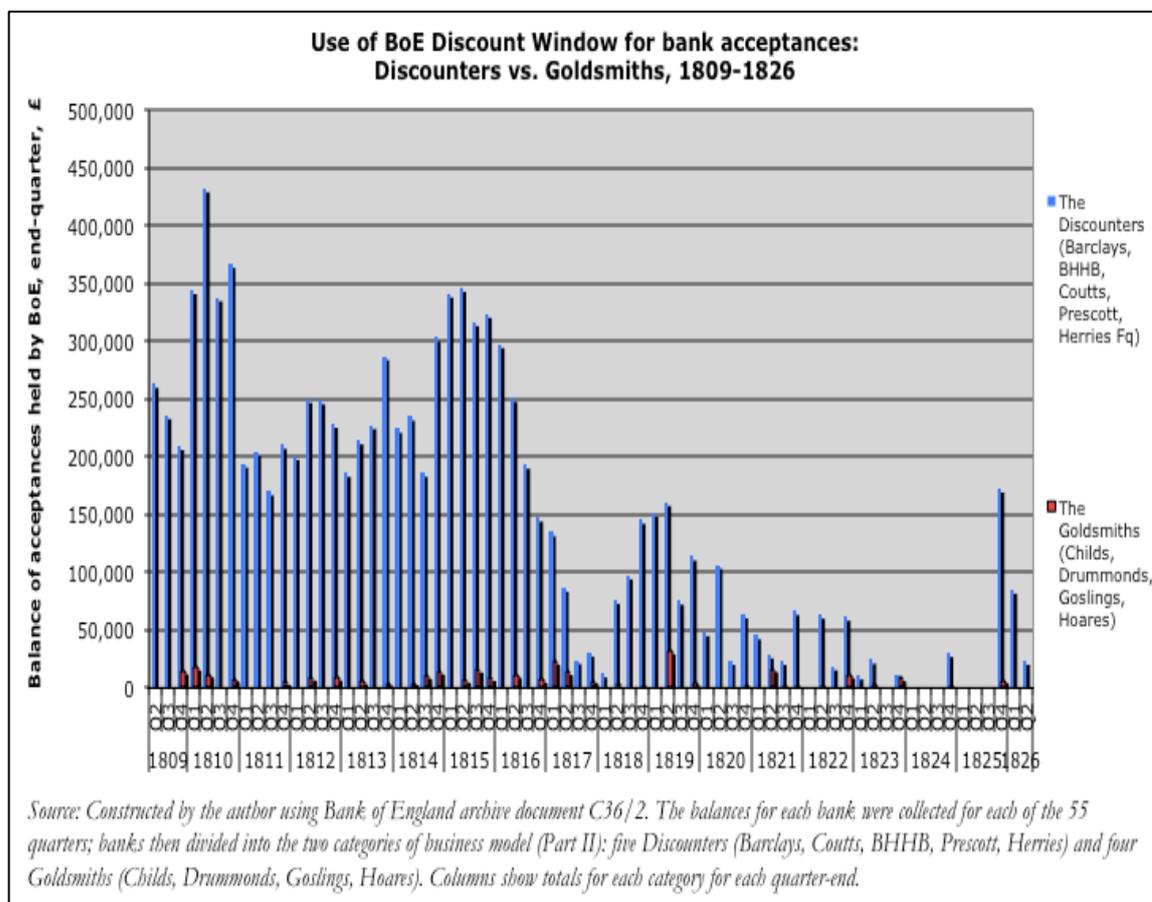
Thanks to the kind assistance of the Bank of England archivists, one additional new document has come to light that corroborates the hypothesis of divergent business model responses, and simultaneously supports the view that our core sample of nine banks is a good proxy for the whole London money market. The document shows the quarterly balances of acceptances that the Bank held against each of the London banks from 1809Q2 to 1826Q2 (except for seven missing quarters from the final three years).

The document lists 68 names for which the Bank discounted acceptances and the holdings outstanding at the end of each quarter. The five Discounters (Barclays, BHHB, Prescott, Herries and Coutts) and five Goldsmiths (Hoares, Childs, Drummonds, Goslings and Cocks & Biddulph) in the core sample together account for 12% (£10,296,834) of the total balances discounted by the Bank during the period (£88,712,627). This proportion is close to what we would expect from a nine-bank sample drawn from a whole population of 70 banks if the combined behaviour of the former was a good representation of the combined behaviour of the latter. Furthermore, triangulation of the two sets of data suggests that our core sample of nine banks is a good proxy for all London banks.⁷¹ The log of the quarterly total balances for the sample banks taken together 'predicts' 93% of the change in the total

⁷¹ In the subsequent analysis based on the aggregation of London balance sheets I exclude Cocks & Biddulph for whom we do not have continuous balance sheet data.

balances transacted with the Bank of England by all 68 London banks. This is an important finding, providing confidence that the sample of London banks, viewed in aggregate, reflects an accurate image of the behaviour of the London money supply, and supports the generalised inferences drawn in the next chapter.

Exhibit 11.1 – Use of Bank of England discount window: Goldsmiths v Discounters, 1809-1826



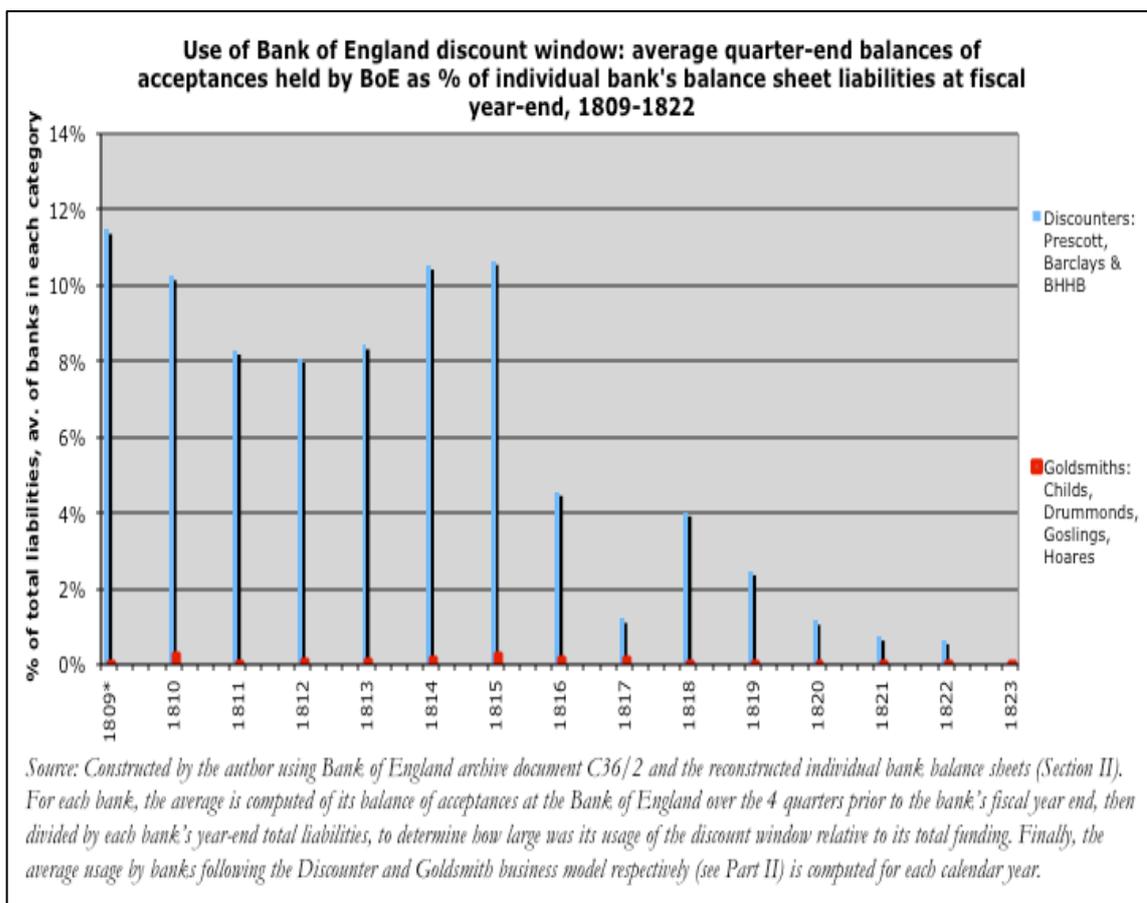
The analysis further supports the taxonomy of business models presented in Chapters 4 and 5. Within this sample total, the Discounters made significantly greater use of the Bank's facility compared to those we classified as Goldsmiths. The data shows that during the full 17 years the Discounters accounted for 97% of the quarterly balances of acceptances sold to the Bank of England by our sample banks. The Goldsmiths accounted for just 3% (Exhibit 11.1). Of the 69 quarter-ends, there are only two when the Discounter banks account for less than 86% of the balances held by the Bank against the full sample, and in 24 of those quarter-ends the Discounters account for 100% of the sample banks' total balances with the Bank.

Bank of England's discount window as source of funding

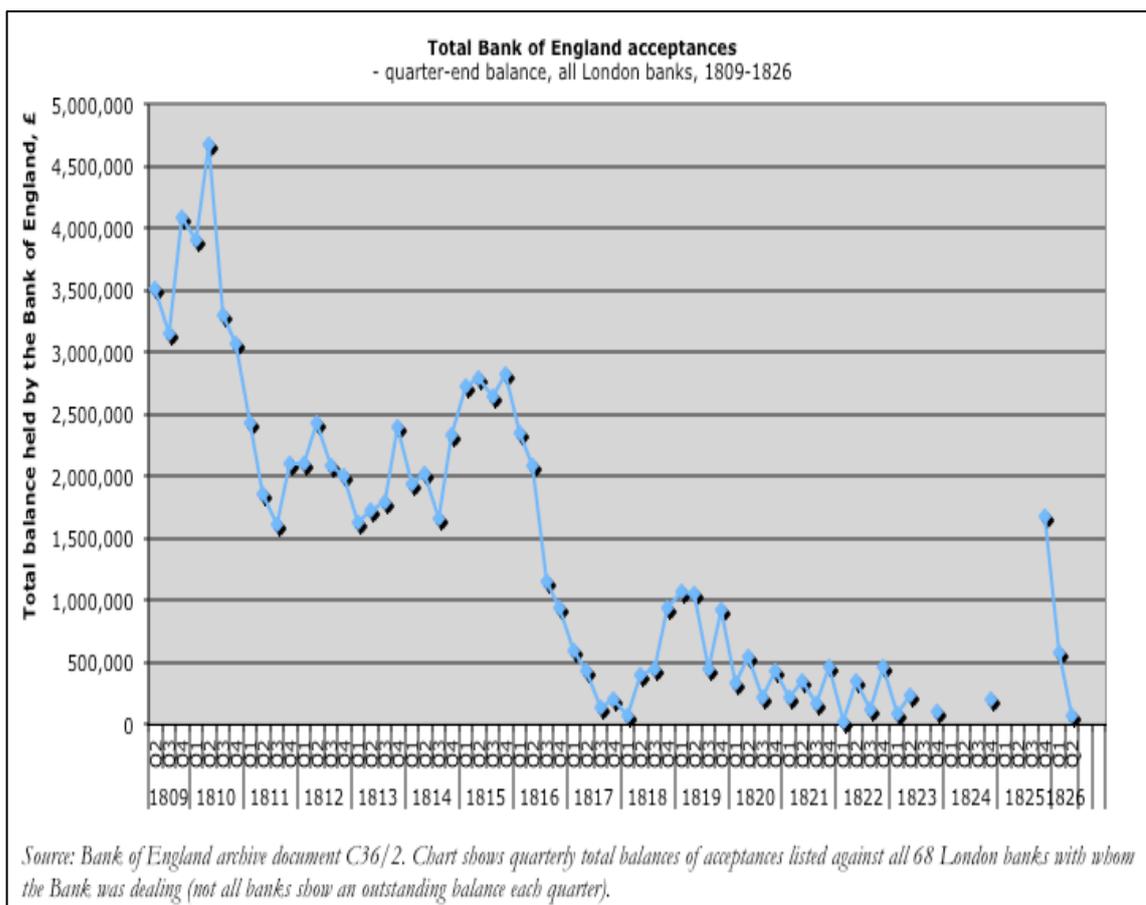
The Bank of England discounting was a central part of the funding model for some of (but not all) the Discounters, while it played no direct part in the funding model of any of the Goldsmiths. The Goldsmith banks maintained a regular trickle of acceptances discounted with the Bank, and this continued even after the return to the gold standard, suggesting that for these banks, the Bank's discount window was used as a marginal or 'emergency' source of liquidity rather than as a central part of the business model. Comparing the average quarterly balance of acceptances sold to the Bank of England, with the year-end balance sheet of each Goldsmith, there was not a single year between 1809 and 1826 where this source of funding accounted for more than 1% of the total liabilities for any of the four Goldsmith banks in the sample.

By contrast, discounting at the Bank became an important part of many Discounters' funding model. During the Restriction years of 1809-1815, this source of funding on average accounted for 8% to 12% of the total liabilities of the three main Discounters: Prescott's, Barclays and BHHB (Exhibit 11.2). For Herries Farquhar it only represented 1% to 2%. The Court of Directors of the Bank set credit limits for each London bank it dealt with, and the limit given to Herries as the youngest bank was likely small. However, a more likely reason is that Herries' Circular Note scheme was paid in full up front by the customer, thereby creating a core source of funding that was not available to, say, Coutts who was regularly battling for its main Country correspondent not to go into overdraft (Chapter 6). Indeed the records show that Herries did not use the discount window at all between the end of 1813 and the last quarter of 1821, which corresponds approximately to the take-off in the use of the Circular Note (Chapter 4). Coutts was a substantial user of the Bank's discount window, but volumes represented only 1-3% of its total liabilities. There is one exception, the final quarter of 1825, when Coutts' balance is almost twice any previous usage and 4% of its balance sheet, suggesting that the banking crisis of that year hit Coutts relatively hard. This lower 'headline' usage is consistent with the hybrid nature of Coutts business model explained in Chapter 6: if computed solely against the portion of its liabilities associated with its correspondent business with the Bank of Scotland (i.e. to the portion of the balance sheet that followed the Discounter business model), then Coutts' discounting at the Bank accounted for 3% to 5% of funding.

Exhibit 11.2 – Discounters v. Goldsmiths: Bank of England discounts as source of funding, 1809-1823



There was a sharp reduction in the Bank of England's accommodation during 1816-7, when the Bank switched to buying Exchequer Bills, and this reduced funding for our sample banks from quarter-end balances of nearly £400,000 to almost nothing a year later (Exhibit 11.1). For all 68 banks, quarter-end balances fell from £3 million to almost nothing (Exhibit 11.3). For the main Discounters (Prescott, Barclays & BHHB) this source of funding fell from 11% of their respective total liabilities in 1815 to just 1-2% from 1817 (Exhibit 11.2). The Discounters had to manage their liquidity risk differently after 1815; it seems the Goldsmiths were providing some assistance by placing more money (on a secured basis) with the London bond and bill brokers. For example, after regularly placing 3-5% of their balance sheet with Goldsmid, following the death and suicide of the two partners of that firm in 1808, Hoares converts the account to a "City account", using multiple counterparts, and this grows to one-third of the balance sheet in 1817.

Exhibit 11.3 – Total Bank of England quarter-end balance of acceptances, 1809-26

This data also illustrates clearly the change in the Bank of England's policy after the Bullion Report of 1809 identified in the previous chapter. When the Bank shifted its market operations in 1810 to buying government debt, this removed accommodation equivalent to 0.5% of nominal GDP from the stock of what was, according to the Bullionists, the new *de facto* high-powered money, and that had previously been available directly to London Discounter banks. As a result, the growth in London bank liabilities slowed, and there was an immediate effect on the number of Country banks, although it did not slow the growth in their estimated total liabilities (Chapter 12) because the Bank was still providing a growing monetary stimulus that was now flowing directly into the country via its direct financing of government expenditure. The Bank's switch of strategy after the Bullion Report was a brutal change of the monetary pathways, but it may also have given the correspondent banking mechanisms (Part III) time to adjust prior to the even greater monetary stringency that was ushered in after the end of the war. While a small number of the weakest Country banks at the outer fringes of the monetary system began to fail after

the switch occurred (Exhibit 12.7), the inner core of strongest London and Country banks became more self-reliant (Chapter 12).

A monetary system that Pressnell (1956) and Ricardo described as a concatenation of Bank-London-Country, after the Bullion Report gradually became a monetary system with two different chains of co-dependence: a Bank-Treasury loop and a separate London-Country loop, the two communicating via flows of government expenditure. Nevertheless, Exhibit 11.3 also shows that during the 1825-6 crisis the Bank did assist the London banks and re-established, albeit briefly, the Bank-London-Country pathway.

11.3 Cost and incentives to use the Bank of England discount window

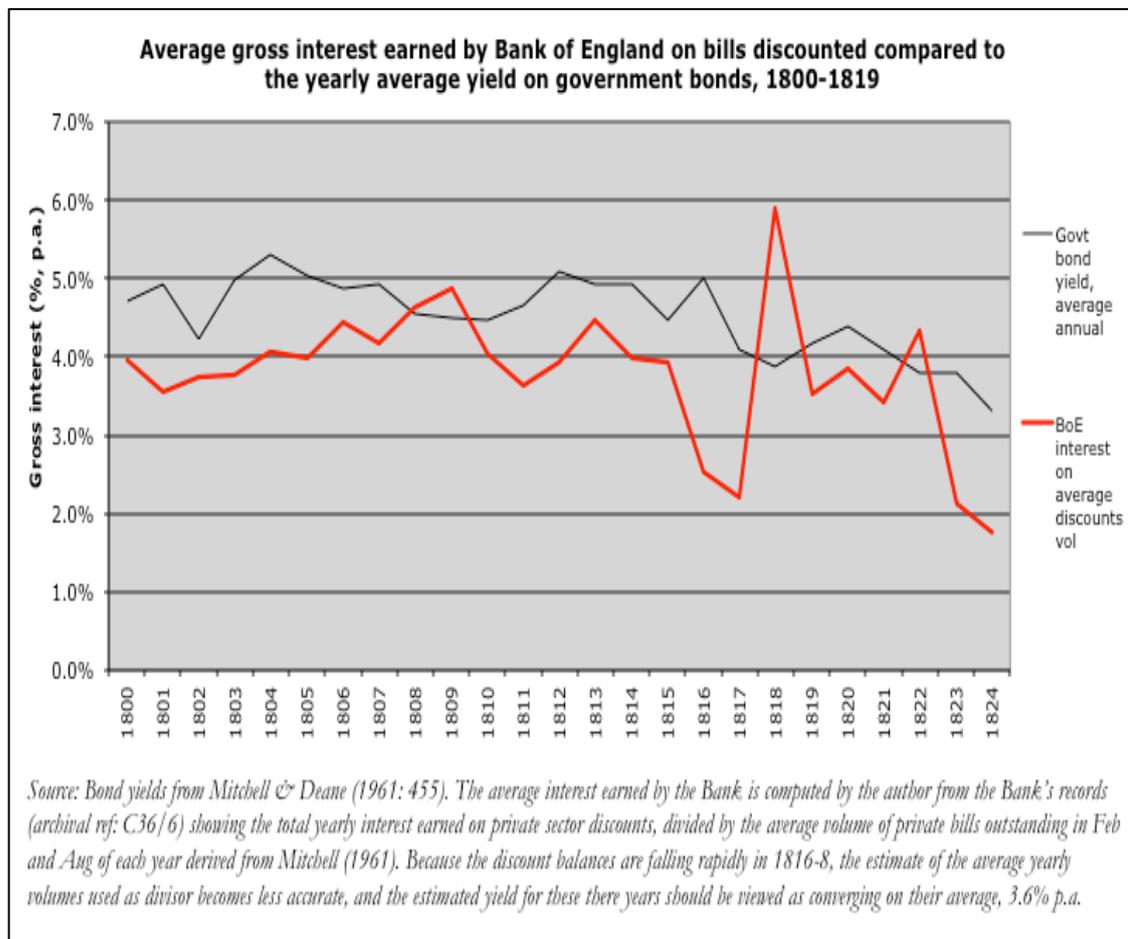
This differentiated behaviour in the use of the Bank of England's discount facility is also consistent with the different interest margins generated within the two business models. Using information on the principal value discounted by the Bank and the interest earned, included in the *Cabier's Department: Committee on Discounts – Analyses of 1800-1840*⁷², estimates can be computed of the effective interest it earned on its private sector discounts, and hence the effective cost to the London banks of using the Bank's discount window.

Allowing for the imprecision created by the average volumes outstanding during each year - being the average of two data points taken in February and August and not a time-weighted average - I estimate that during the Restriction years the Bank earned an average gross interest on its private discounts ranging mostly between 3.75% and 4.50% per annum equivalent (the actual yearly estimates range from 3.55% to 4.87% - see Exhibit 11.4 and related notes regarding the estimates for 1816-8).⁷³ These effective rates on the Bank's discounts were below the average government bond yield every year during the Restriction except 1809-10, and must therefore also have been below the shadow market rate for non-government risk. Throughout the Restriction period, the Bank's effective rate averaged 4% per annum equivalent, compared to an average yield on government bonds of 4.7%, meaning that on average banks using the discount window could access additional liquidity at an average cost 0.7% p.a. below the long-run 'riskless' government rate.

⁷² Bank of England archive document ref: C36/6 and C36/4

⁷³ Bank of England archive ref: C36/6

Exhibit 11.4 – Bank of England: gross interest earned on discounts vs. bond yields, 1800-1819



The Discounter typically did not use this funding to buy government securities, and instead used it to leverage up its discounting of private sector commercial paper. The Discounter had a considerable incentive to re-discount with the Bank any commercial paper acquired from clients or from its Country correspondents, on which it was typically charging an effective average yearly equivalent rate of 6.5% p.a. (see Chapter 5). By accepting or co-signing the paper, the Discounter retained the final credit risk of the paper; but by re-discounting the paper at the Bank, the Discounter was able to move part of its assets off balance sheet whilst retaining approximately a 2% interest margin (pre any loan losses). The analysis above shows the Discounter moved up to 10% of their assets off balance sheet this way.

By contrast, the Goldsmiths, whose average gross interest margin was only 4.6% (Chapter 5), had a weaker profit incentive to use the Bank's discount window, and in order to use it they would have had to first increase their involvement with discounting bills. The Goldsmiths could have used their access to the Bank's monetary creation at below-market costs in order to leverage up their balance sheets by buying government securities at a spread of 0.7% p.a., but they opted not to do so because in order to access that Bank funding they would have had to first discount a greater volume of private bills. This would have required the Goldsmith to expand his involvement in the higher-frequency business of discounting for which he had less experience and informational capacity. Furthermore, by doing so, the Goldsmith would have increased the maturity mismatch in his balance sheet because the additional funding would have a maturity of no more than a month, whereas his lending was typically over many months.

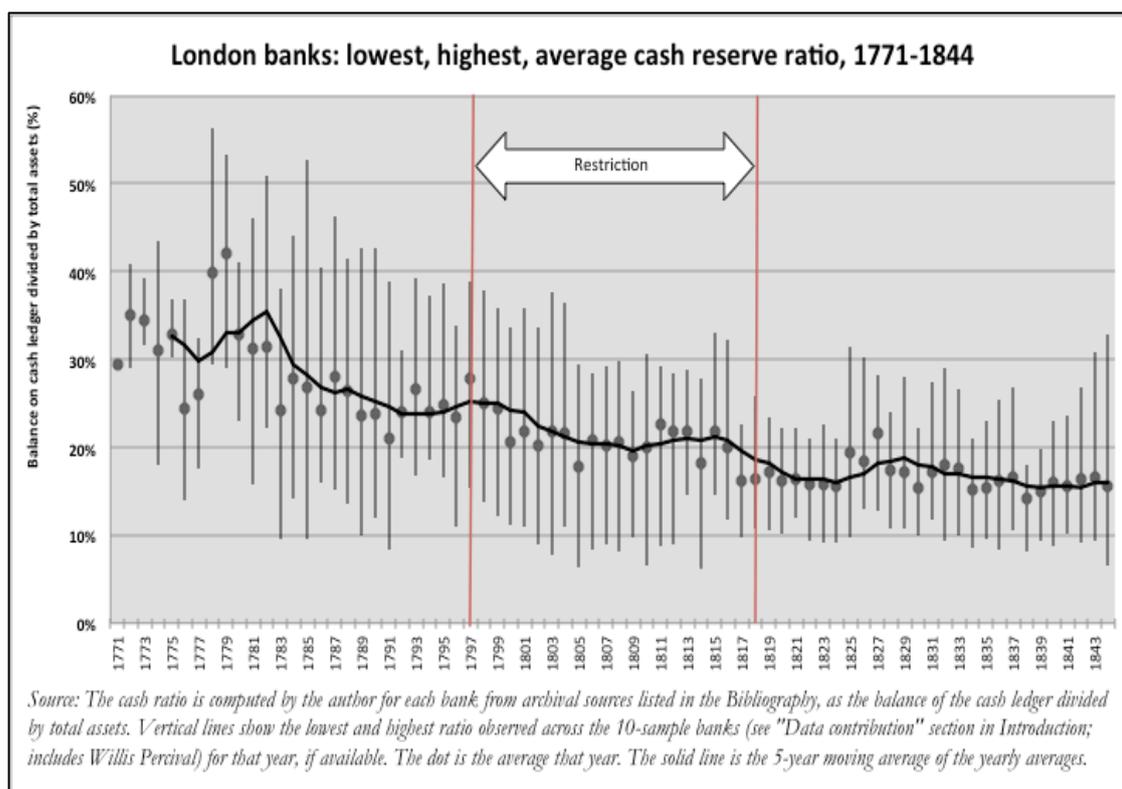
In summary, the Discounters moved their business into a higher-risk higher-return space (in gross terms, before losses); instead, the Goldsmiths chose to invest in government securities as an alternative to expanding their secured lending to customers, investing only the incremental customer deposits, and thereby moved their business in the opposite direction to the Discounters, towards a lower-risk space. This eventually also became a lower-return space after the Restriction period. The Goldsmith business model, being focused on low-frequency secured lending to top quality customers, led them to prefer the attractive risk-adjusted yields available on government securities, as these could be purchased in large size and with no investigation of the credit risk, which would keep down both the transaction frequency and their unit costs.

11.4 Asset gearing to cash reserves

The banks' asset gearing to cash reserves is an additional factor to consider in the relationship between the stock of specie and the broad money supply. Asset gearing is a potential causal factor that can impact the income velocity of specie independently of any Bank of England monetary creation. For the single bank, the proportion of assets held in cash allows them to manage liquidity risk: the need to meet the demand for withdrawals from depositors not matched by the natural run-off rate of their assets. At the level of the aggregate monetary system, an increase in the banks' average gearing is an income velocity-

accelerating and money-creating device that had the potential to act as a second-order effect on the expansion in the supply of Bank of England banknotes. This could occur for a number of reasons: a change in bankers' expectations of the timing of repayments by borrowers, associated with a change in the perceived economic climate; or a change in institutional arrangements that allowed certain short-dated assets to be more readily turned into specie or Bank of England banknotes; or because bankers observed a steady net inflow of new customer deposits and/or a slower than usual rate of withdrawals; or, finally, by way of a structural shift within the banking system in the allocation of aggregate deposits, away from Goldsmith banks carrying out longer-dated mortgage lending, and towards Discounters lending shorter through bill discounting or overdrafts.

Exhibit 11.5 – London banks: lowest, highest and average cash/total assets ratio, 1771 – 1844



The possibility of increased gearing due to these endogenous and exogenous influences on bankers' behaviour was poorly understood at the time, in part for doctrinal reasons. The implicit assumption of the strict Price-Specie-Flow hypothesis was that the medium-term ratio of banknotes to cash was zero, but also that bank asset gearing to cash was constant over a complete production cycle: there could be no permanent increase in the broad

money supply relative to the stock of specie caused by a structural change (reduction) within the banking system in the use of specie as the liquidity reserve: the latter would raise the money multiplier operating upon specie and lead to an increase in the total deposits in the banking system with the stock of specie remaining unchanged.

An analysis of the surviving bank records permits the conclusion that such a structural change occurred during the Restriction (Exhibit 11.5). Because the natural run-off rate of the assets of Discounters was around five weeks (see Chapter 5), we would expect Discounters to operate with a higher gearing to cash than Goldsmiths. Hence, even if gearing ratios had not changed during the Restriction, the Discounters' disproportionate capture of the Bank of England's monetary injection would have led to a higher average London bank gearing to cash, and consequently a higher income velocity of cash.

In the decade prior to the Restriction Discounters did indeed operate on average with a lower cash reserve ratio (22%) compared to the Goldsmiths (26%). In practice, the gearing of all London banks was already increasing prior to the Restriction, contrary to what was implied by Ricardo's analysis. The cash reserve ratio oscillated around 33% during the 1770s, and then began to decline in the early 1780s (Exhibit 11.5), coinciding with the start of the Bank of England's monetary expansion funded with increased Banknote issuance. In the year of crisis just before the Restriction, these ratios rose to 30% and 25% respectively, but thereafter the Restriction ushered in an almost uninterrupted decline to a low of 16% for all banks in 1817.

For the first few years of the Restriction, balance sheet behaviour did not change greatly, but from 1800 to 1805 the gearing of Discounters in particular fell rapidly to 16.1% (Exhibit 11.6). This coincides with the take-off in the Bank of England's "excess" note issuance backed by private commercial paper highlighted above. As expected, the Restriction had a greater effect on the gearing of Discounters whose business involved the financial asset that was at the centre of the increased liquidity of the London money market. During the Restriction, the Discounters' cash ratio averaged 18.3%, 4% points lower than in the 1790s, while that of the Goldsmith changed only marginally, falling by just 1% point. In almost every year after 1797 until 1842, the *average* Discounter operated with cash reserve ratio that matched that of the Goldsmith bank with the *lowest* ratio (Exhibit 11.7).

Exhibit 11.6 – Discounters v. Goldsmiths: asset gearing to cash, 1774 – 1844 [A]

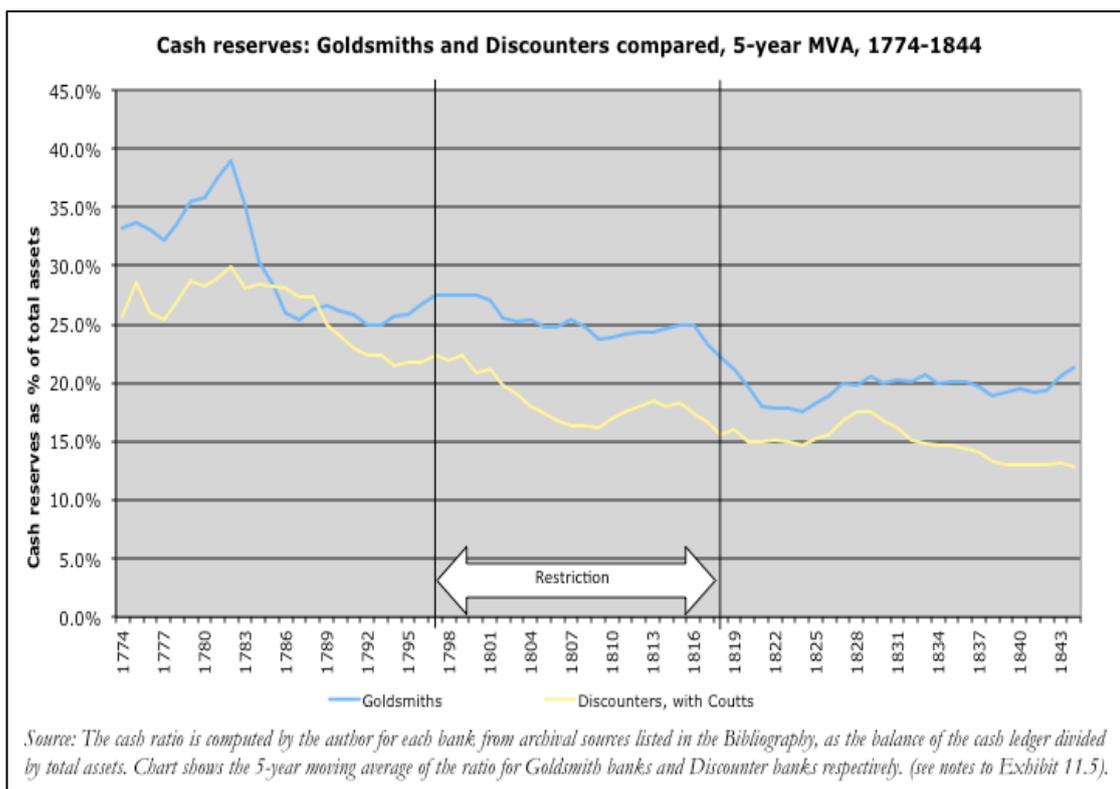
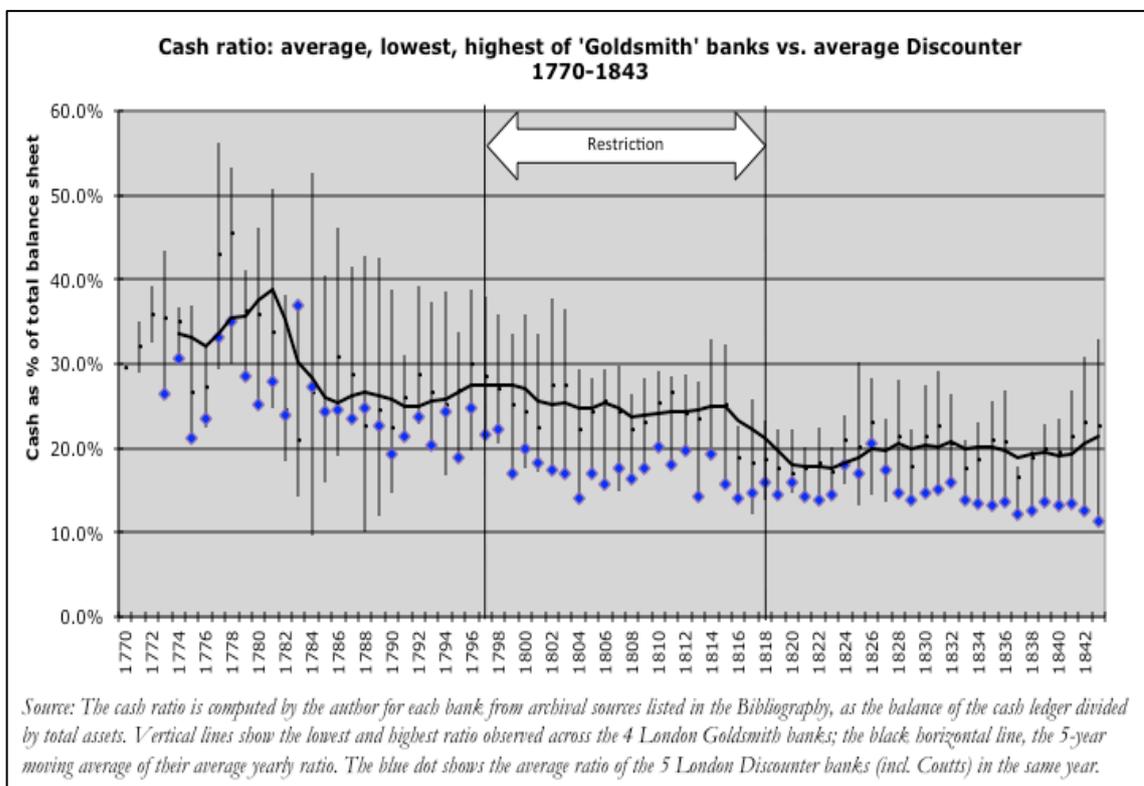


Exhibit 11.7 – Discounters v Goldsmiths: asset gearing to cash, 1770 - 1843 [B]



Not only did the Discounters act as conduits for the Bank of England's balance sheet expansion to be channelled directly into the broad money supply, but their greater exposure to the associated enhanced liquidity of their typical assets led them to reduce their cash reserve ratio and so act as a further accelerant to that monetary expansion.

In 50 years, the balance sheet gearing to cash specie in the London banking system had more than doubled from 3.0 to 6.2.

Importantly, after the return to the gold standard is fully completed, the reserve ratio remains at these newfound low levels except for a short-lived up-tick as a reaction to the 1825 banking crisis. For twenty years after 1818, in spite of a climate of Scarcity created by the Bank of England operating with much higher reserve ratios and shrinking its balance sheet, the average cash reserve ratio amongst the London banks oscillates narrowly in the high teens, and hence the balance sheet velocity of cash within the London banking market remains in the 5 to 6 range.

It was only after the end of the Napoleonic wars that the Goldsmith banks sharply reduce their cash reserve ratio to a low of 17% in 1821. It may seem paradoxical that the banks with the greatest medium-term liquidity risk should be reducing their cash reserves in the very years when Britain was preparing to return to the gold standard, but this is explained by, and is a confirmation of the observed reflow of deposits back to the core banks in the British monetary system. These reflows were searching for the perceived safety and creditworthiness of London banks, and for their access to any remaining pools of liquidity still able to convert the weaker forms of IOUs into high-ranked forms of money.

11.5 Government securities as surrogate liquidity reserves

In addition to the expanded Bank discount window, an additional factor allowing the London banks to increase the balance sheet gearing to specie was the increased use of government securities as a buffer of liquid assets in lieu of specie. These were purchased at times when deposit inflows were high relative to the opportunities to lend, and could then be readily turned into cash when loan demand picked up or in the event of an unexpectedly high level of deposit withdrawals. The evidence shows that from the end of the 1770s

London banks following the Discounter business model used government securities predominantly for liquidity management purposes; banks following the Goldsmith business model more often established a 'permanent' core position within their total holdings of government securities, and this would only be sold in times of severe crisis of liquidity. During the Restriction this became the main asset strategy. In Part III we showed how Country banks also employed government securities for managing liquidity.

In Exhibit 11.8 below, for each year from 1775 until the return to the gold standard was completed in 1821, I show the average proportion of the balance sheet held in cash, and in cash plus government securities, for the banks for which data is available in any given year. The sample includes only the five London banks for which it is possible to estimate holdings of government securities. While such a data series constructed this way could not be used for regression analysis, it is an effective way to use the maximum amount of historical data to infer trends.

During the 1770s the banks are adding positions in government securities to their already high reserves of cash. Until 1787, cash and government securities together account for 40% of the balance sheets on average. After that date, the holdings gradually decline in relative terms, but the positions in government securities absorb more of the year-to-year volatility. The degree to which London banks saw government securities as substitutes for cash can be observed in the variance of the two series, measured as the standard deviation divided by the median. The variance of the percentage held in government securities alone (0.387) is higher than that of cash reserves alone (0.302); more importantly, the variance of the percentage held in both cash and government securities combined is almost half (0.180).

Discounters used government securities predominantly for their liquidity management as a *temporary* reserve in lieu of cash. This is vividly demonstrated by the balance sheet of Barclays Bevan Tritton (Exhibit 11.9), the Discounter that was already in the process of taking on more balance sheet risk when the Restriction began.

Exhibit 11.8— London banks: government securities and cash holdings, 1778-1821

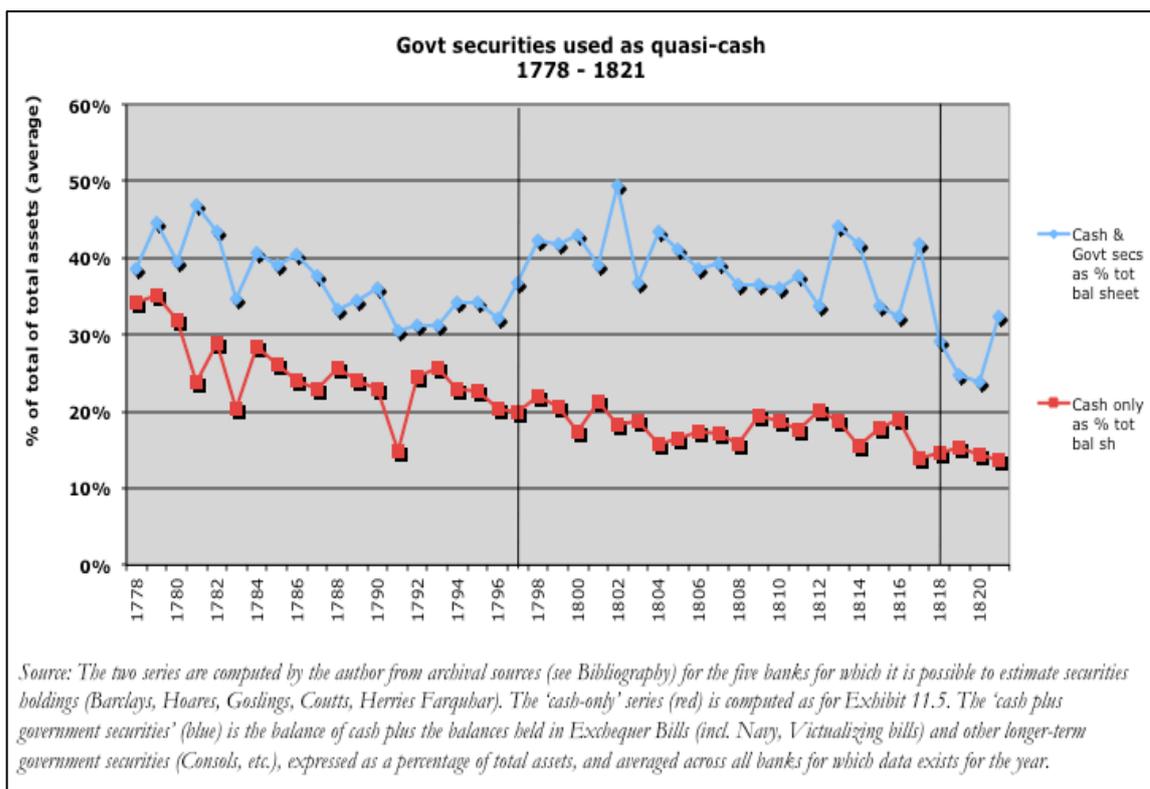
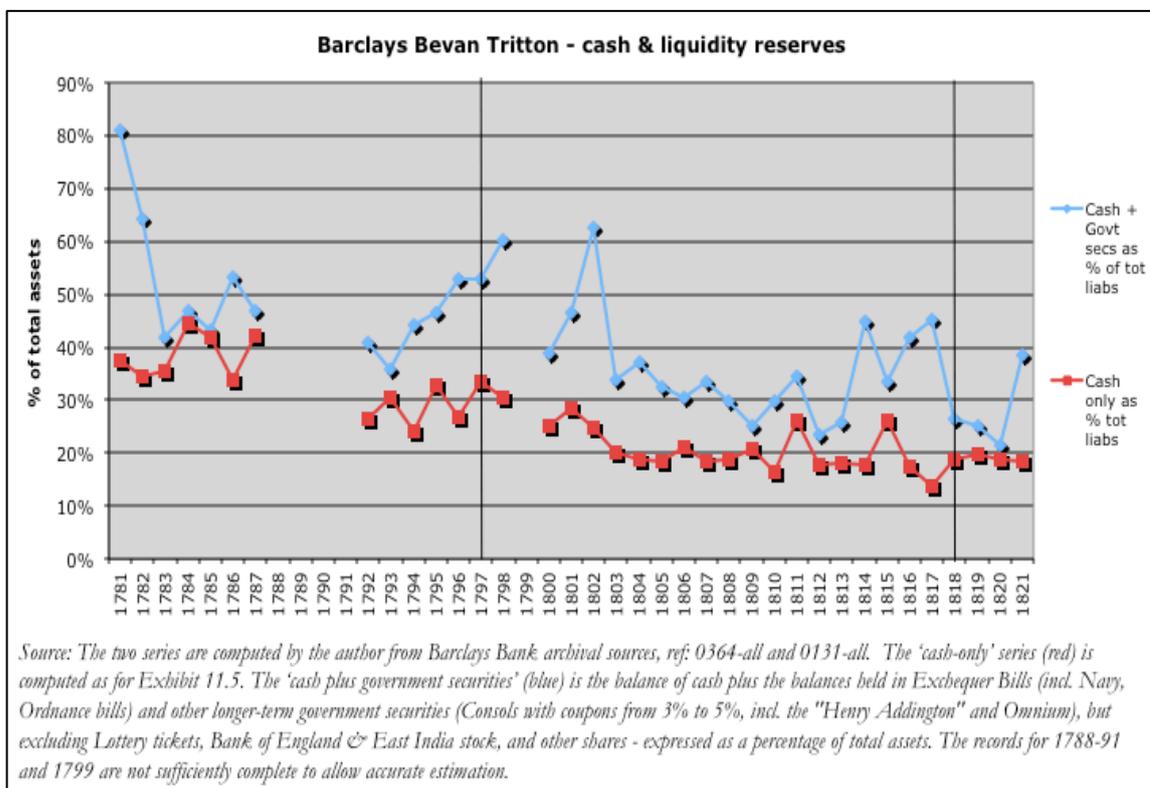


Exhibit 11.9 – Barclays Bevan Tritton: government securities and cash holdings, 1781-1821



Barclay's cash reserve ratio falls gradually from 45% in 1784 to less than half that at the end of the Restriction. After an initial period of adjustment to the new operating conditions brought about by the Restriction, Barclays holds the cash ratio at a near constant 20% with rare exceptions. By contrast, the holdings of government securities are considerably more volatile: holdings fall to nothing in years of strain such as 1787-8, 1791 and 1820, and in other years such as 1817, when money was flowing back to London, they climb to as high of nearly one-third of total assets and equivalent to more than double the cash reserve.

By contrast, banks following the Goldsmith business model increasingly used government securities as a major part of their lending strategy. Goslings, the more conservative Goldsmith bank, moved the largest part of the balance sheet *permanently* into government securities as soon as the Restriction began. We discuss this further in Chapter 12.10 *Monetizing war debt*.

11.6 Implications for balance sheet growth rates

What did these three impact factors - exposure to discounting, asset gearing, and use of government securities - imply for the growth rates in the London balance sheets and hence for the broad money supply?

The growth rates for each of the available banks in the periods before, during, and after the Restriction are shown in Exhibit 11.10 below, as well as two sub-periods within the Restriction, with the dividing line placed in 1811, the year after the peak year in the Bank of England's discounting of private sector bills.

In the decade prior to the Restriction of 1797, London bank balance sheets on aggregate were growing at 1.7% p.a., in line with that of the Bank of England (1.8% p.a.) and no more than keeping pace with the growth of real GDP (1.9% p.a.) – see Chapter 5. Over the whole Restriction period up to when the decision was taken to return to the gold standard in 1818, the average London bank balance sheets grew faster (4.1% p.a.) than the Bank of England (3.3%) and three times faster than real GDP (1.3%). In the decade following 1818 the average London bank is able to keep growing, albeit at half the pace, in spite of the Bank shrinking its balance sheet.

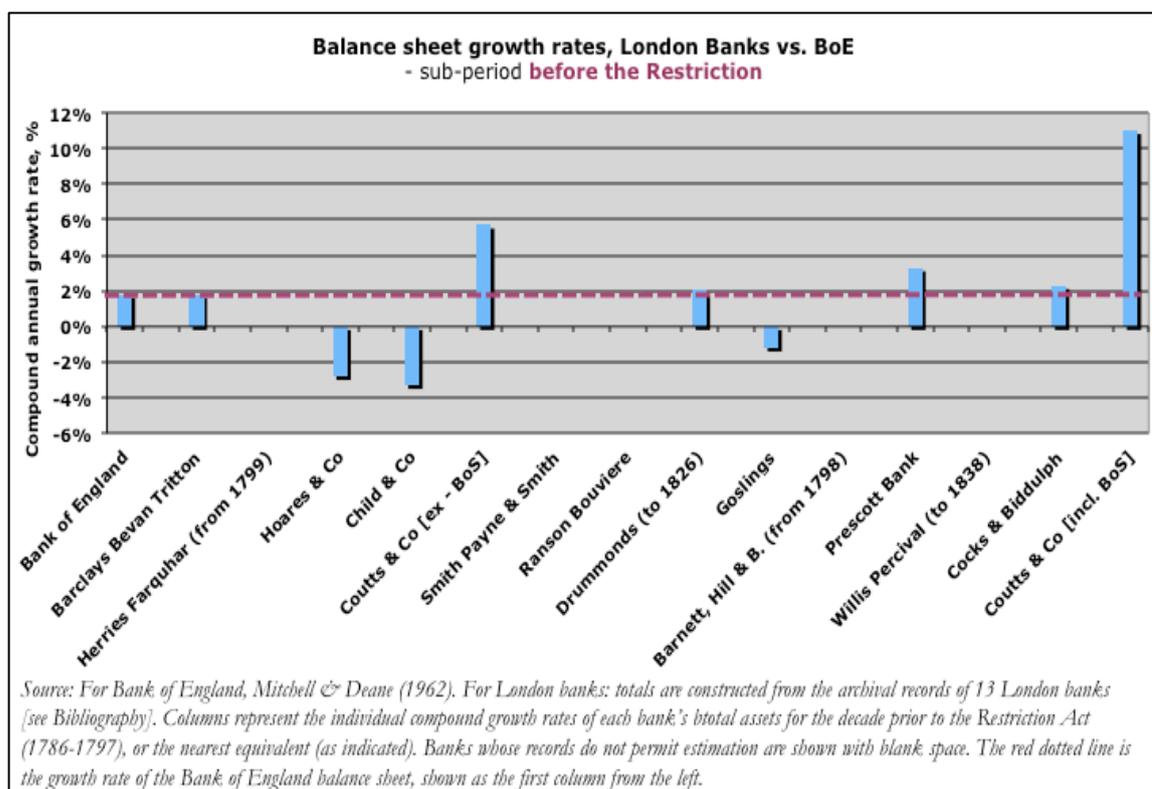
Exhibit 11.10 – London banks: growth rates before, during, and after the Restriction

	decade prior to the Restriction 1786-1797	during the Restriction period 1797-1818	decade after decision to return to gold 1818-1828	during main expansion of BoE discounting 1797-1811	Restriction after BoE discounting boom 1811-1818
Balance sheet growth rates by type of business					
Bank of England	1.8%	3.3%	-1.5%	5.1%	-0.2%
average, all London banks	1.7%	4.1%	2.1%	3.9%	3.9%
Discounters					
Barclays Bevan Tritton to 1825	1.8%	8.6%	0.1%	7.4%	9.8%
Prescott & Co from 1799	3.3%	2.7%	2.7%	6.1%	-3.6%
Herries Farquhar 1812, 17, 29		6.7%	3.3%	4.5%	9.8%
Smith Payne & Smith from 1796		3.5%	0.6%	3.6%	
Ranson Bouviere from 1798		3.5%		3.5%	
Barnett, Hill & Barnett		2.8%	2.3%	3.2%	2.3%
Coutts & Co [whole bank] average (with Coutts)	11.0%	3.7%	5.1%	3.0%	3.0%
		5.4%			4.3%
		4.5%			4.5%
Goldsmiths					
Child & Co	-3.3%	3.7%	0.6%	3.6%	3.9%
Hoares & Co	-2.8%	4.2%	3.6%	3.2%	4.8%
Coutts & Co [ex-Bk of Scot.]	5.7%	3.7%	5.1%	3.1%	4.8%
Goslings & Co	-1.2%	2.8%	1.6%	3.0%	2.3%
Cocks & Bidduph	2.3%				
Drummond & Co average (ex-Coutts)	2.1%	2.9%	0.6%	2.3%	2.7%
		-0.6%			3.0%
		3.4%			3.4%
variance (with whole of Coutts)	0.20%	0.03%	0.03%	0.02%	0.17%
GDP - real	1.9%	1.3%	2.4%	1.6%	0.6%
GDP - nominal	3.1%	2.4%	-0.3%	3.5%	0.3%

Source: GDP values are obtained from Broadberry et al. (2015), as explained in the text. Chapter 10.2. Bank growth rates refer to total assets and are constructed by the author using annual accounts described in the Introduction and Bibliography.

For all banks, the Restriction period is defined as 1797-1818, the end-year being when Parliament first announced the intention to return to the gold standard. Although the return to the gold standard was later twice delayed and only fully implemented in 1821, we take the view that the banks could not have known *ex ante* of this impending series of delays and would therefore have begun modifying behaviour from the date of the first announcement. The period before and after the Restriction is measured over a decade in each case, i.e. 1786-1797 and 1818-1828. Figures are shown for each bank where the records allow; differences of up to two years in the available data are tolerated, and shown on the chart; otherwise no figure is shown. In each chart, the growth rate of the Bank of England balance sheet is shown first on the far left column.

Exhibit 11.11 – Individual London bank balance sheet growth rates (where available),
1786-1797



As described in Chapter 5, before the Restriction, individual bank growth rates showed large idiosyncratic differences (Exhibit 11.11), and the variance between banks was five to six times greater than it was to be for the thirty years after 1797. Competition for deposits amongst London banks was a more important factor than the systemic growth in total deposits in determining individual growth rates. These were further differentiated by the

ebbs and flows of deposits from individual Country banks for which each London bank acted as correspondent, most notably for Coutts. During the decade prior to the Restriction, while the Bank of England balance sheet expanded from £16,511,000 to £20,137,000, the combined balance sheet of all London sample banks excluding Coutts was essentially unchanged at £3,775,875 (vs. £3,743,239 in 1786).

However, within this stagnant picture, there were already signs that the younger Discounters were showing greater buoyancy than the group of Goldsmith banks. Between 1786 and 1797, the Discounters for which we have records - Barclays (1.8% p.a.), Prescott's (3.3% p.a.) - matched or exceeded the Bank of England growth rate. The hybrid Coutts' was growing at an exceptional 11.0% p.a.. By comparison, three of the more established Goldsmith banks - Hoares' (-2.8% p.a.), Child's (-3.3%) and Goslings (-1.2%) - all experienced shrinking balance sheets during that decade. Amongst them, only Drummond's (2.1%) and Cocks & Biddulph (2.3%) showed balance sheet growth approximately in line with that of the Bank of England.

The new transmission mechanisms favour Discounter banks after the Restriction Act

In the twenty-years Restriction period taken as a whole between 1797 and 1818, most London banks grow at a rate close to or higher than the Bank of England, and there is a strong convergence of individual bank growth rates, with the variance reduced by a factor of ten from 0.20% to 0.02%. In effect, the competitive environment became one in which the rising tide lifted all boats, similar to all periods of monetary expansion.

However, this convergence hides the fact that the Bank's discounting is enabling some of the banks pursuing a Discounter business model to achieve growth rates well above average: while 7 of the 11 banks grow at between 3.0% and 3.6% p.a., three Discounters grow at 4.5% to 7.4% p.a. (Exhibit 11.12). Discounters such as Barclays, Prescotts, and Herries are benefiting from the Bank's expanding discount window and are able to grow faster. This is true whether they entered the Restriction with an already fully-formed exposure to bill discounting (Prescott) or a lower-risk version of the business model which was gradually substituting government securities for more discounting of private paper (Barclays, Herries).

Exhibit 11.12 – London bank growth rates, 1797 to 1818

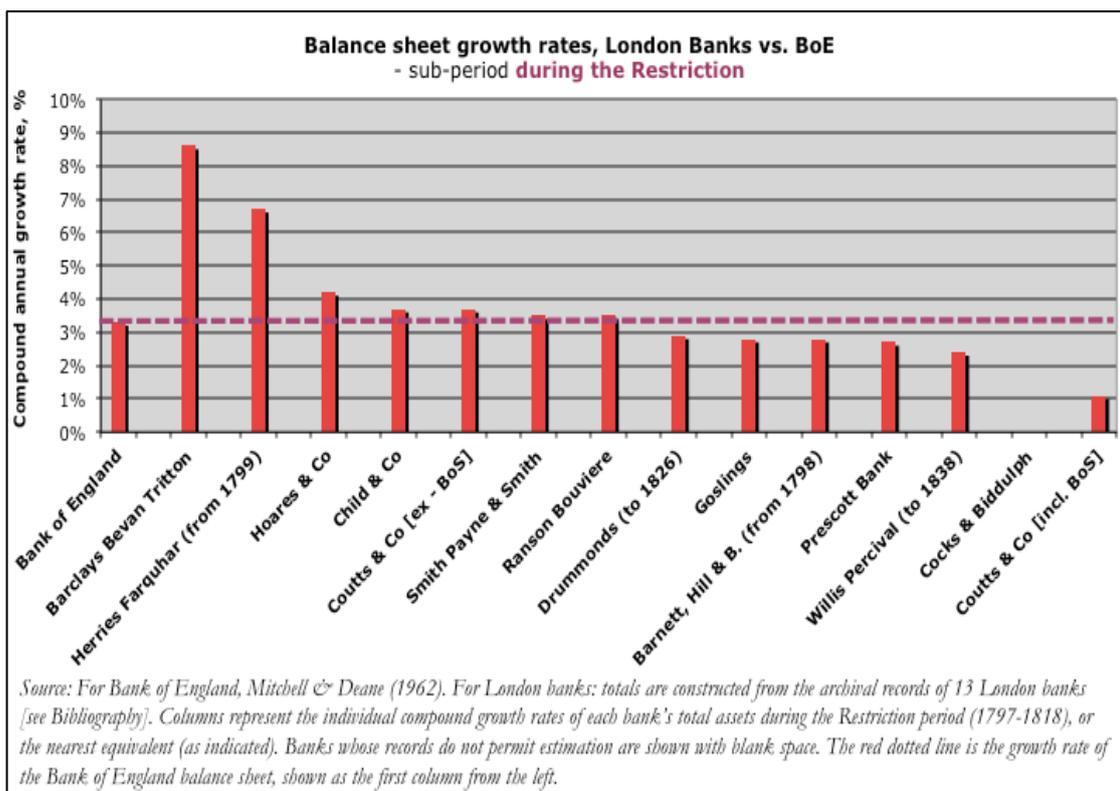
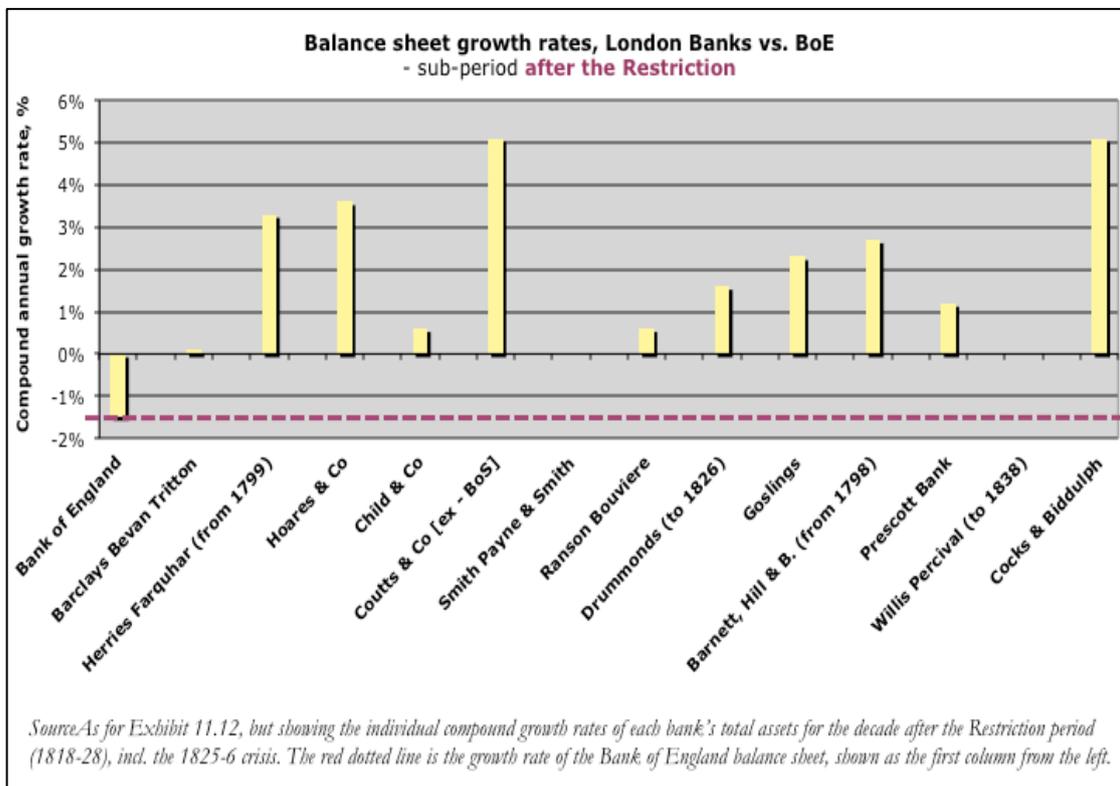


Exhibit 11.13 – London bank growth rates, 1818 to 1828



When the Bank of England changes behaviour and cuts back on discounting private sector paper after 1810-1, this causes renewed divergence in the experience of each bank. This is caused less by differences in their business models, and more by whether their clients (including Country correspondents) benefited from Bank's notes now entering the economy via the government's expenditure on the war paid for with Navy, Ordinance and Exchequer bills. The growth rate of the average Discounter and the average Goldsmith remain little changed in 1811-1818 compared to 1797-1811 (4.3% vs. 4.5%, and 3.4% vs. 3.4% respectively), but divergences open up within each business cluster.

Amongst Discounters, Prescott is hit badly, shrinking by -3.6% p.a. whereas Barclays and Herries grow even faster. Similarly, amongst the Goldsmiths, Hoares and the non-Bank of Scotland business of Coutts grow faster, whereas Goslings slows. During this final phase of Abundance, the London banking system has already de-coupled from the Bank of England's balance sheet behaviour and acquired a capacity to generate its own monetary expansion: the London banks became a separate source of higher velocity. By the time the London banking system entered the final phase of Abundance, bankers had thrown off some of their historic caution and embraced the new financialisation.

Breaking away from the Bank of England after 1818

Exhibit 11.13 shows the contrasting picture for the decade after the Restriction. This is the period of Scarcity that followed the return to the gold standard, during which the Bank of England shrinks its balance sheet by -1.5% per annum. In spite of this, all nine London banks experience positive growth over the decade (Barclays only barely). After the Restriction, in spite of this period capturing the significant banking crisis of 1825, the average London bank grows 3.3% per annum faster than the Bank of England. The London banks were capturing a larger share of the total deposits and attenuating the period of Scarcity ushered in by the Bank's restrictive monetary actions.

11.5 Conclusion: the divergent reactions to the Restriction

The Goldsmith and the Discounter banks responded quite differently to the suspension of convertibility, to the point where they formed two distinct monetary pathways. The Goldsmith banks grew no faster than the Bank of England and moved their business model towards a lower-risk composition of assets that placed the majority of the increased deposits into government securities. The Discounter banks mostly grew faster than the Bank of England, whose expanded discount window they made regular use of, and moved their business model towards a higher-risk composition of assets with a greater proportion in bill discounting and lower cash reserves. Consistent with bankers differentiated cognitive framing of money postulated in Part II, the Goldsmiths appear by their actions to have viewed the new environment as predominantly more risky, because bringing potential dilution of real asset values and greater credit risk, and because their low-risk lending model did not incentivise them to use the new source of Bank of England funding to leverage the operating model, so instead they reduced balance sheet risk relative to total assets by increasing the proportion placed in government securities. When they eventually did reduce the cash reserve ratio after 1815, it was only to hold an even greater proportion of assets in government securities (Exhibit 11.14). By contrast, the Discounters appear by their actions to have embraced the new environment of enhanced ‘shiftability’ of their main asset (bills of exchange) as bringing a reduction in operating risk, so they increased their balance sheet risk. The younger Discounters facilitated the acceleration in the broad money supply relative to the given stock of high-powered money (specie) within the whole banking system, becoming a secondary source of additional lending by increasing their balance sheet gearing to specie and expanding their off-balance sheet assets. The Discounter had two incentives to expand its balance sheet: a profit incentive and a liquidity management incentive. For Discounters, use of the expanding Bank of England discount window was a more natural extension of their core business of discounting bills: the enhanced Bank volumes meant greater access to a source of off-balance sheet funding that came at an attractive costs relative to their gross interest margin, and the related greater ‘shiftability’ of these bills also reduced the overall liquidity risk of their balance sheet without increasing the maturity mismatch. Discounter banks that entered the Restriction still feeling their way towards the full-fledged Discounter business model of Prescotts, with its 70% asset allocation to discounts, soon took the opportunity to move towards that proportion – see Exhibit 11.15 for a graphic view of the evolution in the balance sheet composition of the Discounters.

The Goldsmith was propagating the Bank's actions upon the income velocity of specie, but without accelerating it. The Discounter was accelerating the income velocity of specie by increasing its asset gearing to specie and using the Bank of England as the equivalent of an off-balance-sheet special purpose vehicle that took care of financing the surplus stock of assets.

The willingness of the banks' to take on additional credit risk was not an empty constraint, but it did seem to act more strongly upon London banks. The evidence from Country banks presented in Part III suggested banks allowed any such access to greater 'shiftability' of assets to weaken their lending standards when judged *ex post* by the loan loss experience. In London, the best bills probably found their way to the Bank of England. The Bank's *Mode of Conducting the Business in the Discount Office*⁷⁴ explains that they only discounted top quality paper with less than a month to maturity and only for amounts above £100 for notes and £20 for bills; acceptable counterparties had to be primarily "Bankers, Merchants, Wholesale Dealers and those of the greatest respectability & opulence" or, at worse "One degree below the former in extent of Business & Capital." In a table produced in the *Report of Secret Committee* (1819), the Bank listed the number of discounts which had gone bad: just one between 1790 and 1807, and then between one and five each year from 1808 to 1818, totalling just 37 bad bills (0.05%) out of the total 74,004 bills and notes discounted over the whole period 1808-18.⁷⁵ To the extent that the financial records give a true account of the credit losses, these varied amongst London banks, but if we take the policy more typically adopted by Discounters of reserving part of the annual profit as a proxy for the actual average loan loss experience over time, then these reserves typically constituted a proportion of loan assets far greater than 0.05%. It seems there was also a hierarchy of credit quality: the best quality bills were taken by the Bank of England; the quality below that were discounted by the London Discounters; and the poorest quality bills would mostly end up in the hands of the newest and smallest Country banks.

In summary, it was left to the Discounters' marginal tolerance for credit risk and the Goldsmiths' marginal tolerance for liquidity mismatch risk to determine the maximum expansion in broad money. The Goldsmith showed little or no sign of wanting to take

⁷⁴ Bank of England archive ref: C36/14 *Account of Books used and Mode of Conducting the Business in the Discount Office*, 13 July 1820, p.6 and p.11

⁷⁵ Bank of England archive ref: 9A35/1 Table produced for the Secret Committee of the House of Lords, 4 Mar 1819 & Table of average yearly discounts presented to the House of Commons, 30 Mar 1821

greater mismatch risk; this left the Discounters' marginal appetite for credit risk as the principal constraint on runaway expansion in the broad money supply. For Ricardo this was not an adequate constraint, while for Bosanquet it was an optimal constraint because flexible, always reflecting the rational identification of what was the demand for financing from 'real bills'. The analysis presented in this thesis suggests that until 1810 the Discounters were *de facto* conduits for channelling the Bank's monetary accommodation towards the country, where Country banks mostly did not expand lending beyond the inflow of deposits, and instead used any success at pushing out their banknotes to substitute them for funding coming from customer deposits and, in turn, placing the additional funds in government securities, either directly, or indirectly by augmenting their balances with their London correspondent. The London bank, depending on its asset and liability strategy, would use these funds to invest in government securities, or increase its discounting of bills, or on-lend to different Country correspondents with unmet demand for credit (e.g. the Smith Group).

Exhibit 11.14 – Goldsmiths' balance sheets (4 banks): changes in composition

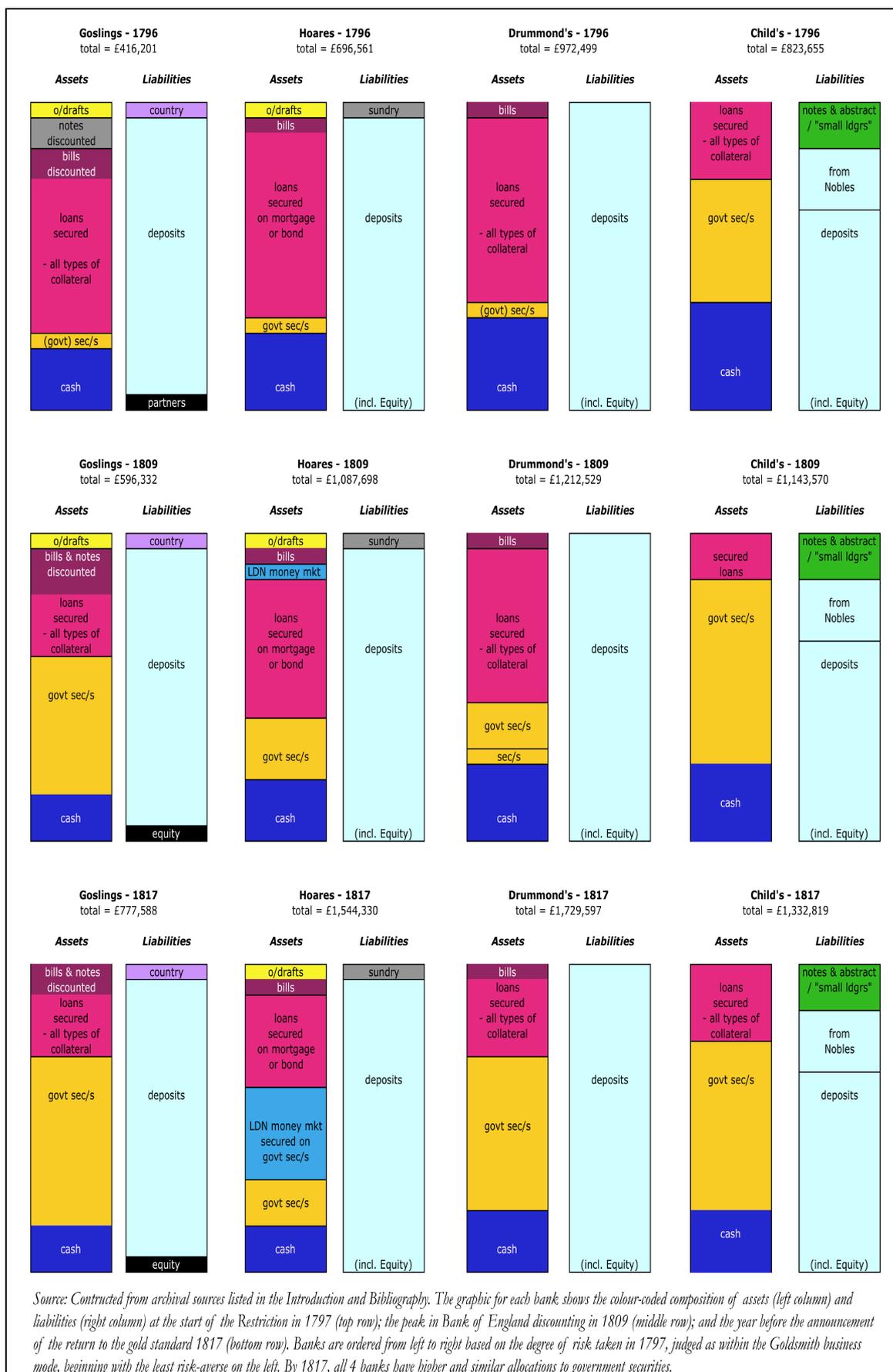
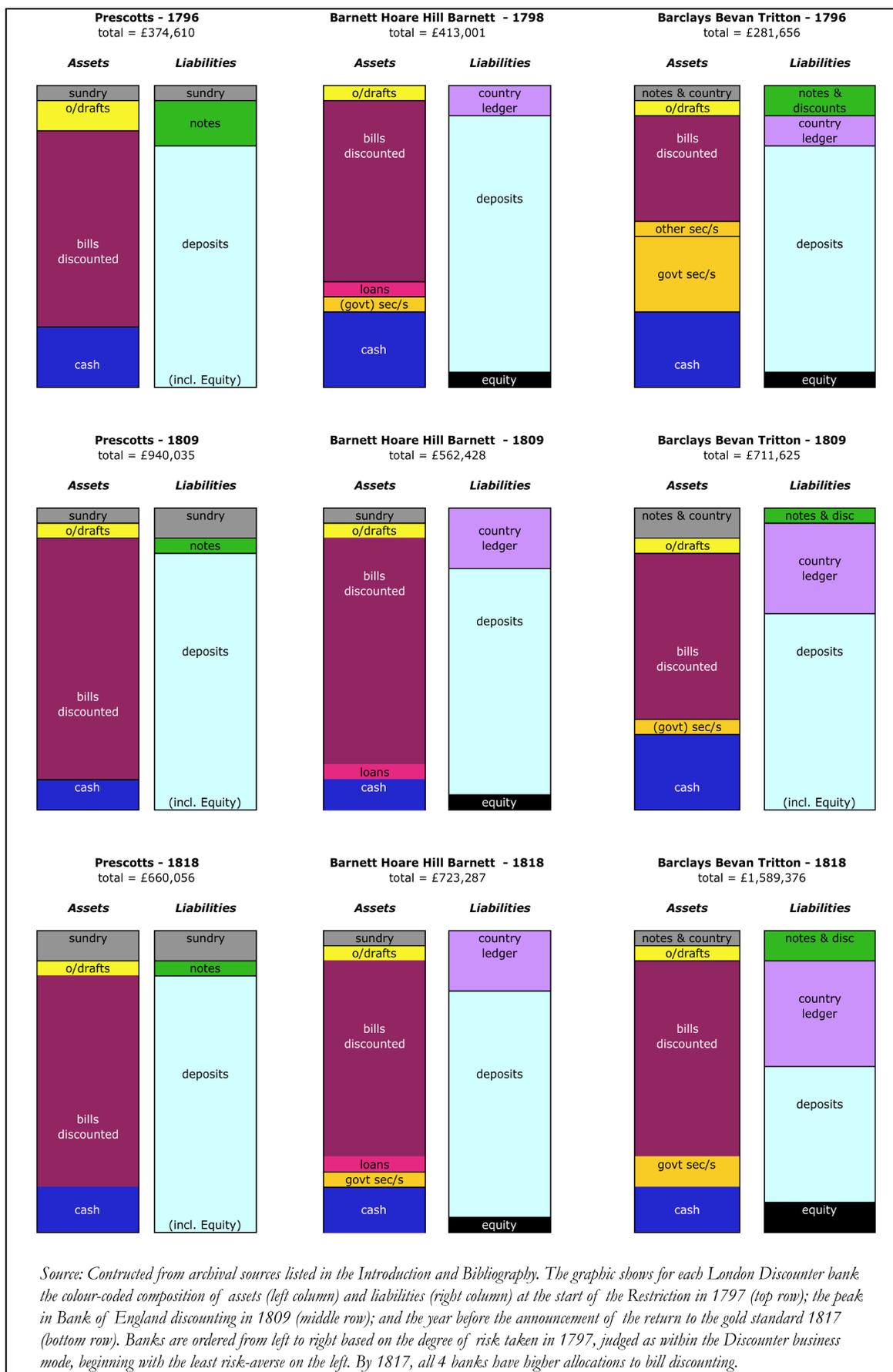


Exhibit 11.15 – Discounters' balance sheets (3 banks): changes in composition



SECTION IV

The Restriction, the banking system, and monetary theory

Chapter 12. Approximating the behaviour of ‘the money supply’

1. *Previous estimates*
2. *Consolidating the London bank balance sheets*
3. *Scaling the sample of London banks*
4. *Country banks: formation and destruction*
5. *Aggregating the balance sheets of the sample Country banks*
6. *Estimating the total Country bank liabilities*
7. *Quantifying total British bank liabilities*
8. *Estimate of the annual aggregate British bank liabilities*
9. *Implications for income velocity of money*
10. *Monetizing war debt*

In this chapter I consolidate the available sample data in order to construct what is, to the best of my knowledge the first continuous estimate of total British bank liabilities from 1780 to 1832. This aggregate balance sheet series approximates with confidence the behaviour of all London banks and – with a wider margin – that of all British banks including Country banks. I contrast these with some previous point estimates offered by other scholars as well as by contemporary commentators. Within the limits of such a holistic view of the historical records of British total bank deposits, I use these series (combined with records from the Royal Mint) to infer some conclusions in regard to the hypotheses underpinning the 1809 theoretical debate. In a final section I briefly revisit the ancient debate regarding whether the government’s borrowing during the Napoleonic wars “crowded out” private capital formation during the early Industrial Revolution.

I proceed as follows: first, I consolidate the individual London bank balance sheets into a single aggregate data series; second, I scale the London bank series using their relative usage of the Bank of England’s discount window; third, I calculate a composite of all scholars’ previous estimates for the number of Country banks operating in each year; four, I combine this composite with available estimates of the number of banks starting and stopping each

year, and use these with the *pro forma* behaviour of Country banks extracted from the case studies (Part III) in order to construct an estimate of total Country bank balance sheets; five, I combine the London and Country bank series and adjust for the overlap of Country bank net deposits with London banks; and finally, six, I add the London and Country bank series to the Bank of England data. I conclude by comparing the resulting estimate of M_2 to measures of GDP, price inflation, and the Royal Mint's production of coin.

12.1 Previous estimates

I am not aware of any previous continuous estimates of the size of the banking system for the period analysed. However, the question has intrigued a few brave scholars because the answer has the capacity to further our understanding of how finance was found for the early Industrial Revolution and the related debate as to whether the government's borrowing to support the wars with Napoleon 'crowded out' private sector borrowing. This chapter focuses predominantly on the construction of a data series for total bank deposits and only briefly explores its potential use for further research.

Answering the question is fraught with difficulty because historical records of Country banks are few and because no attempt had yet been made to systematically reconstruct annual balance sheets for all London banks with surviving records. However, scholars have provided selective estimates of specie and banknotes in circulation.

Contemporary commentators focused on estimates of banknotes in circulation: a useful summary by Heywood (1812) is reproduced in Exhibit 12.1. Clapham (1970: Vol. 1: chapter 4 and Vol. 2: chapter 1) makes numerous incidental references to material relevant to the broader banking system, but his focus was on the Bank's balance sheet. Pressnell's (1956) seminal work was the product of many years searching for the surviving bank records at a time when these were far less organised than today, but he stopped short of offering an aggregated series. In his chapters on "The Supply of Money" and "The Means of Payment", he limits himself to using his detailed micro-economic history to make only broad judgements relating to the stock of Country banknotes relative to those of the Bank, and presents yearly estimates of the total banknote issue only for the period after 1834.

Exhibit 12.1 – Contemporary estimates of the “circulating media, 1798-1811

Contemporary estimates of the "circulating media" - listed in Heywood (1812)								For comparison:	
Year	£ millions	"Mr. Rose speech"	"Mr. Johnstone's speech"	"Mr. Bosanquet, p.125"	"Mr. Richardson evidence to the Bullion Committee"	"Mr. Tritton evidence to the Bullion Committee"	Heywood's estimates (1812)	First Report to House of Lords, 1819, Appx. 21 & 22, pp. 396-7	Cameron (1967)
1798	Coin	35.0	30.0						
	Bank of England notes	11.3	11.0						
	Country banknotes		7.0				9.2		
1801	Coin								20.0
	Bank of England notes								15.0
	Country banknotes								10.0
1805	Coin								
	Bank of England notes								
	Country banknotes						20.7		
1807	Coin								
	Bank of England notes		17.5		17.5				
	Country banknotes		26.5						
1808	Coin								
	Bank of England notes		17.5		17.5				
	Country banknotes		24.5			23.9	24.0		
1809	Coin								
	Bank of England notes		20.0		20.0				
	Country banknotes		29.5		30.0				
1810	Coin			2.0					
	Bank of England notes		18.0	21.0	23.0				
	Country banknotes		38.0	27.5			31.8		
1811	Coin	3.0	5.0						15.0
	Bank of England notes	23.0	23.0						23.0
	Country banknotes		32.0					21.0	22.0

Source: Heywood, B.A. (1812), *Observations on the Circulation of Individual Credit and the Banking System of England*, Longman, Hurst, rees, Orme & Co, London and available here: <https://books.google.co.uk>; Cameron, Rondo (1967) with the collaboration of Crisp, O., Patrick, H. T. & Tilly, R., *Banking in the Early Stages of Industrialization*, London, Oxford University Press 1967; Report (First) of the Secret Committee [of the House of Lords] on the expediency of the bank resuming cash payments, 12 May 1819, Appendix 21 & 22, pp. 396-7

More recently, Dawes and Ward-Perkins (2000: Vol. 1, 6-9) produced a register of Country banks by town, and in their short commentary they include useful aggregate statistics on the number of banks created and failing in sequential ten- and two-year periods respectively (which are used below), but made no attempt to construct a total balance sheet series.

In *Banking in the Early Stages of Industrialization*, Cameron (1967) makes the only attempt to construct point estimates of the aggregate ‘money supply’, using the most suitable secondary sources available at that time rather than a bottom-up quantification of bank liabilities. Cameron offered estimates of the total ‘stock of the means of payment’ for twelve

dates between 1750 and 1913, of which five come within the period examined here (1750, 1775, 1800-01, 1811, 1821, 1831). He defines this 'stock' as the sum of specie in circulation, plus banknotes and (part of) deposits. He calls this M_1 . To this he adds "other" to create an estimate of the total means of payment, which he denotes as M_2 . "Other" is intended mainly as the bills of exchange circulating, to which he adds a portion of the bank deposits. When calculating the two measures of total means of payment, up to 1831 Cameron imposes his own 'haircut' upon the estimate of total deposits, placing only a portion in M_1 and the rest in "Other" based on his estimate of their relative 'moneyness'. I prefer not to make these judgements, because such estimates of relative "moneyness" are pre-analytically assuming part of the answer to the very question being investigated and, more importantly, for the reason that our case studies suggest the majority of bank liabilities were already treated as transferable. Instead, I focus on a definition of M_2 as the total bank liabilities (net of inter-bank balances), which sidesteps the need for such value judgements.

Cameron's estimates of (M_2) will tend to exaggerate the 'total stock of means of payment' because the bills of exchange having the greater "moneyness" were mostly held as an asset inside the banking system, making their inclusion a double-counting of banknotes and deposits within a definition of M_2 based on bank liabilities. The proportion held within the banking system was almost certainly high because our analysis has shown (as Bosanquet argued) that these were the principal assets of the Bank of England, the London Discounters, and most of the Country banks. Furthermore, Cameron does not allow for "specie in circulation" to partly double-count what is held as a reserve in the banking system.

Exhibit 12.2 – Cameron (1967) point estimates for the Stock of Money and Means of Payment

Comparison with Cameron (1967) estimates of the Stock of Money (M1) and the Means of Payment (M2)					
£M	1775	1800-1	1811	1821	1831
Specie in circulation	16	20	15	18	30
Banknotes	10	25	45	32	29
Deposits	(a)	5	15	25	40
Total M1	26	50	75	75	99
Other	37	115	140	76	67
Total M2	63	165	215	151	166
Total banknotes + deposits implied from Cameron ests.	17	45	80	67	69
<i>of which, based on his notes:</i>					
Bank of England notes	9	15	23	22	19
Bank of England deposits	2	7	11	6	10
London bank deposits	5	14	18	18	20
Country bank notes	2	10	22	10	10
Country bank deposits	0	0	7	7	10
	18	46	81	63	69
				(b)	
<i>rt of growth (Cameron)</i>	-	157%	76%	-22%	10%
My equivalent estimate	44	88	126	121	124
<i>rt of growth (my estimate)</i>	-	100%	43%	-4%	2%
<p><i>Source: Cameron et. al. (1967) page 42-6. Notes: (a) in 1775 total deposits estimated at £5m were included entirely in "Other" based on Cameron's judgement regarding their "moneyness" being nil that year; (b) My estimate for 1775 is that of the first year I examine, 1780. (c) I am unable to fully reconcile the internal consistency of his explanations for 1821 (or 1844).</i></p> <p><i>Additional notes: Up to 1831, Cameron imposes his own 'haircut' upon the estimate of total deposits, placing only a portion in M1 and the rest in Other, based on his estimate of their relative 'moneyness', rising from zero in 1775, to 1/4 in 1800-1, 3/7th in 1811 and 5/7th in 1821. The series "Total banknotes + deposits" is reversed out from Cameron's data by this author using these ratios. The subtotals for the constituents of this series are computed from the explanations provided to his estimates in Cameron (1967) in the notes on pp. 43-46.</i></p>					

However, Cameron's implied estimates of total bank liabilities are more directly comparable to those offered here. The estimates of total bank liabilities computed in this chapter should be read as comparable to Cameron's estimates for banknotes plus *all* bank deposits (i.e.

without his haircut for “moneyness”). I have computed this figure for each of the relevant dates and compare these to the higher estimates reached in the work here (Exhibit 12.2).

Like this thesis, Cameron was interested in the income velocity of the stock of money, and he computes estimates for each of the five dates by dividing British national income by his estimate of M_1 and M_2 . My estimates should be viewed as lying between his velocity of M_1 and the velocity of his implied estimates of total bank liabilities, scaled by his estimates of British national income at current prices, which he interpolated from Deane and Cole (1962) and adjusted upwards to include Scotland national income) As my estimates for total bank liabilities are considerably higher than Cameron, my estimates of their income velocity are lower – but not to the same degree. This is because Cameron’s scalar was considerably lower for the period 1800-31 compared to the recent estimates of nominal GDP used here (Broadberry et al, 2015). This gives the following comparison with Cameron:

Exhibit 12.3 – Comparison with Cameron (1967) estimates of income velocity of total bank liabilities

Comparison with Cameron (1967) income velocity of bank liabilities, 1800-1831					
<i>[ratios]</i>	1775	1800-1	1811	1821	1831
<u>Cameron estimates</u>					
Income velocity of his 'M1' (incl. specie)	5.2	3.9	3.4	3.3	2.9
Income velocity of bank liabilities only	7.9	4.4	3.2	3.7	4.2
<u>My estimates</u>					
Income velocity of bank liabilities only	3.0	3.7	3.0	2.8	3.0
National income est. used by Cameron (1967)	135	197	256	247	291
Nominal GDP estimate by Broadberry et. al. (2015)	133	324	375	336	370
<i>Source: Cameron derives his estimates of the income velocity of M1 by dividing his 'haircutted' bank liabilities plus specie in circulation by national income (derived from Deane & Cole (1962)). The implied income velocity of total bank liabilities only (i.e. excl. specie in circulation) are derived by this author from his notes. The estimates by this author of the income velocity of bank liabilities is computed by dividing the latter (see text) by nominal GDP (derived from Broadberry et. al (2015)).</i>					

Cameron’s estimates for deposits are based on guestimates of the balance sheet of the average London bank of £100,000 in 1775, £200,000 in 1800-1, £250,000 in 1811, £500,000 in 1831 – all of which appear rather too low when compared to the evidence presented in this thesis, even after deducting that part of deposits coming from Country banks (which

Cameron does not do). Furthermore, Cameron makes no allowance for Country bank deposits having “moneyness” properties until after 1811, an assumption that is clearly not supported by our case studies and creates an important divergence with our estimates. This divergence is partly – if inadvertently - offset by Cameron’s estimates for Country banknotes in circulation: Cameron’s estimates of these are too high because, like those of so many scholars, they refer to the gross value of these banknotes, omitting to deduct the portion held “in the chest” (i.e. the treasury) of the Country banks, as explained in our case studies.

I reach my estimates as follows.

12.3 Consolidating the London bank balance sheets

First, I consolidate the balance sheets of all the London banks into a ‘total London bank liabilities’. The sample of banks represents all those for whom records remain, and is therefore not randomised and represents only one in seven London banks, but triangulation with Bank of England data in the previous chapter supports its predictive quality in respect to the changes in the balance sheets of all London banks. The data for the relative usage of the Bank of England discount window is used here to determine the scaling factor to convert the aggregation of the known balance sheets into an estimate of total London bank liabilities. Because I distinguish between Discounters and Goldsmiths, the scaling process also modifies some of the pattern of change that would be observed by mere aggregation of the sample banks.

When consolidating the London bank balance sheets we face the choice between how many of the banks we include and creating a consistent data series for the longest length of time. Of our full sample of 14 London banks, five (Smith Payne, Willis Percival, Ranson Bouviere, Curries, and Cocks & Biddulph) have data sets of less than ten years and are therefore discarded. The remaining nine banks all have data sets for half or more of the 64-year period we wish to examine, although these are not always for the same years. The longest data series that can be constructed stretches from 1780 to 1845, and includes six banks: Barclays Bevan Tritton, Goslings, Hoares, Childs, Prescotts and Coutts. This series includes just over 60% of the total sample on the eve of the Restriction, based on the year

1796 when we have a data point or the nearby data point for all 13 banks. There are three years missing in the Barclays Bevan Tritton data that I estimate by interpolation, using the average growth rate observed for the peer group of Discounters. When investigating only the Restriction period, we may use a shorter-but-broader alternative data set. This covers the period 1799 to 1826 and is composed of the same six banks, plus Drummonds, Herries Farquhar, and BHHB. Retrofitting this series back three years to 1796 shows that it would cover 89% of the total sample size. It was decided to exclude Coutts at this early stage of the consolidation process, when more importance is given on aggregating actual numbers, because the change in Coutts' accounting of the Bank of Scotland business in 1813 would require introducing estimates of the data on one or other side of that date. It was felt better to add Coutts' balance sheet back into the aggregation at the end of the process.

Exhibit 12.4 – Two alternative consolidated series for London bank balance sheets, 1780 - 1845



For our purposes, it is pleasing to find that during the period when the two series overlap (1799-1826) the yearly delta of the two series taken separately has an R-squared of 0.85, and the full 8-bank series is 99% correlated to the 5-bank series (Exhibit 12.4). The 8-bank series has the advantage of a better balance of Goldsmiths and Discounters. When I

examine the residuals from the linear equation of best fit between the two series, I find the 8-bank series leads to a small, but consistently higher estimate of the total money supply during the latter part of the Restriction period running from 1806 to 1812 – reflecting its more accurate representation of the faster growth rate of Discounters highlighted in Chapter 11. Hence I create a third data series which I use for final analysis, based on the 8-bank data and extended in the early and late year by indexing the year changes to the longer 6-bank series.

12.3 Scaling the sample of London banks

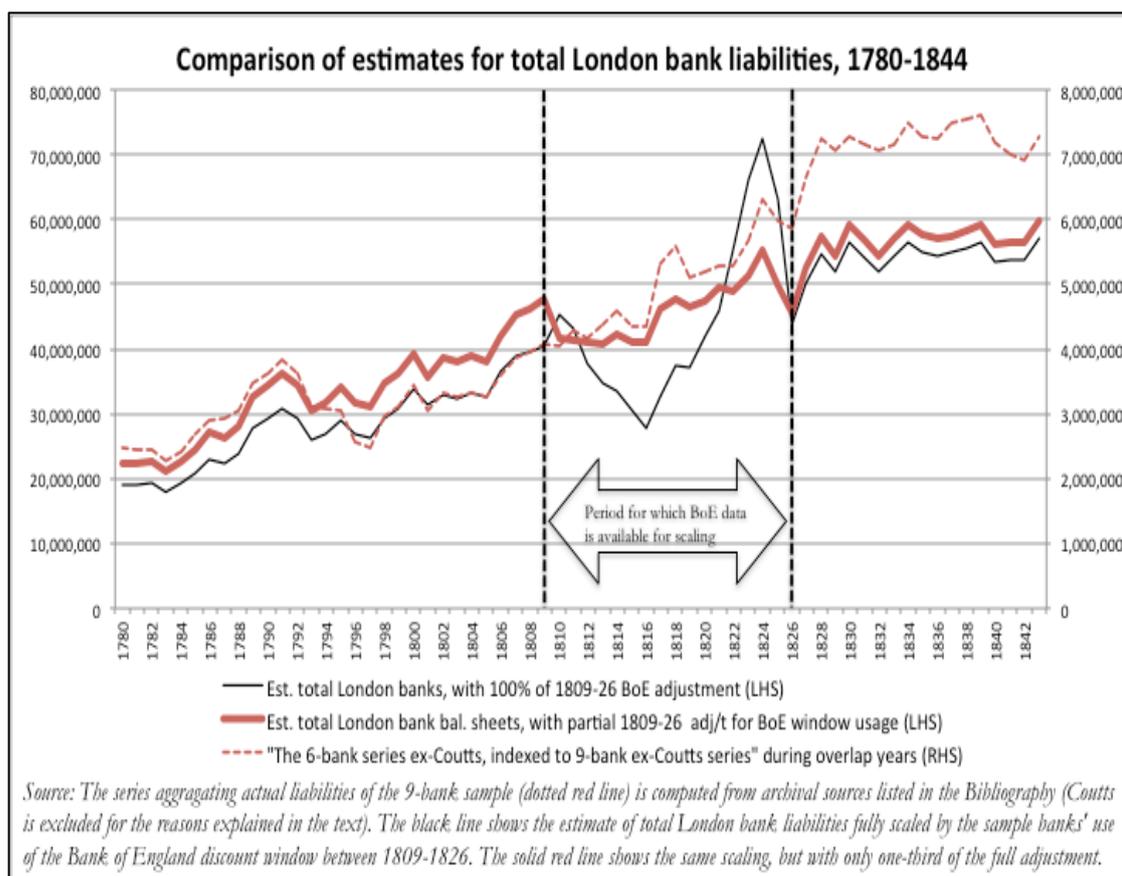
The total balance sheet liabilities for all London banks can be estimated for 1809-1826 by scaling the usage made of the Bank of England's discount window by our sample banks relative to the total balances recorded by the Bank.

First, I divide the 8-bank sample available for 1809-1826 into the four Discounters (Prescotts, Barclays, BHHB and Herries) and the four Goldsmiths (Goslings, Hoares, Drummond, and Childs). The Goldsmiths used less than 1% of the Bank's discount window, so their small usage is subtracted from the total balances recorded at the Bank. I then compute the proportion of the remaining total balances at the Bank that is accounted for by the four Discounters in our sample, measured as at the end of the second quarter each year. The second quarter is chosen because Barclays, the largest Discounter, and BHHB had fiscal year-ends at the end of June; for Prescotts, the fiscal year-end is uncertain but believed to be end-Dec, so the average balance of the two adjacent year-ends is used. The inverse of the proportion of the Bank's balances accounted for by the sample Discounters is then used to scale up the actual balance sheet totals of the four Discounters for each year into an estimated total of the bank liabilities for all London Discounters. To this total, I add back the total balance sheet of the four sample Goldsmith banks, scaled by a factor of two to reflect the known number of remaining goldsmith banks in London (Chapter 4).

The underlying assumption is that all London Discounters (and all London Goldsmiths) used the Bank's discount window, as a proportion of their own respective balance sheets, to the same degree (on average) as the sample banks did within each of the two business

model groupings. On inspection, compared to the simple aggregated series of the sample banks, this was found to produce a much sharper drop in the estimated total London bank liabilities between 1810 and 1815, back to pre-Restriction Act levels, and equally a more rapid rise thereafter into 1824 (ahead of the 1825 crisis). Directionally, this would merely strengthen our later argument, but the extent is not only implausible, but also not supported by the high degree of uniformity in the actual growth patterns of the sample banks. It is likely caused by the greater noise in the data once the Bank's total discounts fall to very low levels. Nevertheless, the message from the data should not be ignored: the London banks outside our sample probably suffered disproportionately from the Bank of England's reduction in discounts after 1810, which means the observed aggregate liabilities of our sample banks are likely to *overestimate* the continued growth in balance sheets between 1810-15, and *underestimate* the growth between 1816 and the bank crisis of 1825.

Exhibit 12.5 – Estimate of the aggregate London bank liabilities, compared; 1780-1844



I have therefore retained the rotational adjustment based on the usage of the Bank of England discount window, but I have weighted its impact based on the total volume of the Bank's discounts for all banks. The reader can compare the three different perspectives in

Exhibit 12.5. This subjective judgement does not affect in any way the direction of the inferences made in the final analysis further below.

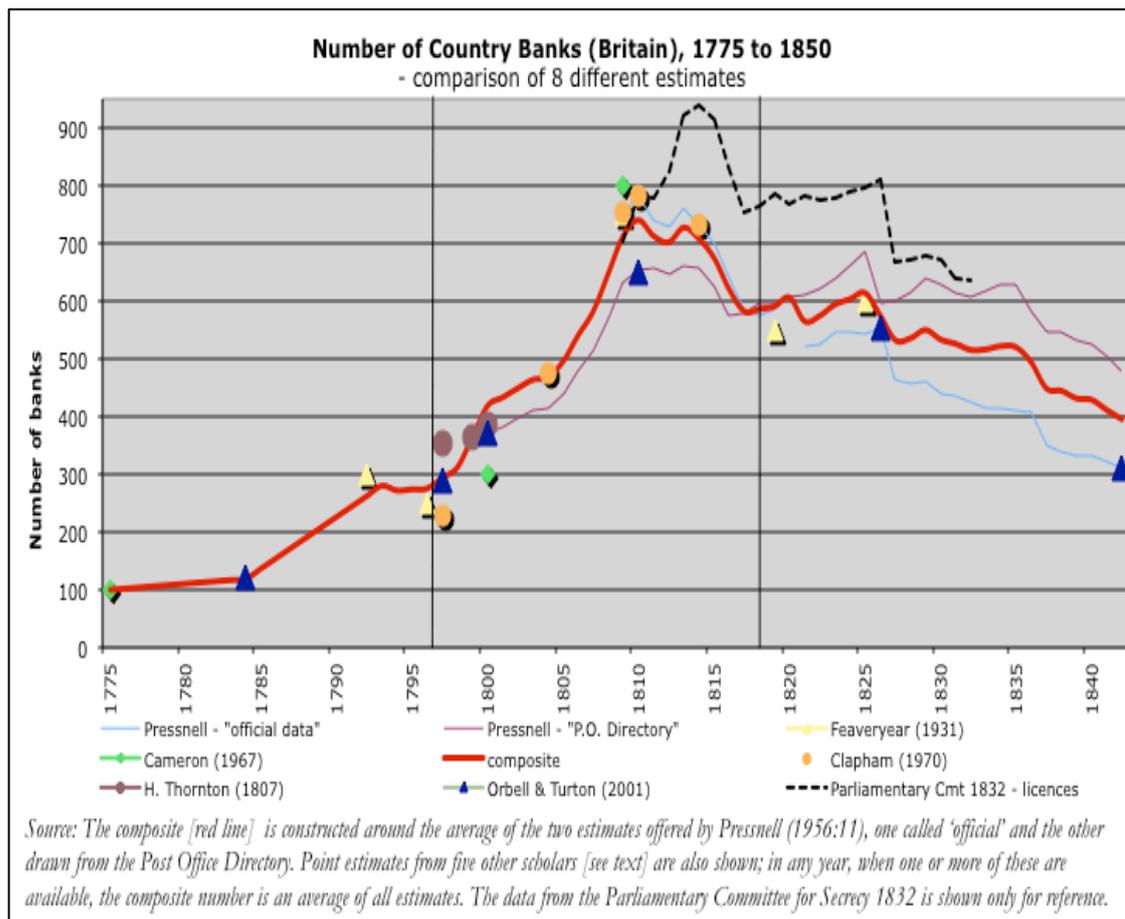
The result is an estimate for total London bank liabilities for 1809 to 1826. The final step is to index the earlier years (before 1809) and the later years (after 1826) to the aggregate 8-bank series of actual balance sheets in order to produce the estimate for the ‘total London bank liabilities’ for the whole period 1780-1844.

12.4 Country banks: formation and destruction

Here I summarize previous estimates of the growth and decline in the number of Country banks before going on to create a rather heroic series representing their aggregate balance sheet.

As discussed in the Introduction and Chapter 11, after the 1770s the banking landscape changed and there was rapid growth in the number of banks, but mostly outside London. Exhibit 12.6 shows a composite data series for the number of Country banks from 1775 to 1850, composed from the two data sets collected by Pressnell (1956: chapter 1)⁷⁶, and overlays various point estimates extracted from the literature offered by Thornton (1802: 129-160), Feaveryear (1931), Cameron (1967), Clapham (1970), and Orbell & Turton (2001: 4-6) - none of which diverge greatly from the composite data series. One additional series was located in Appendix 98 to the *Parliamentary Committee for Secrecy on the Bank of England Charter* (1832: 602), which shows the cumulative “number of licenses granted to Country Bankers”. This series starts only in 1809 and shows a higher peak number of 940 licenses in 1814, but is directionally highly consistent with the composite series from 1814-1832 (R -squared = 0.90). The lower directional correlation in the four years prior to 1814, and the higher average level after 1814, can both be attributed to delays in the license registration process, at first during the period of rapid growth, and subsequently in cancelling licenses to banks in the process of ceasing business.

⁷⁶ One data set is based on the Post Office Directory, the other on Parliamentary records.

Exhibit 12.6 – Number of Country banks, 1775 – 1850

The data series shows that in the 20 years prior to the Restriction, the number of Country banks nearly triples to 276 from the approximately one hundred before 1785. Then, following the start of the Restriction, their number nearly triples again, and in half the time, to an estimated peak of 740 in 1810. After 1814, the number of Country banks begins a long decline, falling to under 400 by 1850. Decimation was strongest in the years immediately after the end of the Napoleonic Wars, and then again following the financial crisis of 1825.

The peak in numbers in 1810 is instructive as it coincides with the Bank of England change of asset strategy, veering away from discounting private sector bills to supporting the government's unfunded debt (Chapter 10). Throughout the period 1780-1828, Country bank numbers are highly correlated to the Bank of England's discounting of private sector paper: changes in the Bank's discounting and real GDP together explain 91% of the changes in the number of Country banks in operation. Country bank numbers are also correlated to the Bank's total circulation of banknotes, but less so (84%), as the turning

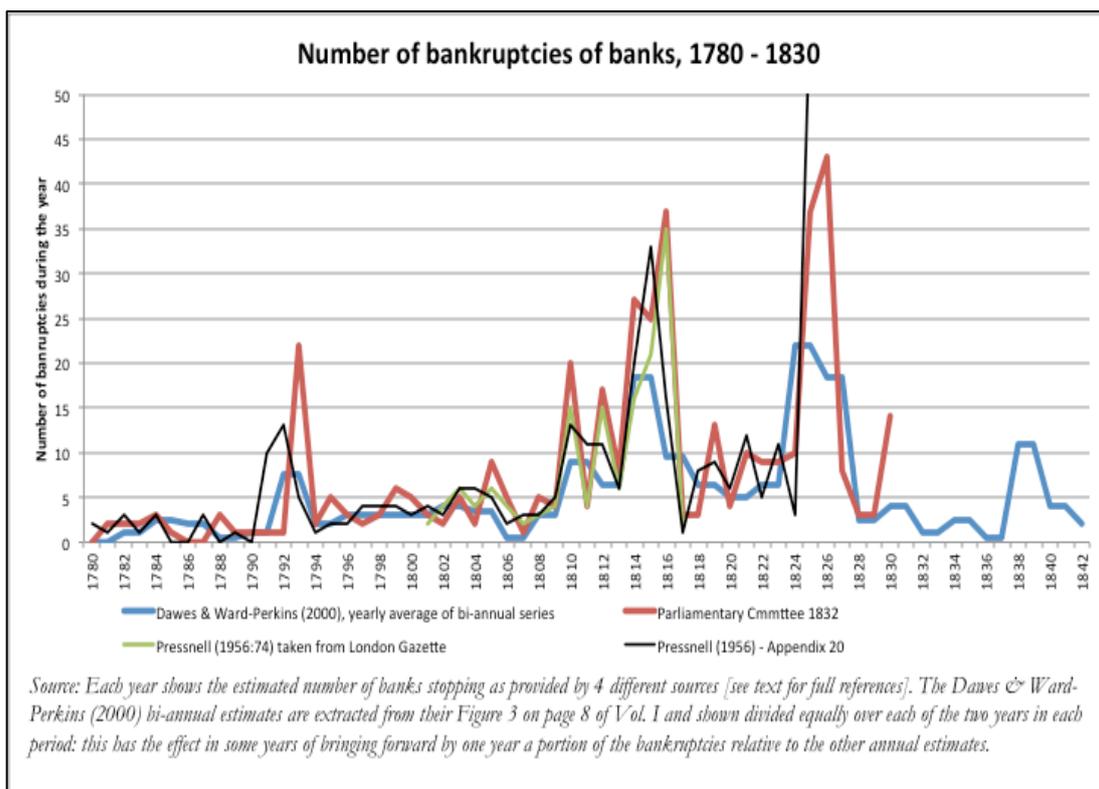
point in circulation is later (1818). This discrepancy in correlations suggests that the mechanism (discounts) and the pathway (via London correspondents with access to the London clearing system) by which the Bank injected its notes into the economy mattered to the incentives operating upon Country bankers.

Bankruptcies and new entrants

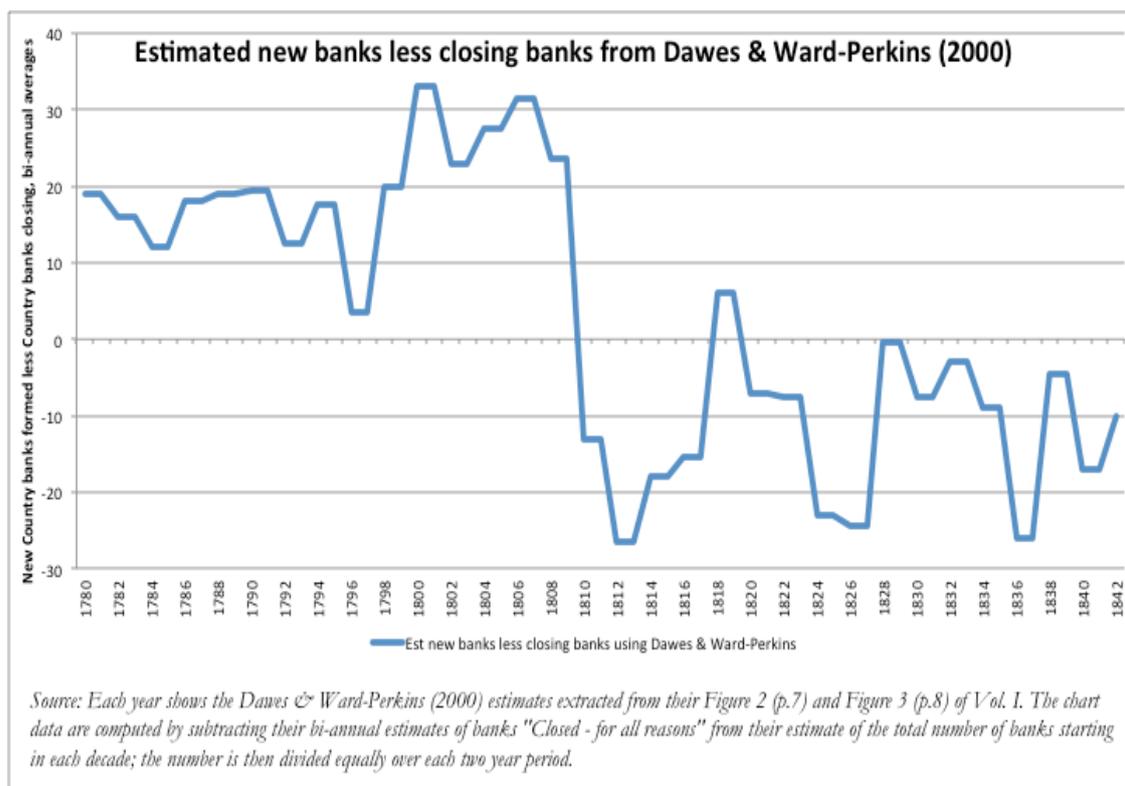
The estimates of the net number of Country banks in operation can be compared to the gross number of new bank formations and annual bankruptcies in order to gain perspective of the vigour of this section of the banking system.

Parnell (1827: Section II) gave some early estimates of the annual bankruptcies of Country banks, subsequently detailed in the appendices of the *Parliamentary Committee on Secrecy* (1832: Appendix 101, 115-6), and Pressnell (1956: 536-8) gave new estimates that also distinguished between Country banks and Country scriveners (lawyers that were also money changers). More recently, in their comprehensive study of Country bank formations and closures, but not of their balance sheets, Dawes & Ward-Perkins (2000) provide bi-annual estimates of both new Country bank start-ups and bankruptcies. While there are some discrepancies between these estimates for any single year (due to differences in categorizing 'country bank' amongst all bankruptcies, as well as whether the source were court records or newspapers), the pattern of closures is clear (Exhibit 12.7).

Parnell (1827: 27) records that during the crisis year of 1793 there had been 26 bankruptcy filings by country bankers, or about one in ten of the banks operating prior to the crisis. To put that into context, that same year there were 1956 bankruptcies across all types of businesses in the country: the 1793 economic downturn, though serious, had not spilled over into a full-blown banking crisis. The following twenty-year period, encompassing the Restriction up to the peak in the Bank of England's expansion in the discounting of private sector bills in 1810, produced a benign environment for Country banks. The rate of Country bank bankruptcies slowed to six or less each year, and there is no evidence of the liquidity crisis of 1796 in the data presented in any of the data.

Exhibit 12.7 – Number of Country banks stopping operations, 1780 – 1842

This changed after 1810. The following decade proved fatal for many Country bankers, as monetary conditions tightened when the Bank of England switched to buying Exchequer Bills, Britain's economy cooled after the end of the Napoleonic Wars, and Parliament debated whether to return to the gold standard. Dawes & Ward-Perkins (2000: 8, Fig.3) estimate that no less than 236 Country banks went bankrupt or stopped trading between 1810 and the end of 1826; Pressnell estimates 225 and the Parliamentary Committee of 1832 put the number as high as 268. Throughout those sixteen years Country banks were failing at three times the rate experienced in the previous sixteen. At least one in every three banks operating in 1810 had stopped by 1826. The rate of bankruptcy according to Parnell (1827) climbed to a peak rate of over 140 per annum during the five months between Oct 1825 and Feb 1826. During the 1825 crisis Country banks were perishing at nearly six times the rate experienced during the 1793 crisis. Although both crises occurred during a time when Britain was on the gold standard, it appears the intervening Restriction period had radically changed the vulnerability of the "fringe banking" sector of Country banks to respond and survive.

Exhibit 12.8 – Net formation of Country banks, 1780-1842

With one brief exception, all of the net formation of new Country banks occurred in the period prior to the Bullion report of 1809. And net annual bank formation was (on average) one and half times greater during the early years of the Restriction compared to the prior twenty years. After the Bullion report and the Bank of England's change of asset purchasing policy, for the following thirty years net Country bank formation was positive only for the two years after the return to the gold standard (Exhibit 12.8).

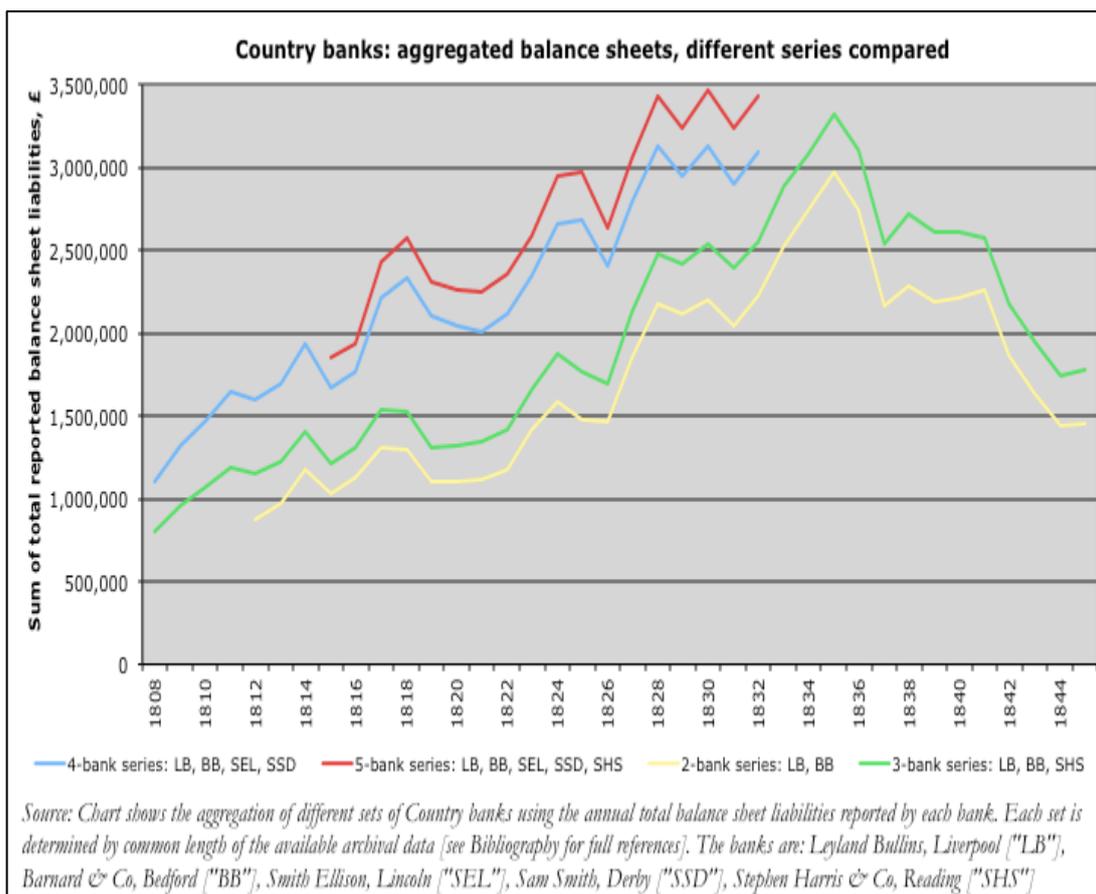
In contrast to the formation and bankruptcy data, our sample of surviving banks shows that, during that same 1810-1825 period, banks both in London and the Country that were perceived as stronger attracted increased deposits and grew their total liabilities. At times of Scarcity and crisis, money flowed out of the furthest parts of the "fringe banking" sector and into the inner core of banks perceived as safest.

12.5 Aggregating the balance sheets of the sample Country banks

Here I construct a heroic partial data series for Country bank balance sheets from the numerous case studies, and then combine these with the ‘birth and death’ data to construct nationwide estimates of Country bank liabilities in order to infer some final conclusions regarding the role of this ‘fringe’ banking system during the Restriction.

When consolidating the Country bank data, as with the London data, we face a choice between length versus breadth. Furthermore, compared to the London data, the sample of Country banks is smaller, contains less continuous data, represents a smaller portion of the total population, and clearly contains a significant survivorship bias. Keeping these weaknesses firmly in mind, it is still of interest to observe what happens to the idiosyncrasies of individual bank behaviour once we aggregate them, even if in such small numbers. We can construct a 4-bank series for 1808-1832 using a usefully diverse set of banks: Leyland Bullins, Liverpool, which did not issue notes; Smith Ellison, Lincoln, which was an aggressive note issuer; and two other young banks formed during the Restriction, one of which had a relatively conservative asset strategy (Barnard, & Co, Bedford) and one that was more aggressive (Samuel Smith, Derby). A preferable series starts three years later, so as to be able to add Stephens, Harris, & Stephens, Reading (not included in the case studies), a well-capitalised and well-run bank formed in 1791, with a branch in Maidenhead and using Willis Percival as its London correspondent. This gives a better geographical spread, but has no data for the critical period before 1815, so we index it to the aggregate of the other 4 banks. As can be observed in Exhibit 12.9, there is a high degree of co-movement between all the different aggregated series prior to extending them through indexing, suggesting that we can have reasonable confidence that filling in a small number (8) of data points through indexing is not altering the essential characteristics of the aggregate Country bank balance sheet composed of 125 data points.

The resulting 5-bank series from 1808-1832 gives a good cross section of geographical locations and typical balance sheet compositions. For the first four years of this series we do not have Leyland Bullins data, so the data is indexed and concatenated to the other banks: because Leyland Bullins is the only bank amongst the five not to issue notes, it is possible that the final data series will over-estimate the growth in the aggregate balance sheets for those years 1808-1811.

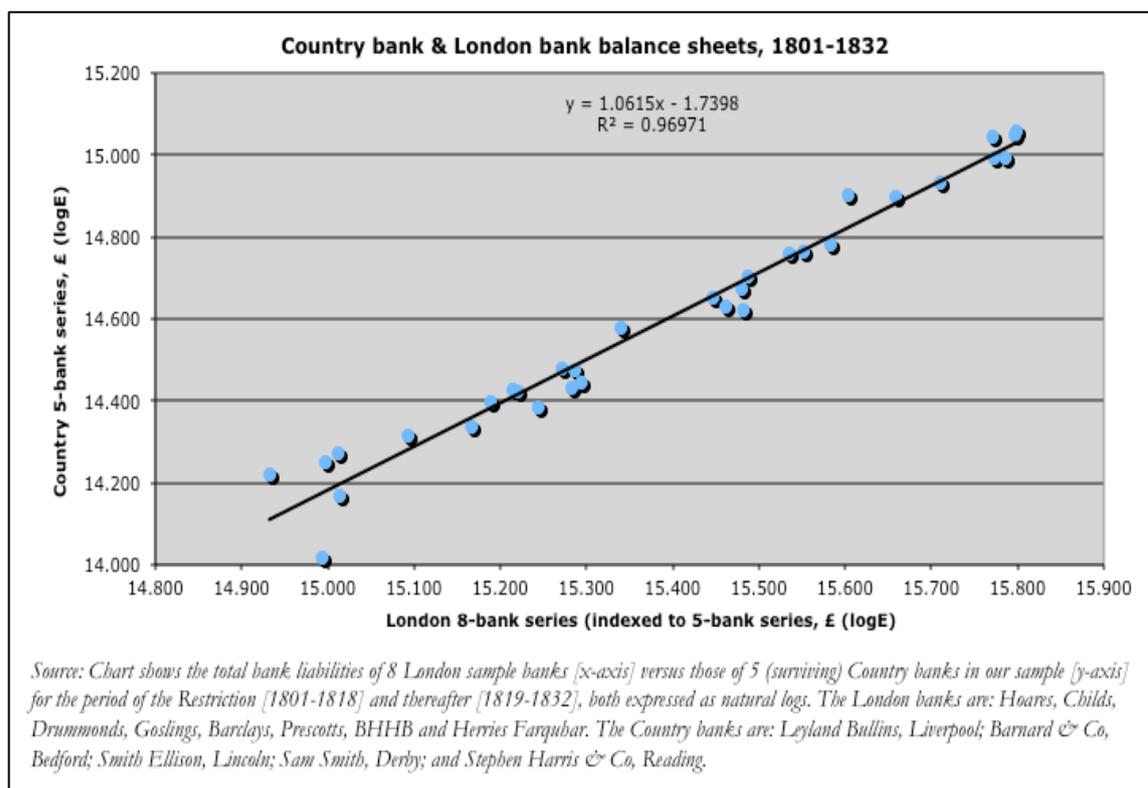
Exhibit 12.9 – Country banks: aggregate balance sheet, various data series, 1780 - 1845

The data reveals that our sample of Country banks – as survivors of financial crises – suffered the balance sheet declines of the 1815 and 1825 crises, and the stagnation in the years immediately after the return to the gold standard. However, they are characterised by a return to rapid growth after each of those incidents. Comparing this Country bank series with the Bank of England balance sheet shows how, like the London banks, this sample of surviving Country banks grows in line with the Bank of England until 1816, and then diverges strongly.

Until 1816 it was reasonable for Ricardo and the Bullionists to argue that most Country banks appeared to be growing their liabilities in correlation with those of the Bank of England; they might have said the same of London banks, had they discussed these. Ricardo being closely involved in the London money market perhaps legitimately argued from a personal sense of how London bank liabilities moved in synchronisation with the ebbs and flows of the Bank of England, and how Country banks' liabilities moved in synchronization with London liabilities. However, after 1816 the Country banks continue to

grow their balance sheets in spite of the Bank of England cutting back on its circulation and shrinking its balance sheet. For the whole period during and after the Restriction, the sample of surviving Country banks appears most strongly correlated, not to the Bank of England, but to the London sample of banks (Exhibit 12.10). The obvious inference is that Country banks that survived had built strong ties with the *London Transfer and Set Off* machine via their London correspondent, and together they formed an independent capacity to endogenously ‘manufacture’ a supply of broad money that was independent of the Scarcity-inducing policy actions of the Bank of England.

Exhibit 12.10 – Correlation of Country bank balance sheets with London balance sheets, 1801-1832



The balance sheets of the surviving Country banks remain highly correlated to the London bank balance sheets throughout the period 1801-1832 (Exhibit 12.10). Yearly changes in the two series (using natural logs) have an R-squared of 0.96 over that period with a beta of close to one (1.06).⁷⁷

⁷⁷ The only significant outlier is 1803, when a small decline in London bank liabilities was associated with a much greater drop in Country bank liabilities, and the latter appears uniformly across all the sample Country banks.

From these two analyses I infer that by the time Ricardo and Bosanquet were putting pen to paper in 1809, the Law of Reflux was already well established. The stronger and better-managed banks that formed the backbone of the correspondent banking system - a fast flowing river linking the different regional Smithian ponds of money - operated so as to connect Country banks to Bosanquet's *London Transfer and Set Off* machine in London. It was not yet visible to commentators in 1809, but the banking system had already constructed the instruments and processes to support a capacity to respond endogenously. It was not yet visible because Country banks were managing their liquidity such that the gearing ratio was relatively stable both when measured in terms of the sum of specie and Bank of England banknotes, as Ricardo proposed, but also when measured in terms of specie, banknotes plus their balance with the London correspondent. When the Bank of England changed course after 1810, and more so after the war when it began preparing to return to the gold standard, the impact was felt almost entirely by the weakest Country banks, which failed in large numbers, but the core backbone of the banking system was able to continue growing its balance sheet to partly compensate. The British economy had *financialised* and the income-velocity of specie had acquired a partly independent life.

12.6 Estimating the total Country bank liabilities

In order to estimate the total Country bank liabilities it is necessary to combine the experience of the surviving banks as represented by our sample (section 12.5 above) with the impact of the process of formation and closure of all other banks (section 12.4 above). I proceed in five steps, as follows.

First, I take the changes in the composite estimate of the number of Country banks in section 12.4, and add back Dawes and Ward-Perkins (2000) estimate of the yearly number that stopped trading, in order to derive an adjusted yearly estimate of the number of new banks opening. Second, I use Dawes and Ward-Perkins (2000: 30, Fig.1) life expectancy rates for private Country banks to construct a *pro forma* expected yearly depletion rate of Country banks starting in any year x over the following decade up to year $x+10$. Third, using these two sets of data, I construct for each year the number of Country banks aged between one and ten years that would have been expected to close that year. By subtracting the total of these numbers from the actual number of bank closures recorded in the same

year, I derive a separate estimate of the number of banks closing each year that were older than ten years. Fourth, I use the aggregate growth path actually experienced by our sample of banks, from their respective year of formation through to their tenth year of operation, in order to construct a *pro forma* expected size of the total liabilities for the typical bank in each year after its formation, rebased to a year-1 balance sheet total of £30,000. This is to reflect Pressnell's intuition of the typical case: because our sample banks – being long-term survivors – were most probably larger than the average bank at the moment it began operating, this introduces a conservative element to the total estimate. Lastly, I combine these *pro forma* age composition of closing banks and the *pro forma* age-specific average balance sheet size for Country banks, to construct estimates for each year of the total balance sheet of all Country banks still operating based on the estimated age-weighted composition of both the banks still operating and that of the banks that stopped trading.

The resulting estimate shows Country bank liabilities rising from a little under £10 million in the early 1780s to a peak of £57 million in 1814-5, after which they decline steadily over the following thirty years. These level estimates are supported by the most authoritative contemporary estimate of the volume of Country banknotes in circulation in the years 1811 to 1818. Mr. J. Sedgwick, Chairman of the Board of Stamps, filed a detailed study for the *Secret Committee [of the House of Lords] on the expediency of the bank resuming cash payments* (1819) estimating the volume of Country banknotes in circulation based on the stamp duties paid.⁷⁸ In his report he explained that the duties paid after 1809 could be used to give accurate estimates of the total Country banknotes in circulation because (i) data on commercial promissory notes and banknotes were separated in 1804, (ii) the ruling that banknotes had to be re-stamped if re-issued after three years, and (iii) the 1809 increase in the duty payable. Although £1 and £2 notes could theoretically be re-issued without limit without being re-stamped, in his experience none lasted more than three years. Hence he makes his estimates based on the assumption that of the notes issued in any year, one third will wear out in each of the following three years, adjusted for the assumption that “a Country Banker may usually have about One Tenth of the whole amount of his Notes in his Coffers as a Reserve, and Nine Tenths in Circulation.”⁷⁹

⁷⁸ *Report* (1819): Appendix F.4 (pp.404-5), F.6 (pp. 407) and F.7 (pp. 408-13).

⁷⁹ *Report* (1819): Appendix F.7 (p.408)

Exhibit 12.11 – Country banks: comparison of estimates of balance sheets and banknotes, 1811-18

	Sedgwick's estimate of Country banknotes in circulation £	Country bank est. total bal sheets £	Sedgwick estimated banknotes, as % of est. Country bank liabilities	Average* of sample banks, weighted by their total net balance sheet	* The average is constituted by this sample: Proportion of bank liabilities funded by net notes in circulation					
					Smith Ellison, Lincoln	Samuel Smith, Derby	Old Bank, Bristol	Barnard & Co	Stephens, Harris, & Co.	Bank of Scotland
1811	20,977,575	50,613,192	41.4%	39.2%	53.7%	57.9%	23.5%	76.6%		35.3%
1812	20,047,896	50,091,586	40.0%	37.0%	49.7%	52.6%		78.2%		31.0%
1813	22,342,759	50,967,019	43.8%	36.3%	54.9%	52.5%		70.6%		29.5%
1814	21,672,760	54,664,745	39.6%	34.2%	50.5%	49.3%		65.9%		28.3%
1815	20,378,410	56,254,815	36.2%	45.1%	45.2%	51.1%		70.4%	23.5%	
1816	15,525,944	56,037,197	27.7%	30.2%	46.4%	44.4%		52.7%	18.5%	26.4%
1817	15,862,522	52,880,879	30.0%	27.5%	39.4%	37.2%		51.7%	21.5%	23.3%
1818	20,044,049	53,082,811	37.8%	36.3%	42.9%	40.5%	28.2%	37.4%	24.7%	

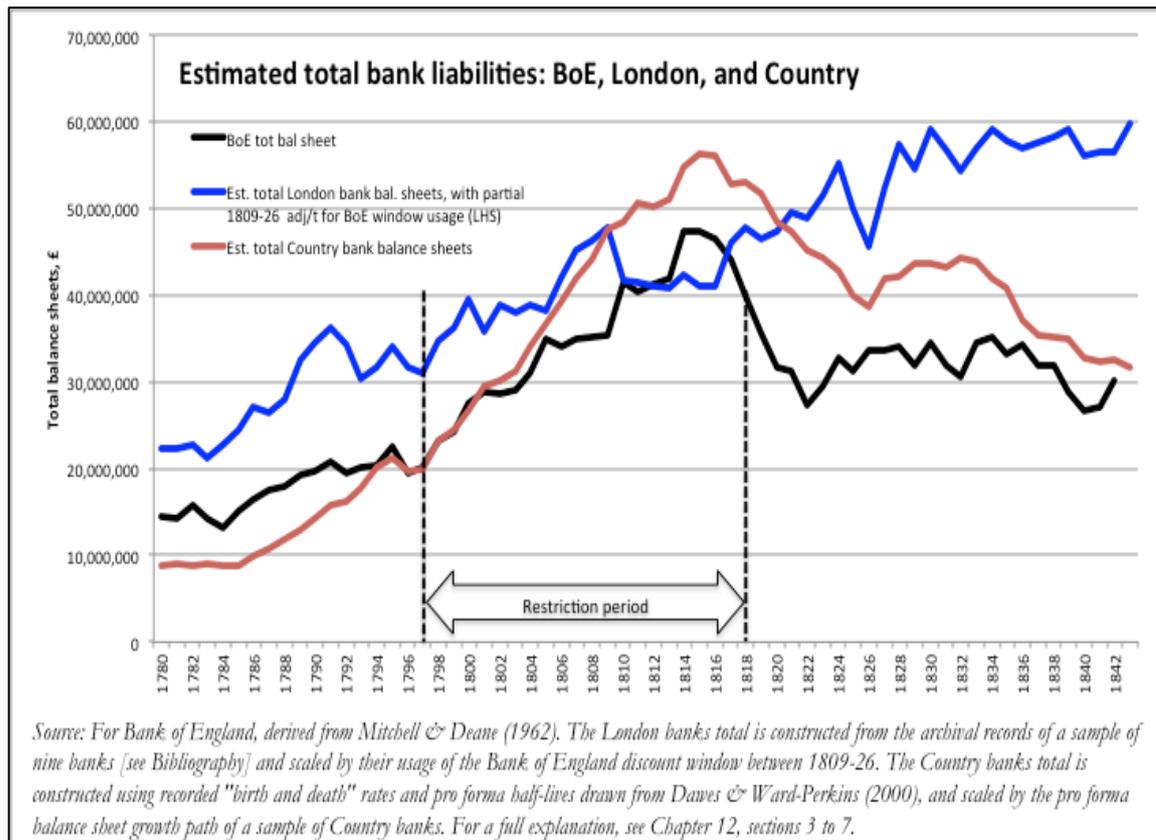
Source: Country banknote estimates are drawn from the Report (First) of the Secret Committee [of the House of Lords] on the expediency of the bank resuming cash payments, 12 May 1819, Appendix F.7 (pp. 408-13). Country bank total bank liabilities are those constructed by the author - see text in Chapter 12, section 12.6. The proportion of banknotes making up the liabilities of each sample bank is computed by subtracting banknotes held "in the chest" from total notes issued, and dividing by the total liabilities net of the same internal holdings of own banknotes.

The Parliamentary Committee's estimates for Country banknotes and my estimates of total liabilities combine to imply that Country banks' liabilities on average were composed of 40-43% by banknotes in circulation during the latter Restriction years, and then declined to 28% in the monetary stringency of 1816 immediately after the end of the war, before recovering thereafter (Exhibit 12.11, column 3). The case studies presented in this thesis show that the proportion of total liabilities funded by the net notes in circulation could vary across Country banks, but both the levels and direction of change implied by the above comparison appear consistent (Exhibit 12.11, column 4). The only outlier is 1815, when our sample of banks appears to have maintained a higher relative circulation of their own banknotes – perhaps explained by the perception, revealed after the fact, that they were the relatively safer banks compared to the average Country bank – many of which closed shortly thereafter. Finally, it should be noted that Sedgwick's somewhat higher estimates than implied by those presented here are also explained by his assumption that Country banks held one-tenth of their note issue "in the Chest" as reserve: this appears to be an underestimate if judged by our sample banks, where the proportion was frequently twice that much.

12.7 Quantifying total British bank liabilities

I conclude by bringing together the estimates for the total bank liabilities of the Bank of England, the London banks, and the Country banks. These are shown in Exhibit 12.12.

Exhibit 12.12 – Estimated total liabilities: Bank of England, London banks, and Country banks



The three estimated aggregations show how throughout the period 1780-1844 Country bank liabilities broadly followed the pattern of change in the Bank of England's balance sheet, growing faster during the Restriction period and then declining somewhat less precipitously after 1815. After 1832 we see a sharper decline as more banks switch from a private partnership structure (those measured here) to the newly available joint-stock form. London bank liabilities grow in pace with the Bank of England until the Bullion Report. However, after the Bank switches policy to discounting Exchequer bills, growth stalls, but as the main pathway for the monetary injection is now directly into the regions, this allows the growth in Country bank liabilities to continue until 1814-5. By 1817 economic agents, reacting to the monetary contraction and the increasing closures of Country banks, make a

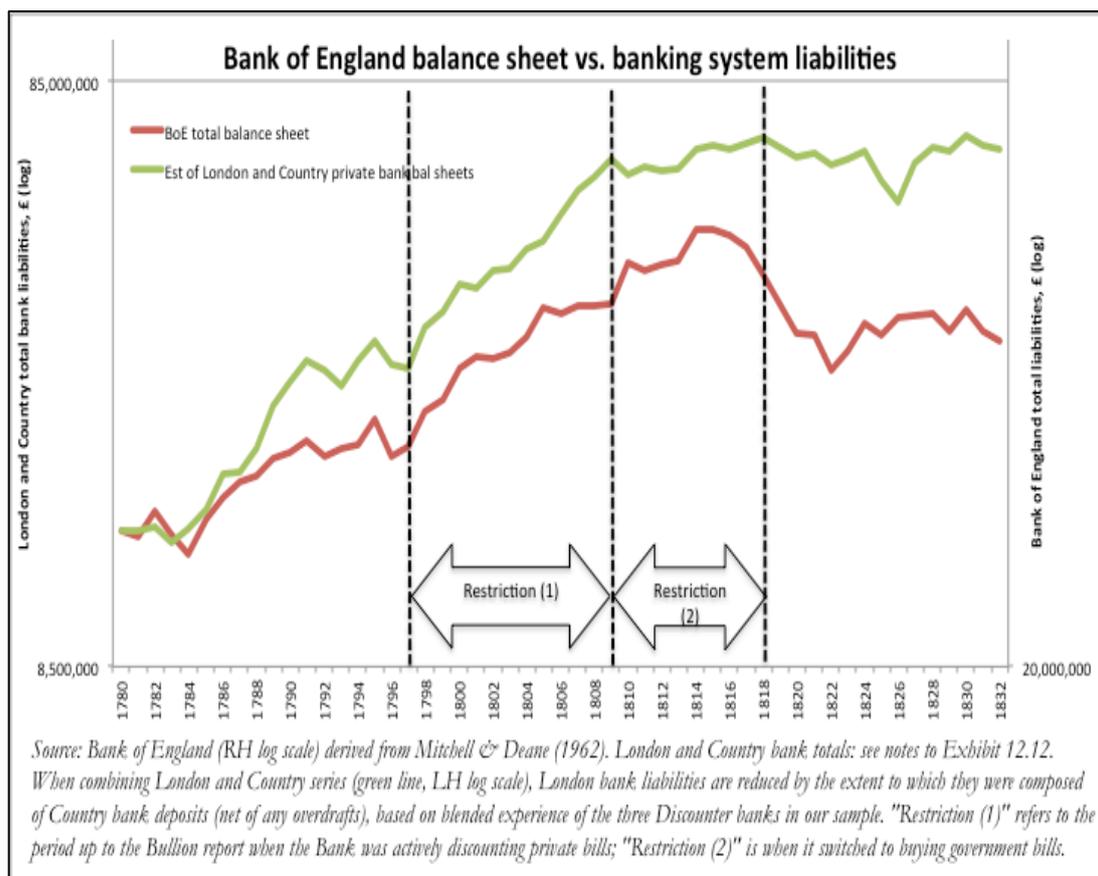
concerted move of their deposits towards the London banks. In such a deleveraging environment amongst the wider “fringe” of Country banks, London banks would have been perceived as safer because (a) they were generally larger, (b) they did not issue banknotes, and (c) they were closer to the London money market ‘where money is always within reach’.

12.8 Estimate of the annual aggregate British bank liabilities

Finally, I construct an aggregate series for all British bank liabilities. This is the sum of the three data series above, with one adjustment. As revealed by the Country bank case studies, their net deposit balances with London banks constituted a substantial portion of the latter’s total liabilities. These need to be subtracted from the nationwide total to avoid double counting.

To establish the extent of the adjustment required for such double counting, I take the average of the of the actual proportion of the total liabilities accounted for by Country bank balances at Barclays, BHHB, and Smith Payne Smith (net of overdrafts), these being the three London (Discounter) banks for whom records make the estimation possible between 1797 and 1826. The average of these three London banks is used to construct an exponential log trend of the proportion of double counting before 1797 and after 1826. As another manifestation of the *Transfer and Set Off* machinery, the trend shows how the proportion of London bank liabilities accounted for by Country bank deposits rose from approximately 10% before the Restriction Act to twice that by the time of the Bullion Report, and then settled at 20-22% (see Appendix M for a full table). In a final step, we adjust the proportion of double counting to take account of the relative importance of Discounters amongst the total of all London banks, on the premise that it was observed Goldsmith banks had negligible correspondent banking activity.

No adjustment was made for the possible double counting of Country bank liabilities held by other Country banks, on the premise that this would arise from Country banks holding each other’s banknotes as part of their cash reserve, and our case studies have shown that, while some of this activity did occur, it appears to have accounted for less than 1% of assets.

Exhibit 12.13 - Annual estimates of total British bank liabilities, 1780-1832

For the aggregated series, the years 1832 to 1844 are not shown, as the summation of the three series constructed here should be considered as increasingly unreliable estimate of total bank liabilities for that later period. An Act of May 1826 induced a gradual new wave of change in the banking system by allowing the Bank of England to open branches and permitting the formation of joint-stock banks, both outside the scope of this thesis. Although adoption started slowly, their number grew rapidly after 1832 (Crick & Wadsworth, 1958: Chpt. 1).

Exhibit 12.13 reveals how the London and Country bank liabilities were closely related to the movement in the Bank of England balance sheet from 1780 to 1809. When viewed together, they show the private bank sector was growing faster than the Bank of England already from the end of the 1780s. This continued until the Bullion Report of 1809. Thereafter, until the end of the war, when the Bank switches policy to buying government bills instead of private commercial paper, London and Country bank liabilities grow more slowly. However, more surprisingly, when the Bank sharply deleverages its balance sheet between 1814 and 1822, the rest of the banking system merely pauses. The outer “fringes”

of the Country bank system collapsed, but the core banks in London attracted the deposits searching for a safe home. Even amongst Country banks, some had learnt how to maintain confidence in the liabilities they were “manufacturing”, largely by establishing strong links with the London *Transfer and Set Off* machinery.

The aggregate London bank balance sheet from 1780 to 1814 is 91% correlated to the Bank of England’ circulation and the Bank’s total balance sheet. However, from 1814 onwards there is a complete change: the aggregate London bank balance sheet becomes 84% *inversely* correlated to the Bank’s circulation and 67% *inversely* correlated to the Bank’s total balance sheet. As the Bank’s balance sheet behaviour returns to being driven more by the stock of bullion, albeit with a higher gearing (Chapter 10), the rest of the banking system is using its newly-acquired practices in order to respond more to the real demand from the economy. Unlike the period prior to the Restriction, after 1818 the rest of the banking system viewed as a whole is no longer expanding and contracting in synchronisation with the lung of the Bank. The London banks and the stronger Country banks are moving in unison and independently of the Bank of England – only the weaker Country banks at the “fringes” are dependent on the Bank’s actions.

It is ironic that the Scarcity lobby belief - that bank balance sheets followed that of the Bank of England - may have been most true during the period of Abundance, which began before the Restriction and was then accelerated by it, but *not true* after 1818 when the Scarcity lobby’s views expressed in the 1809 Bullion Report were finally implemented. Had it been otherwise, the brutal contraction in the total ‘circulating media’ initiated by the Bank would very likely have led to Britain failing to implement that very same return to the gold standard.

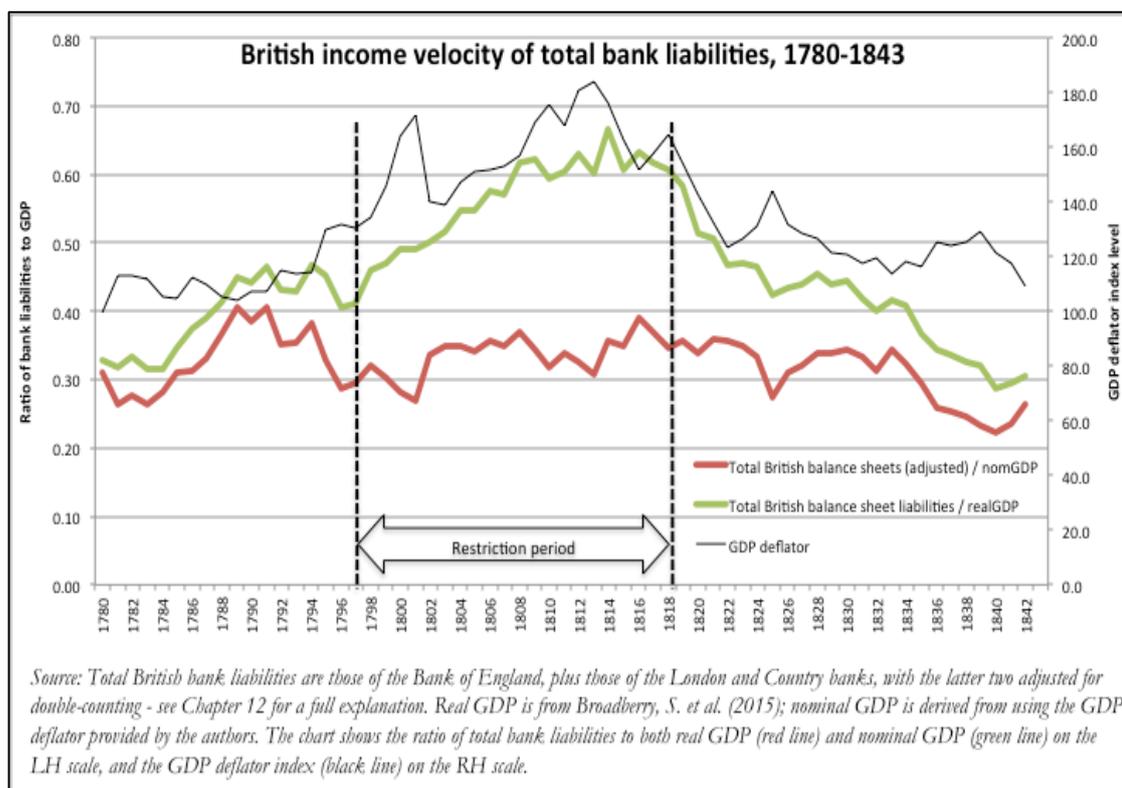
12.9 Implications for income velocity of money

The change in the size of bank liabilities relative to the volume of exchange transactions – the measure of the banking system’s impact on the income velocity of money that was so little considered by classical economists – can be approximated by scaling our estimate of total bank liabilities by the recently available data for real GDP. Conversely, the extent to

which bank liabilities moved together with the extrinsic value of those exchange transactions can be approximated by scaling our estimated series by nominal GDP.

A close symbiosis is observed between the changing levels of aggregate bank liabilities and the total extrinsic value of exchange transactions. As a corollary, there is a close symbiosis between the ratio of bank liabilities to real GDP and the level of the GDP price deflator index (Exhibit 12.14). Based on our estimates, total bank liabilities remain within a relatively stable ratio of 0.3 to 0.4 of real GDP throughout the 63 years analysed, with only a few rare exceptions.

Exhibit 12.14 – The income velocity of British bank balance sheet liabilities, 1780-1844



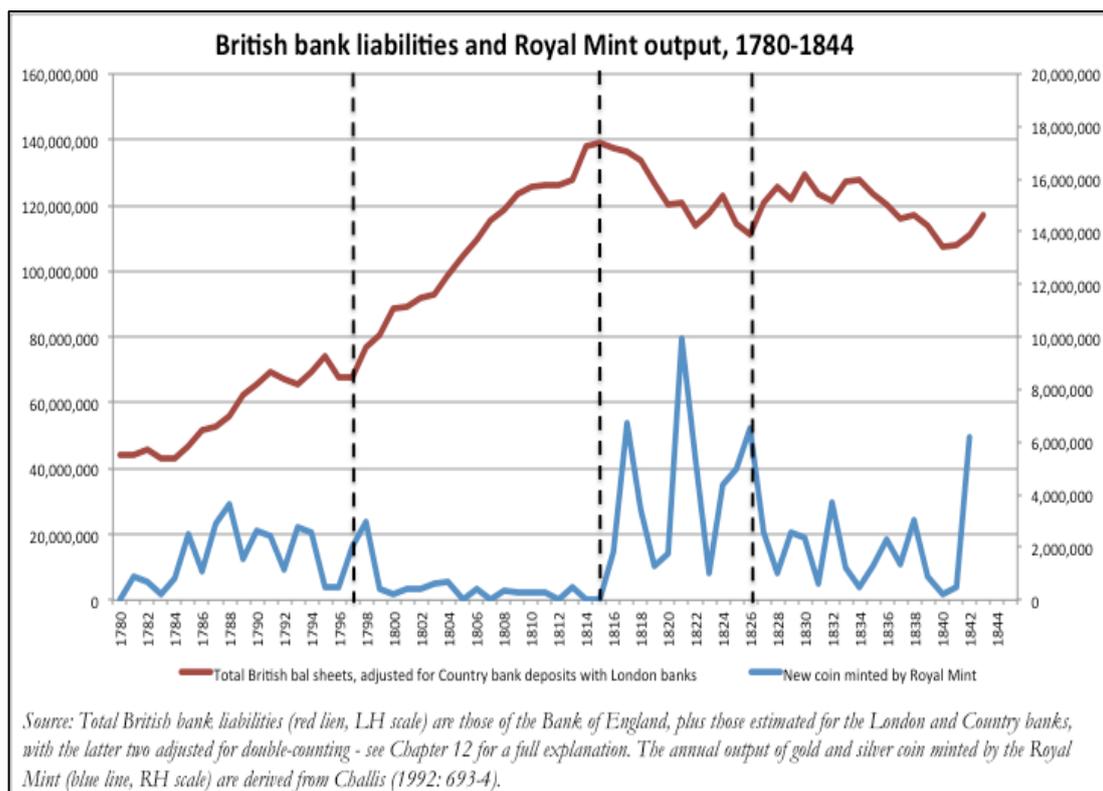
Had Bosanquet had these estimates, he would have argued that the overall banking system reflected what would be expected if all bankers' decisions followed the Real Bills Doctrine: the banking system delivered a quantity of total bank liabilities, to act as circulating media, that bore a relatively stable ratio to the extrinsic value of real transactions in the economy. Ricardo would argue that, viewed over the whole 60 years, the British economy showed it could operate under a gold standard with a ratio of bank liabilities to nominal GDP of approximately 0.40, both before and after the Restriction period; he would argue that by

allowing the ratio to climb to almost 0.70, the Restriction Act had merely allowed the level of prices to rise proportionally.

However, inspection of Exhibit 12.14 suggest the favoured hypothesis, based on these estimates, is that price inflation mostly led the expansion in bank liabilities from the early 1790s until 1813, and also the initial monetary contraction after the end of the war. The spike in the price level in the two years before the temporary peace treaty at Amiens in 1802 does not appear to have had a monetary catalyst from within the banking system. The inflation experienced towards the end of the war, between 1809 and 1813, was only partially accommodated by a rise in bank liabilities, suggesting it was more likely induced by the accelerating government expenditure flowing directly into the regions and funded by the Bank of England monetizing short-term government debt. After the decision is taken to return to the gold standard in 1818, both the price level and monetary contraction appear more co-determined until 1832.

In a final note, it is useful to return to the issue of the quantity of specie circulating outside the banking system. Only highly speculative estimates are possible as, for example, no proper long-run records exist of the bullion imported, or the specie melted down for export, other than what was 'sworn as [of] foreign [origin and] for exportation', as melting down any other specie was an illegal activity. However, the new specie coin minted by the Royal Mint provides an indication of changes in its relative usage within the payments system.

Prior to the Restriction Act, circulating media was augmented by both bank liabilities and by new specie coin. During the Restriction period up to the end of the war, little new coin is minted (£10.1 million) and almost all the new supply of (potentially) circulating media is provided by the banking system (£70.9 million). During the initial decade of monetary Scarcity that followed the end of the war, the monetary system seeks to deleverage by converting part of the circulating bank liabilities back into specie. Between 1815 and 1825, £40.8 million of new coins were minted, but less than half of this is replacing bank liabilities, which are reduced by only £24.7 million. Just as the London banking system's gearing to cash never returned to its pre-Restriction levels, the broader monetary system also did not return to the *status quo ante*.

Exhibit 12.15 – British bank liabilities and Royal Mint output of new coin, 1780-1844

12.10 Monetizing war debt

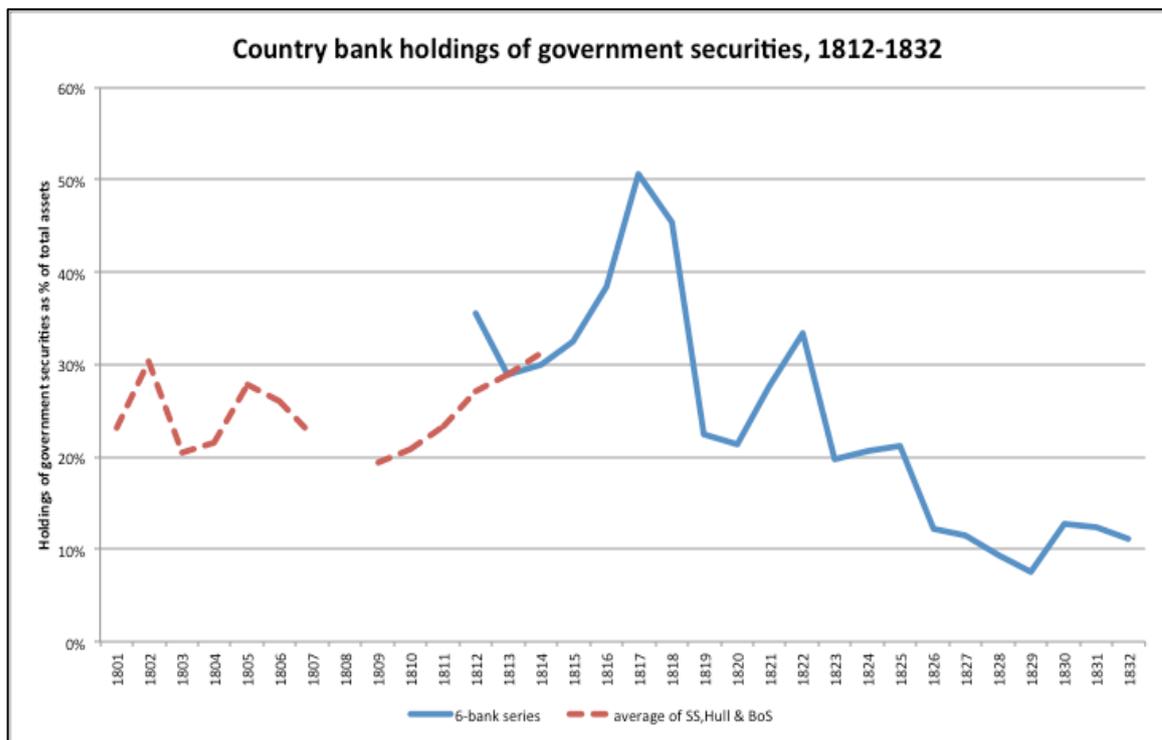
As a corollary of the analysis in this chapter, here I add a final word in regard to the controversy played out mainly in the 1980s and 1990s, and never fully resolved, as to whether the financing of the Napoleonic wars encouraged investment in the early part of the ‘industrial revolution’ or crowded out its financing. The debate concerned whether the debt taken on by Britain to pay for the expenditure on the wars against Napoleon had stimulated the changes associated with the Industrial Revolution by increasing demand for semi-manufactured goods, or if instead that borrowing had crowded out the financing needed for private sector fixed capital formation.

Many historians such as Fetter (1965) and Viner (1937) have pointed to the Bank’s accommodation of both government and private sector bills as contributing to Britain’s financing of the Napoleonic wars, but studies to date did not attempt to quantify this monetary transmission mechanism. Bordo and White (1993), in their comparative study of French and British financing of the Napoleonic Wars, separated out the Bank’s holding of

private securities from those of government securities, but did not use these as separate variables in their model, lamenting that “the unavailability of other than fragmentary data on London and country bank liabilities makes the case hard to test”. Like Cameron (1967), they were hampered by having to use estimates of national income interpolated over decade-long gaps. They found evidence of tax smoothing (a policy whose origins are attributed to Ricardo), but found no evidence of a significant contribution to war finance coming from the Bank’s monetary inflation, which would contradict Ricardo’s views in 1809. Gent (2016, LSE Working Paper, forthcoming) applies a more recent model of fiscal revealed preference (as developed by H. Bohn, 2008) to the same definition of monetary inflation, but using annual GDP data, and finds the same lack of support for monetized government financing. However, these studies do not investigate the detailed micro-economic evidence of indirect monetary financing from private sector bank balance sheets. Indeed, Bordo and White admit that their measure of monetary finance⁸⁰ is biased downwards because “they omit the private banking system, whose liabilities, according to Pressnell (1963) were at least as large as those of the Bank.” The evidence presented in this thesis suggests that private banking liabilities were not only larger than the Bank’s, but were both an important contributor to the elevated income velocity of specie and an important indirect source of monetary financing of government.

Throughout the Restriction period, Parliament retained a legislative commitment mechanism restricting the Bank of England from buying government debt with newly printed banknotes (Chapter 1). However, the Bank of England interprets the ban on making any “Loan or Advance, for or on Account of the Publick Service” (37 George III, Cap. XCI, para. II and III) as referring to funded long-term debt and not Exchequer Bills. Furthermore, in a continuing Act of 30th November 1797 the government eked out some wiggle room under the cap by allowing the Bank to lend against expected additional revenues from future new taxes “on the Credit of any Duties to be imposed by any Act ... for continuing the Duties on Malt, and for granting an Aid to His Majesty by a Land Tax”.

⁸⁰ They use what they call “seignorage revenue”, defined as the change in Banknotes, deflated by the average price level, as a percentage of the government’s expenditure deficit.

Exhibit 12.16 – Country bank holdings of government securities, 1812-1832

Source: The main series is constructed from the simple average percentage holding of the 6-bank series for which data exists for 1815-1832 with the first three years 1812-4 constructed by indexing to the 4-bank series. For the earlier period data can only be computed for Smith, Hull and the Bank of Scotland, and is shown for comparative purposes as it overlaps in the years 1812-3.

Computed over the whole Restriction period, this nineteenth century form of “quantitative easing” was indeed modest: I estimate the Bank bought 6% of the *additional* government debt (funded and unfunded) raised between 1797 and 1815 totalling £225 million in cash terms.⁸¹ However, almost all the net additional buying by the Bank was concentrated in the years 1810-1814. The records show that between 1785 and 1805 William Pitt the Younger, Chancellor of the Exchequer and Prime Minister, wrote 63 letters to the directors of the Bank, of which no less than 48 were requests for accommodation or support for new issues of unfunded debt, Exchequer Bills.⁸² In spite of this political pressure, during this early part of the Restriction the legislative constraint appears to have been effective, especially in

⁸¹Author’s calculations based on P. O’Brien unpublished numbers used in Heim & Mirowski (1987). In the past five years the Bank of England has bought over 30% of the outstanding government debt, similarly financed by the issuance of new high-powered money.

⁸² Bank of England archives, ref: M5/606

regard to direct lending (purchases of long-dated annuities, called Consols). A summary of direct lending prepared by the Bank for Parliament in March 1822 shows that, up until the famous additional £3 million loan granted in 1816, there was no such lending beyond the £986,800 of Exchequer Bills that had been cancelled in 1746. During the Restriction, up to 1816, the direct lending balance of £11,686,800 (outstanding since 1746) was broadly matched (i.e. was re-cycling) the operational balances kept at the Bank by the Exchequer and other public bodies that averaged £11,313,141⁸³.

However, after 1810 the Bank and the government appear to have interpreted the legislation as referring only to longer-term debt and not to short-dated government bills. While still expanding the circulation of its banknotes, the Bank switches to buying government securities instead of discounting private bills. In the following four years the Bank's balance expands by a further £5.8M, but holdings of government securities nearly double, growing by £13.5M; a £6.6M drop in private discounts compensates this. The government's annual borrowing requirement rose from a low of £1.3M in 1811 to £73.3M in 1814 if calculated in face value terms or, if calculated more appropriately in net cash terms it rose from £6.4M in 1810 to a peak of £25.7M in 1814.⁸⁴ I estimate the Bank bought 20% of the cumulative net new borrowing by the government of £69M during the four years after the Bullion Report (1810-14).

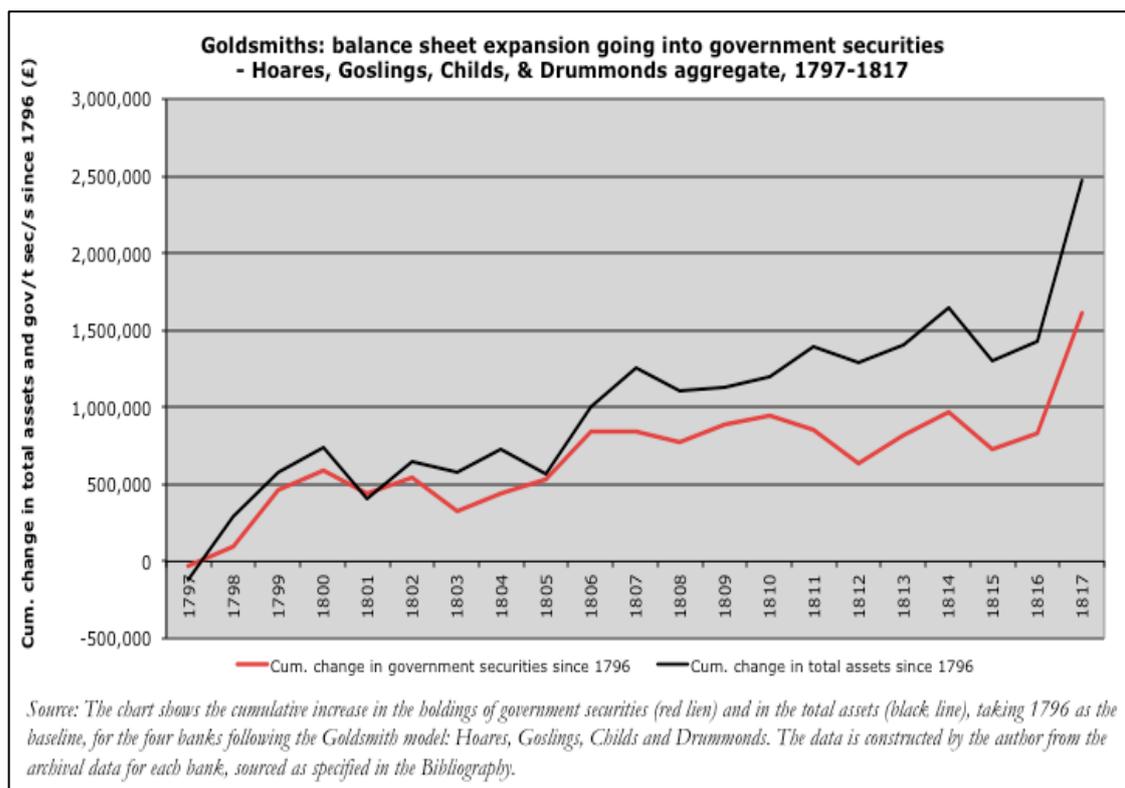
The analysis in this thesis reveals how the private banks were an important additional source of buying of government securities throughout the Restriction. The London Goldsmith banks placed the majority of their deposit growth into government securities and Country banks held some 20-30% of their assets in these securities in direct form (Exhibit 12.17), and indirectly enabled many of their London correspondents like Smith Payne and Coutts to place further sums this way using the excess liquidity deposited with them. The evidence presented in this thesis from London and Country balance sheets suggests that a considerable part of the monetary injection from the Bank was first channelled via the London banks to the Country banks where it was potentially available to satisfy local demands for credit, subject to the Country banker's assessment of the credit risk, before the excess – for there appears to have been an excess – was channelled back to London where it was made available for purchasing government securities. This well developed, fast-

⁸³ Bank of England archives, ref: 9A/35/1

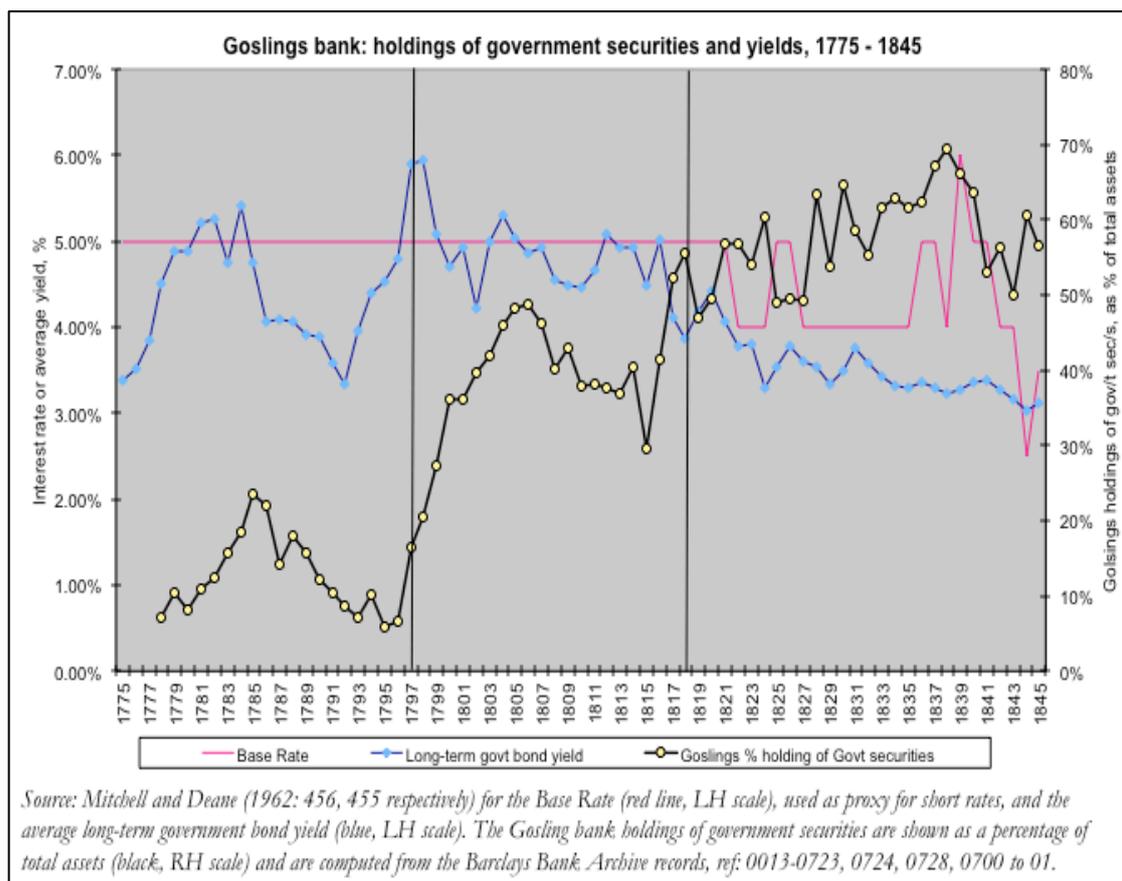
⁸⁴ Using P. O'Brien unpublished figures, reverse engineered from data quoted in Heim & Mirowski (1987)

flowing and inter-connected interbank network and its two-way Reflux allowed much of the government's borrowing requirements to be met indirectly by the increased banknote issuance and the raised gearing levels within the private banking system, without the full risks of the direct monetization of the government debt that had caused so many problems for the *assignat* in France.

Exhibit 12.17 – London Goldsmith banks: expansion invested in government securities, 1797 - 1817



The London Goldsmith banks are the poster children for the “crowding out” hypothesis. During the Restriction years from 1797 until 1810 the balance sheets of the Goldsmiths in our sample (Hoares, Goslings, Childs and Drummonds) increase by £1,195,449, of which £941,925 is accounted for by increased holdings of government securities. In other words, 79% of the Goldsmiths’ balance sheet growth up until 1810 flows into their holdings of government securities. By 1817, after twenty years of Restriction, *two-thirds of the £2.5M increase in their aggregate balance sheets has flowed into government securities* (Exhibit 12.17). This occurs mostly in three stages: in the first two years of the Restriction; in 1806; and in 1817, the year we observe the major reflux of deposits towards the safer London banks.

Exhibit 12.18– Goslings and Coutts: holdings of government securities, 1775 - 1845

The Goldsmith banks' concentration of asset growth into government securities is most vividly shown by Goslings' decision to shift the balance sheet into government risk exactly at the time of the Restriction, and appears to have been driven by commercial considerations, as there was no coincident succession issues. During the 1780s Goslings had briefly moved towards a Discounter business model, but following the death of Robert Gosling in 1792, Francis and William Gosling had almost completely reversed that strategic move (Chapter 4.5). When the Restriction was imposed, the Goslings again briefly flirted with increasing bill discounts in order to take advantage of the Bank of England's low-cost facility, but the balance sheet clearly shows how the partners once again turned their back on this activity after 1800. This time there is a stronger case for arguing that the decision reflected the risk-averse nature of the partners, since the capping of the bill discounting exposure occurred *in spite* of the renewed growth in deposits, *and* this time the partners did so without a compensating increase in their exposure to secured lending. Instead, they chose to invest the increased deposits entirely in government securities (Exhibit 12.18). With one exception, from 1800 these accounted for at least 36% of the assets, and at least half the assets from the end of the Restriction until 1845. From the eve of the Restriction to

1845, the Goslings' balance sheet balance grows nearly three fold or by £755,729; of that, £682,017 is invested in government securities rather than in bills or secured lending, with the residual accounting for an increase in the average balances held in cash or at the Bank of England. The bank bought well, holding little when yields were low in the late 1780s and accumulating after 1815 ahead of the post-war drop in yields. However, for the shareholders the Gosling balance sheet became a near-proxy for what today would be seen as a leveraged government bond fund. Not surprisingly, profits stagnated and the return on assets sank to less than 1% per annum.

Historians viewing Britain's monetary system solely through the prism of the better known Goldsmith business model could be induced to support the argument that the unprecedented borrowing spree by the British government up to the Battle of Waterloo had indeed been responsible for crowding out private borrowing, delaying the industrial revolution. However, as we have shown, careful consideration of a broader set of bank business models reveals a more nuanced picture of monetary expansion based on co-dependency between growth in short-term private credit and an expanded supply of traded government securities. The latter acted as a flexible buffer for the banking system to meet the demand, whenever it arose, to 'shift' quasi-monies (in the form of commercial paper) into high-powered money (specie) or the next best form of money, namely Bank of England notes that were ranked next highest for their capacity to extinguish liabilities.

The government were well aware of this indirect mechanism for funding the war debt during the Restriction – what Hilton (1977: 36) called the “Vansittart's system.” When in 1810 Parliament debated the Bullion report's recommendation to return to the gold standard, Spencer Perceval, the Prime Minister and Chancellor of the Exchequer said that adopting the recommendation was tantamount to allowing Britain to be invaded:

“[...] tantamount to a declaration that they would no longer continue those foreign exertions which they had hitherto considered indispensable to the security of the country ... [and become] the involuntary instruments of their country's ruin” (Hansard, 1811).

The government's dependency on this mechanism became one of the perceived obstacles to returning to convertibility after the war. In 1818, George Harrison, Secretary to the Treasury, reported to Nicholas Vansittart (1766-1851, later Lord Bexley), Chancellor of the

Exchequer (1812-1823) that a threatened reduction in such bill discounting by the Bank could cause the government's lead underwriter (Rothschild) to curtail the government's access to the bond market:

“Its effect upon our concerns and upon the Stocks [i.e. government bonds] may be very considerable – for such a proceeding would drive him [i.e. Rothschild] in all probability to become a Seller of his Stock ... and would inevitably affect the Funds more or less We could not with justice or propriety be pressing him to extend his accommodations to us, when the Bank refused to accommodate him by Discounts – as he would then be driven to become a Seller to a larger extent to enable him to meet our Wants.”⁸⁵

This “Vansittart system” had also transformed Britain's monetary system.

⁸⁵ Harrison to Vansittart, 1 Oct 1818, in Torrance (1968: 56-8) quoted in B. Hilton (1977:36).

CONCLUSION

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Over the past century, historians of economics led by the seminal work of Viner (1937) have been drawn to the monetary debates conducted during the British Restriction (1797-1818) in search for the scientific genesis of the policy debates of their respective times. They typically focused on a comparison of Ricardo with Thornton, rather than with the more antithetical views of Bosanquet expressed at the height of the private credit expansion. Their empirical corroboration has been based on Bank of England data and the number of Country banks. Historians of banking during the Restriction, led by the seminal work of Pressnell (1956) have studied Country banks, or banks in a particular city (e.g. Cave, 1899), or individual banking families (e.g. Leighton-Boyce, 1958), or the Bank of England (Clapham, 1970), or focused on an older London bank business model (Temin and Voth, 2013) that I have shown was no longer dominant. The latter scholars incorporate the concurrent theoretical debates only tangentially, and to date have omitted a comprehensive quantification of the financial records of the London banks. Finally, historians of banking as it relates to money have had to contend with the paucity of data and have struggled to build upon Cameron (1967).

In this thesis I have drawn from all three areas of research, together with recent work on strategy and business model cognition, and complemented these with a comprehensive firm-level examination of London (and Country) bank financial records in order to answer the following concatenated question:

How did the bifurcated response of political economists in the way they sought to adapt classical theories of money to the events they observed after the Restriction Act, compare to actual concurrent behaviour of the banking system when analysed with the benefit of hindsight?

In order to answer this question, the thesis has brought together the three strands of the academic literature, complementing them with novel contributions. These have identified two London bank business models; examined the differentiated behaviour and incentives acting upon them and Country banks; analysed the nature of the monetary flows within their correspondent banking relationships between London and Country banks; constructed quantified approximations of British aggregate bank liabilities, scaled to GDP; and

contrasted all these to the bifurcated competing hypotheses put forward by the political economists Ricardo and Bosanquet in 1810, at the height of the Bank of England's expansion in private sector credit and the related concerns over its monetary consequences expressed in the Bullion Report.

I find that, faced with bewildering and rapid changes to the institutional and economic environment, political economists bifurcated classical theory according to the outcome they sought, and both lobbies used 'models' of the monetary system that were only partially useful representations of how the concurrent banking system was actually functioning. The Bullionist lobby advocated for the Scarcity-of-base-money, and money's primary role as a store of value linked to a standard of real value; they embraced Smith's more realistic view of banker rationales, but their (early) 'modelling' misrepresented the role of bank credit, and underestimated the capacity for financial innovation and 'fringe' Country banks to raise gearing ratios and otherwise provide the fractional banking system with the ability to 'manufacture' the means of payment independently of the stock of base money. The Anti-Bullionist lobby advocated for the Abundance-of-broad-money, and money's primary role as a nominal unit of account acting as the means of exchange; they embraced financial innovation and the endogeneity of the supply of money, but their (early) modelling misrepresented banker rationales, and underestimated how the locus of systemic credit risk became both more concentrated and more volatile as the volume of credit-based money being netted through the *London Transfer and Set Off* clearing system grew (Couetts - Bank of Scotland case study).

In this sense, both lobbies underestimated the role of the new Discounter banks and the Country banks at the "fringes" of the monetary system, but they did so for different reasons: the Bullionist-Scarcity lobby underestimated their capacity to have an independent impact on the supply of broad money; the Anti-Bullionist-Abundance lobby underestimated their potential impact on systemic risk.

It was the period *after* the Ricardo-Bosanquet debate of 1809-10 that gradually revealed the *lacuna* in both theoretical approaches. After the Bank of England begins to cut back on its discounting of private sector bills (but not yet its Banknote circulation) in 1810, the inner core of London banks and stronger Country banks, linked together through deep correspondent banking relationships, increasingly reveal their capacity to operate their

balance sheets independently of the Bank. When the Bank begins to sharply deleverage its balance sheet in 1818-22, the concentrated locus of systemic credit risk is revealed as located in the outer 'fringes' of the Country bank system, leading many to collapse. However, the first of these factors appears to have been stronger than the second, thereby mitigating the decline in total bank liabilities relative to real GDP that would have ensued if the banking system had remained fully connected to the sharply deleveraging Bank balance sheet. Contrary to Ackworth (1925), without the 'new movement of credit' carried on by the private bankers, it seems likely that the deflationary adjustment required to return to the gold standard would have rendered the 'public outcry against austerity' overwhelming. Finally, it can be argued that the banking crisis of 1825-6 revealed the limits to this capacity of the banking system to independently expand the supply of broad money and prevent a decline in relation to nominal GDP.

Prior to the Restriction, political economists 'modelled' the economy in real terms and the cognitive framing of money was that of a real commodity, elevated to the *primus inter pares* status of means of exchange *and* store of value, because possessing the qualities of divisibility, durability, transportability - and linked to the system of economic exchange through relations of relative scarcity like all other commodities. Based on this textbook anthropology of money, classical theories employed a comparative statics methodology emphasising self-regulating private incentive mechanisms driven by arbitrage processes. In all but the short-run there was no money illusion and no Cantillon effects, and prices returned to their long-run 'natural' factor costs based on an exclusive mediating force: the "*vix mediatrix*" of the flow of specie (gold coin). There was no independent role for the banking system: the implicit assumption was that banks were passive intermediaries of real resources, what recent theory calls "loanable funds", from savers to producers.

These theories were ill suited to accommodate the impending longer-term structural changes to the balance sheet velocity of specie brought about by the Restriction. Theories anchored in the labour theory of value, combined with a monetary system operating with few banks and low gearing to the stock of gold coin, provided little encouragement for policy makers to explore the conceptual difference between intrinsic value and extrinsic value in exchange. In the middle of the eighteenth century this 'model' was a reasonable reductive stylization of a monetary system dominated by the Bank of England operating with a target asset gearing to bullion of just two; where its banknotes circulated only in

denominations of a value equivalent to over £500 today; in which few note-issuing Country banks existed outside Scotland; and where banks in London could not issue notes and most operated with the Goldsmith business model that emphasised medium-term lending secured on real assets, with low transaction frequency and low asset gearing, mirroring the cognitive framing of money and banks in the thinking of theorists. By the 1770s, the role of banknotes was recognised by theorists, more in Scotland than in England, but they were still ‘modelled’ as if they were mere temporary substitutes for specie during each production cycle. The existence of unregulated fractional banking was discussed, but not incorporated in the classical ‘model’ that implicitly assumed bank asset gearing to be stable. As a corollary, the long-run marginal rate of substitution of banknotes for specie was assumed to be zero and the marginal rate of substitution of goods for specie to be one.

Already by the 1780s this body of theory was being left behind by the innovations in financial instruments and the bank business models that had grown to support them. At the margin the Bank of England’s circulation was already less responsive to changes in the reserves of bullion, and London banks were already increasing their gearing to cash. Banks in London and the Country had doubled since 1750 and the newer entrants were adopting the Discounter business model involving the high frequency trading of short duration paper-based instruments. They were also learning to develop Heywood’s (1812) *London Transfer and Set Off* machinery: a high volume payments clearing system to support the correspondent banking services that linked London banks with the rapidly growing network of Country banks. By 1809, Bosanquet would describe the London money market clearing system as being able to clear 95% of the flows of paper-based quasi-monies - *each day* totalling sums equivalent to the balance sheets of four large banks - without the need to transfer any specie or Banknotes. The growing number of Country banks were ‘manufacturing’ liabilities by issuing their own banknotes, but evidence from the Old Bank, Bristol and Smith Payne, Nottingham suggests that until the Restriction banknotes accounted for no more than a fifth of total funding, even for older and well-established banks.

The Restriction removed the fixed and arbitragable parity between banknotes and gold coin, and, in doing so, it also separated the conceptual notion of extrinsic exchange value and that of intrinsic value indexed to the money standard. Suspension of convertibility of banknotes into specie exposed Smith’s distinction between the intrinsic value of the stock of bullion at

a single instant in time, and the cumulative extrinsic value in exchange over multiple time periods. The gap between the two notions, being the income velocity of specie as defined in this thesis, is built upon the banking system's balance sheet multiplier to the stock of high-powered money (specie), which this thesis has referred to as the bank balance sheet velocity of specie. This 'gap' gives the banking system a potentially independent role in the creation of the broad money supply, the latter being intended as the total extrinsic exchange value mediated by all forms of quasi-monies (banknotes, bills of exchange). This multiplier can expand or contract as banks alter either their asset-side gearing to the reserves of high-powered money, or the proportion of their liability-side funding coming from the issuance of banknotes. In other words, as Bosanquet described in his criticism of Ricardo's gold mine example, banks could potentially create additional supply of credit-based broad money. They could do so either by enhancing the operation of fractional banking (asset gearing) or by 'manufacturing' additional bank liabilities that the 'community' accept to use as a means of payment.

During the Restriction banks did both. The extent to which they did so depended on the Goldsmith's tolerance for incremental liquidity risk and the Discounter's tolerance for incremental credit risk. The Goldsmith bank had a lesser interest rate incentive to use the Bank's expanded discount window, and to do so would have required becoming more involved in an activity for which they had little taste or informational capacity, so they recycled most of the growth in deposits into government securities. By contrast, the Discounter bank had a material incentive, from the (gross) interest margin, to use the Bank's discount window as a source of off-balance sheet leverage for its core activity. However, because the Bank of England would only discount the best quality private sector bills and notes, the Discounters became the vulnerable leading edge of the expansion in the money supply, and some (Prescotts) but not all (Barclays) suffered after the Bank changed strategy.

The Restriction of 1797 led to a credit boom financed by the printing of banknotes by the Bank of England and the Country banks, and the increased gearing of London Discounters. By the time the decision was taken to return to the gold standard in 1818, the stock of Banknotes was two-and-half times greater relative to real GDP than it had been in the years between Adam Smith *Wealth of Nations* (1772) and the start of the Restriction. I estimate that by 1818 the aggregate balance sheet of the London banks had almost doubled with no

change in the stock of specie. In the first fifteen years of the Restriction up to 1811 the Bank of England balance sheet and circulation grew three times faster than previously and three times faster than real GDP; the Bank's monetary injection through the medium of its discounting of private sector commercial paper is equivalent to adding the balance sheet of twenty large banks to the seventy that actually existed in London. The aggregate bank balance sheet of the existing London banks kept pace with the growth of the Bank: with Discounters mostly growing faster than Goldsmiths as they alone made extensive use of the Bank's rapidly expanding discount window, a form of profitable off-balance sheet funding which came to account for as much as 12% of total liabilities. This in turn enabled Discounters to safely increase their gearing to cash reserves from 3.5x to 6x.

In the Country the number of banks tripled and operated with reserves of specie and Bank of England notes that were typically as low as 4-5%. Specie plays a very minor role (less than 1%) in the cash management of Country banks, and makes almost no part of the inter-bank payments flows. Well-established Country banks like the Old Bank, Bristol and Smith Ellison, Lincoln rapidly "pushed out" their notes until they accounted for 40-50% of total funding, incentivized by pure rent-seeking goals; adventurous newer banks like Barnard & Co, Bedford pushed this up to 75% of total liabilities, albeit when pursuing a very conservative asset policy. The exceptions were Lancashire and Scotland. The Lancashire banks did not issue their own notes and so grew their balance sheets in line with deposits, making their experience similar to that of the Goldsmiths in London. In Scotland, having "pushed out" more banknotes in the decade prior to the Restriction, and harder hit by the recession following the peace at Amiens in 1802, the joint-stock banks allowed note issue to slowly decline; however, increased asset gearing allowed private sector lending to eventually recover at the end of the Restriction years. Furthermore, some Country banks did not increase their lending apace with the growth in funding, and recycled the increase back to their respective London correspondent and invested in government securities.

By the time Parliament convened the Bullion Committee in 1809, the trend rate of inflation had tripled and every third year it was exceeding (often by substantial amounts) the reference rate on lending capped at 5% by the usury laws; the pound was trading at a discount to its 1717 parity to gold bullion and had suffered two bouts of devaluation on the foreign exchanges in Hamburg; and the government debt had doubled again. These unusual economic symptoms, produced by a mix of the expansion in credit and the challenges of

the Napoleonic Wars, brought out into the open the growing discrepancies between monetary theory and practice. These discrepancies acted as a catalyst for political economists to rethink classical theory and adapt the tenets of Hume and Smith to a monetary system that after eighty years was no longer anchored to gold.

Political economists struggled to respond to three inter-related areas affected by the changes in the rules of the game: the effects of innovation in financial instruments and practices; the role of credit and the “fringe” of Country banks; and the rationales driving banker actions. Whether any one political economist joined the Bullionist-Scarcity lobby or the Anti-Bullionist-Abundance lobby depended on the outcome he favoured – respectively, constancy in the real value of money or flexibility in the supply of the medium of exchange. This in turn influenced which parts of this classic theory he chose to keep and which parts he chose to reject or adapt to the new conditions imposed by the Restriction.

Ricardo’s Bullionist-Scarcity position favoured the *ancien regime* with a standard of money having a stable parity to real goods, and so continued to ‘model’ the monetary system with a cognitive frame of specie being the only true money and (therefore) the only “*vix mediatrix*”. This deductive cognitive framing of money resembled that revealed by bankers following the Goldsmith business model and spurning the discounting of bills as a fundamentally unsound business, as Richard Hoare and the Gosling brothers did. Consequently Ricardo rejected the Real Bills Doctrine as an inadequate constraint on any endogenous supply of paper money, and instead relied on the Price-Specie-Flow hypothesis, extended to domestic inter-regional trade by the addition of the Stable Fringe Velocity assumption. This ‘modelled’ Country bank balance sheets as being closely correlated to that of the Bank of England. As a corollary, Ricardo saw the price premium of bullion and the devaluation of the pound in Hamburg as *prima facie* evidence of the excess supply of Bank of England notes.

By contrast, Bosanquet’s Anti-Bullionist-Abundance position rejected the Price-Specie-Flow as unrepresentative of the wartime impediments caused by Napoleon’s continental blockades, and the Stable Fringe Velocity hypotheses as “metaphysical”. Instead he relied on the private incentive mechanisms of the Real Bills Doctrine to regulate the supply of money to its demand, enhanced by the Law of (macro) Reflux. He correctly recognised that incremental paper money comes into existence, not like a new gold mine (as Ricardo had

compared it to), but with the simultaneous creation of a liability having on-going costs that – in theory - encouraged its prompt redemption at the end of the production cycle. Bosanquet applied a cognitive framing of money as being a nominal unit of account of debt that was consistent with the more inductive thinking revealed by bankers following the newer Discounter business model at the fringes of the core banking system of the 1750s. The Law of Reflux ensured that while these quasi-monies circulated, the money markets would convey any excess supply of one such money-form to where it could be extinguished by an agent having a matching liability (e.g. a tax liability) or where it could be purchased by an agent holding surplus quantity of a higher quality money-form (e.g. Bank notes) that he was looking to invest in a lower-quality, higher-yielding money-form (e.g. bills of exchange). For Bosanquet, endogenous money creation by the banking system could be allowed to self-regulate, not only because the rationales and incentives of bankers would ensure that only ‘real bills’ for ‘real transactions’ would be discounted, but also because the *London Transfer and Set Off* market for quasi-monies ensured the “shiftability” of all the quasi-monies: it enabled the daily rebalancing of both the supply and demand for each form of this quasi-money, as well as between the aggregate stock of quasi-monies and that of high-powered money (specie).

During the years up to 1810, when the Bank of England is predominantly buying private sector commercial paper, the empirical evidence supports the Ricardo-Bullionist position for the *de facto* presence of a Stable Fringe Velocity at the aggregate level of the monetary system, but paradoxically it appears to have stopped working just at the time when the Bullionist views that relied on that hypothesis were finally implemented after 1818. The monetary system already begins to work differently once the Bank switches to buying government securities after 1810, but a clear change occurs when the Bank begins to shrink its balance sheet after 1817. After 1817 the balance sheets of the inner core of London banks and the stronger Country banks continue to move in unison with one another, but are now negatively correlated to that of the Bank.

By the time Ricardo and Bosanquet were putting pen to paper in 1809, the Law of Reflux was already well established; and the stronger and better-managed banks forming the backbone of the correspondent banking system - a fast flowing river linking the different regional Smithian ponds of money – was operating so as to connect Country banks to Bosanquet’s *London Transfer and Set Off*. An analysis “from both ends of the pipe” of the

daily flows between them and their London correspondent (Smith, Derby with Smith & Payne, London; and the Bank of Scotland with Coutts, London) reveals how these flows were very large relative to the size of balance sheets, and made up almost exclusively of bills, settled via offsetting accounting entries, carefully monitored by both banks on a daily basis along the lines of a modern reconciliation function. The analysis provides strong evidence that specie, and even Bank of England banknotes were a small component of the very substantial inter-bank payments system, and that the large expansion in other quasi-monies (country banknotes, bills of exchange, drafts and notes) was supported by powerful offset mechanisms embedded in the correspondent banking relationships between London and Country banks. These offset mechanisms allowed the monetary system to operate with high rates of turnover of these quasi-monies, with final net settlements requiring only small stocks of specie and Banknotes (high-powered money), as postulated by Bosanquet. At the time of the Bullion Committee, every month Smith, Derby was sending to London bills for a value equivalent to one-third of its net balance sheet, and receiving approximately the same back from London. Consistent with the analysis of the maturity profile of BHHB's stock of bills in London, the Smith bank in Derby was turning over the equivalent of its entire balance sheet more than once every month. Similarly, an average balance of £16,079 with its London correspondent SPS is supporting an annual two-way turnover of bills of over £360,000. The turnover of the Bank of Scotland's balance at Coutts was much higher still. These flows included almost no specie except on very rare occasions, mostly associated with extreme crisis events. The flows contain a small amount of Banknotes, consistent with the Ricardo's hypothesis, but these regularly travel in both directions, and the Derby Bank's stock of such notes is turning over 25 to 50 times per year, which is rather more consistent with Bosanquet's Law of Reflux.

It was not yet visible to Bullionist commentators like Ricardo in 1809, but the banking system had already constructed the instruments and processes to support the capacity to respond endogenously. It was not yet visible because Country banks were managing their liquidity such that the gearing ratio was relatively stable both when measured in terms of the sum of specie and Bank of England banknotes, but also when measured in terms of specie, banknotes plus their balance with the London correspondent. They targeted a stable reserve ratio (4% to 5%) to total assets defined as the sum of specie and Bank of England notes, as suggested by Ricardo's Stable Fringe Velocity. However, as intimated by Pressnell (1956) there is equal evidence that Country banks also managed their liquidity risk in function of

specie and Bank notes *plus* the net balance on their *nostro* account at their London correspondent, targeting a ratio to total liabilities of 11 – 16% during the Restriction and 13 – 22% thereafter. In effect the stronger Country banks had incorporated Bosanquet's *London Transfer and Set Off* into how they managed their liquidity risk.

When the Bank of England changed course after 1810, and more so after the war and when it began preparing to return to the gold standard, the impact of this restrictive policy was felt almost entirely by the weakest Country banks, which failed in large numbers, but the core backbone of the banking system was able to continue growing its balance sheet to compensate. The British economy had *financialised* and the income-velocity of specie had acquired a partially independent life.

While the *London Transfer and Set Off* was visible to Bosanquet and Heywood, what was not visible to the Anti-Bullionist/Abundance lobby was how that inverted pyramid of offsetting notional claims had rendered the locus of credit risk more volatile and unpredictable within the banking system (Chapter 6). When the deleveraging cycle began after 1815, this proved fatal for the Country banks at the outer fringes of the banking system that had not capitalised profits during the good years and/or had weaker correspondent relationships with the London banks.

If the Law of Reflux was doing important work maintaining a balance between the supply and demand for quasi-money, by contrast the incentives implied by the Real Bills Doctrine were working less well in keeping a balance between the supply of all monies and its demand stemming from 'genuine' real projects. The aggregate bank balance sheets were growing three times faster than real GDP which has been shown to be a good lead indicator of 'credit booms gone bust', especially for countries not on the gold standard (Schularick & Taylor, 2011). For many of the Discounters benefitting from greater asset turnover, and for Country banks collecting 'free' rents from their increased note issuance, the improvement of gross margins did not translate into higher net profit margins due to increased operating costs and worsening write-offs that exceeded the bankers' expectations (as proxied by their loan loss reserves). The evidence from Old Bank, Bristol suggests only a weak relationship – as the Real Bills Doctrine would lead us to expect - between write-offs and the issuance of notes, and the relationship becomes even weaker during the Restriction. Instead, behaviour

was dominated by the quantum shift in the proportion of liabilities funded by note issuance brought about by the suspension of the convertibility requirement.

Soon after the Bullion Report the Bank veers away from the discounting of commercial paper towards the direct financing of the government's unfunded (short-term) debt, and the growth in the fringe sector of Country banks stops and then begins to reverse. The behaviour of the monetary system changes such that by the time the decision is taken to return to the gold standard in 1818, the London banks have acquired the capacity to partly compensate for the Bank's sharp reduction in the supply of high-powered money. The expansion in the broad money supply during the Restriction, and its partial resistance to the contraction in high-powered money after the Restriction, raises questions for political economists of the Scarcity lobby who emphasised a supply-driven money hypothesis. Equally, the behaviour of Old Bank, Bristol raises questions for political economists of the Abundance lobby who emphasised a self-regulating demand-driven money.

Both the Bullionist-Scarcity lobby and the Anti-Bullionist-Abundance lobby typically underplay the full potential of such endogenous money creation within the banking system – but they do so for different reasons. The Scarcity lobby underplay the capacity of the economy to endogenously expand the supply of money through the creation of new forms of money and/or an expansion of lending via an increased number of a fringe banking institutions and/or a willingness of the banking system to tolerate lower reserve ratios. This lobby denies the ability of 'fringe banking' to respond to a range of endogenous economic and psychological incentives, and hence its capacity to operate with at least partial independence from rules set in relation to a fixed standard of value. In contrast, the Abundance lobby begins by acknowledging that such endogenous money creation by the 'fringe banking' sector exists, but believe that this money creation is self-regulating so as to match the demand for money coming from the real economy. The adherents to the Abundance lobby underplay the reflexive nature of the endogenous mechanisms that are present within the financial sector in practice, and hence the potential for a 'fringe banking' activity to de-stabilize the real economy. *Both* lobbies made the mistake of assuming that *ex post* cash flows at the level of the aggregate economy are always at least equal to *ex ante* expected cash flows.

The growth in the number of Country banks and their balance sheets was truly a 30-year-long explosion in “fringe banking”. The boom period is characterized by a multiplying of smaller companies offering a diverse set of lending and financial services at the periphery of the core banking system. The core banking system in 1770 was constituted of long-standing larger banks (in London) operating established business models (the Goldsmith), practices (no bill discounting) and products (secured term lending) within a more regulated arena (issuance of banknotes not permitted to all banks). By contrast, the smaller “fringe” banking companies typically operated newer and more experimental business models (various forms of London Discounter plus the Country banks) at the periphery of the more regulated arena (in this case, literally outside the 65-mile London perimeter where the issuance of banknotes was permitted) and are early adopters of new practices (using Bank of England banknotes as reserves in lieu of specie) and products (issuing their own banknotes and, after 1797, for denominations under £5). The expansion in the numbers and balance sheets of the “fringe banks” is a secondary effect of, and dependent upon a prolonged expansion in lending (the Bank of England’s discounting of bills) and the access via the core London banks to the growing liquidity of quasi-money paper instruments, including government securities. This growth in the “fringe” balance sheets in response to lower perceived liquidity risk *premia* is funded by the banking system manufacturing quasi-money. This quasi-money has a contingent shelf life, being matched one-for-one to a liability. As this lending expands faster than nominal GDP, eventually the boom turns to bust. The banking system as a whole is obliged to search out greater stocks of central bank money that counts as reserves – for only repayment using such money can extinguish the previously issued quasi-money. As the “fringe banking” sector has less ready access to such central bank money compared to the core banks, it shrinks faster. In fact, the core banks experienced a counter-cyclical expansion in their deposits as flows cascade back towards the perceived safety of the core – recently termed the “Systematically Important Financial Institutions”.

In summary, with the benefit of hindsight, the Restriction provided monetary theorists with a condensed lesson as to why money is a nominal unit of debt that can be ‘manufactured’ endogenously to the limits of what a given Fisher ‘community’ is willing to accept, reinforced by explicit public declarations of that joint commitment, as it was in London, Lincoln and Bristol. The capacity of the banking system to endogenously manufacture credit-based money makes the broad money supply always capable of escaping the supply-side control of the executive entity acting upon either the quantity or the price of high-

powered money. Equally, money created as the *alter ego* of a debt is always vulnerable to the failure of agent expectations beset by radical uncertainty over future state of affairs, which make the supply of money vulnerable to the failure of today's cash flows both to match the expectations of prior lenders and satisfy the demand for new credit from today's borrowers.

Epilogue

John Turner (2014: Chpt. 3 and pp. 67-71) has recently argued that the financial crisis that bears the greatest similarity to the crisis of 2008 is the *dénouement* of the Restriction experiment in the shape of the 1825-6 banking crisis. During the past forty years British banking has experienced a long period of progressive regulatory liberalization, accompanied by a significant expansion in the provision of credit and the 'fringe' banking institutions that provided it. This was followed by an economic contraction at the start of the century, and finally an unprecedented financial and banking crisis in 2008. To this author, this pattern of events appears similar in kind to the years after 1780, with the Restriction Act of 1797 having the role akin to the 1986 Financial Services Act (known colloquially as "Big Bang")⁸⁶ as the accelerant of banking and credit expansion, and as a catalyst to Panglossian wishful thinking in monetary policy formulation.

Since the 2008 crisis, this author has been aware of various expressions of regret by senior policy makers in respect of how their conceptual and theoretical understanding during the years of credit boom had not adequately matched the true operation of the banking and monetary system. Sir Mervyn King, Governor of the Bank of England, speaking about the 2008 crisis in his BBC Today Lecture of 2012, stated: "With the benefit of hindsight, ... we should have preached that the lessons of history were being forgotten" (King, 2012). Adair Turner, former head of the British Financial Services Authority admitted in a recent interview: "I'd never believed in the efficient market hypothesis or the rational expectations hypothesis. But I'd forgotten that banks create credit, money and purchasing power and that they can create too much" (Turner, 2016). In the USA, Alan Greenspan, Chairman of the Federal Reserve, 1987-2006 stated: "I made a mistake in presuming that the self-interests of organizations, specifically banks and others, were such as that they were best capable of protecting their own shareholders and their equity in the firms [...]. You know,

⁸⁶ Although we have not been to war in Europe, wars in Iraq, Kosovo, Afghanistan and again Iraq have regularly impacted government expenditure, and total public and private sector debt has seen similar expansion relative to GDP.

that's precisely the reason I was shocked, because I have been going for 40 years or more with very considerable evidence that it [free market theory] was working exceptionally well" (Radia, 2011).

The thesis has explored 'the lessons of history' provided by the British Restriction on how policy-makers seeking the Scarcity of money as a store of value forget that 'banks can create money'; and those seeking the Abundance of money as a means of exchange forget that the 'self-interests of banks are not sufficient to protect their firms' nor the wider monetary system. In order for the British Restriction period to offer up such 'lessons of history', this work has used the benefit of the historian's hindsight to juxtapose the contemporary monetary theorising of 1810 with the concurrent changing behaviour of the banking system viewed through the lens of a comprehensive quantification of bank financial records. It has shown how the Restriction provides fertile ground for exploring policy-setting mistakes that have been repeated since, whereby the operative framework of financial institutions is viewed by policy-makers as that contained solely within the known, historically-defined, more easily measured, and 'regulated' arena. In turn, this arena is often permitted for too long to determine the theoretical sphere: too little attention is paid to the impact of financial innovation at the 'fringes' of the monetary system, and the evolving nature of the institutions, instruments, processes and practices operating just outside that better known and understood arena.

APPENDICES

Appendix A – Summary of archival records of London banks

London private banks, 1770-1832						
name	on Pigot & Co 1814 list	period covered by all records	any balance sheet records?	period actually available, when inspected	collected	
<u>Founded before 1797</u>						
1 Martin's Bank (Stone)	yes	1563-	no			
2 Goslings Sharpe	yes	1650-	yes	1770-1871	yes	
3 Child & Co	yes	1660-	yes	1685-1926	yes	
4 Hoares & Co	yes	1672-	yes	1770-1840	yes	
5 Willis Percival	yes	1677-	yes	1806, 1819, 1838	yes	
6 Hankeys & Co	yes	1685-	no			
7 Barclays Bevan Tritton	yes	1690-	yes	1772-1879	yes	
8 Coutts & Co	yes	1692-	yes	1761-1920	yes	
9 Drummond & Co	yes	1712-	yes	1788-1884	yes	
10 Bland Barnett Hoare	yes	1728-	yes	1798-1874	yes	
11 W & G Nightingale		1730-	no			
12 Fuller Barbury Nix	yes	1737-	no			
13 Glyn Mills	yes	1753-	no			
14 Boldero Lushington (Carter)		1754-	no			
15 Cocks Biddulph	yes	1757-	yes	1786-1798	yes	
16 Cox & Co		1758-	no			
17 Dimsdale Fowler Barnard		1759-	yes	1777-1791	n/ap	
18 Morris Prevost		1765-	no			
19 Prescott's Bank (Grote)	yes	1766-	yes	1780-1864	yes	
20 Stevenson Salt & Sons	yes	1766-	no			
21 Dorrien Magens	yes	1770-	yes	1820, 1824-7	n/ap	
22 Herries Farquhar	yes	1770-	yes	1799-1849	yes	
23 Hanbury Lloyd (Taylor)	yes	1771-	no			
24 Ladbroke & Co	yes	1771-	no			
25 Williams Deacon (Moffatt Drury)	yes	1771-	no			
26 Sir John Lubbock & co		1772-	no			
27 Call Marten		1773-	no			
28 Curries & Co	yes	1773-	yes	only 1786-1789	yes	
29 Pole Thornton Free Down Scott	yes	1773-	no			
30 Stilwell & Sons (Sikes)	yes	1774-	yes	1922		
31 Kingstons Styan Adams		1775-1812	no			
32 Smith, Payne & Smith		1777-	yes	1797-8, 1812-24, 1829	yes	
33 Bosanquet Salt		1780-	no			
34 Hammersley Greenwood	yes	1780-	no			
35 Jones Lloyd	yes	1784-	no			
36 Ranson Bouviere (Morland Kinnaird)	yes	1786-	yes	1790-6, 1810-20	yes	
37 Lockharts Maxtone Wallis Paterson		1787-	no			
38 Sapte Muspratt Banbury Nix (Fuller)		1787-	no			
39 G. Sandemann & Sons		1790-	yes	1799-1806	n/ap	
40 Robarts Curtis	yes	1791-	no			
41 Marsh Stracey Fauntleroy Graham	yes	1792-	no			
42 Davison Noel Templer Middleton	yes	1792-1816	no			
43 Young & Sons (Weston Pinhorn)	yes	1795-	no			
44 Hartsinck Hutchinson Playfair		1796-	no			
<u>Founded after 1797</u>						
45 Heywood Kennard (Denison)	yes	1800-	no			
46 Spooner Attwood	yes	1801-	no			
47 Praeds & Co	yes	1802-	yes	1802-09	n/ap	
48 Woodhead & Co		1804-	no			
49 Holt & co	yes	1809-	no			
50 Lacy Hartland Woodbridge		1809-	yes	1873 only	n/ap	
51 Bouviere Murdoch		1813-	no			
52 Brown Janson		1813-	no			
53 Goshens Cunliffe	n/ap	1814-	no			
54 Brooks & Co	n/ap	1815-	no			
55 Henry S King & Co	n/ap	1816-	no			
56 Twining & Co	n/ap	1824	no			
57 Sir Samuel Scott	n/ap	1824-	no			
58 Hill & Son	n/ap	1825-	no			
59 Chasemore Robinson & Sons	n/ap	1838-	no			
60 Sir Charles McGrigor & Co	n/ap	1840-	no			
61 Robert Davies & Co	n/ap	1841-	no			
62 Birkbeck Bank	n/ap	1851-	no			
63 Erlangers Ltd	n/ap	1859-	no			
64 Robarts Lubbock	n/ap	1860-	no			
65 Barnetts Hoares Hanbury Lloyd	n/ap	1864-	no			
66 Frederick Burt	n/ap	1872-	no			

Source: *Orbell and Turton (2001)*.

Appendix B (4) – Archival data collected and contribution: Country banks

COUNTRY BANKS data			
Number of data points			
		collected by author	previously collected by other scholars by whom
Bank of Scotland		1109	
Old Bank Bristol		944	
Locke Tugwell Meek, Devizes		229	
Stephens Harris Stephens, Reading		665	
Smith group	Nottingham		195 }
	Lincoln	543	165 }
	Derby	513	117 } Leighton-Boyce, J.A.S.L. (1958)
	Hull		165 }
	London	106	52 }
Barnard & Co, Bedford			509 Pressnell, L.S. (1956)
Leyland Bullins, Liverpool			454 Pressnell, L.S. (1956)
Heywood & Sons, Liverpool		161	
William Jones Hughes, Chester		208	
	<i>sub-totals</i>	4,478	1,657
	<i>total data points</i>		6,135

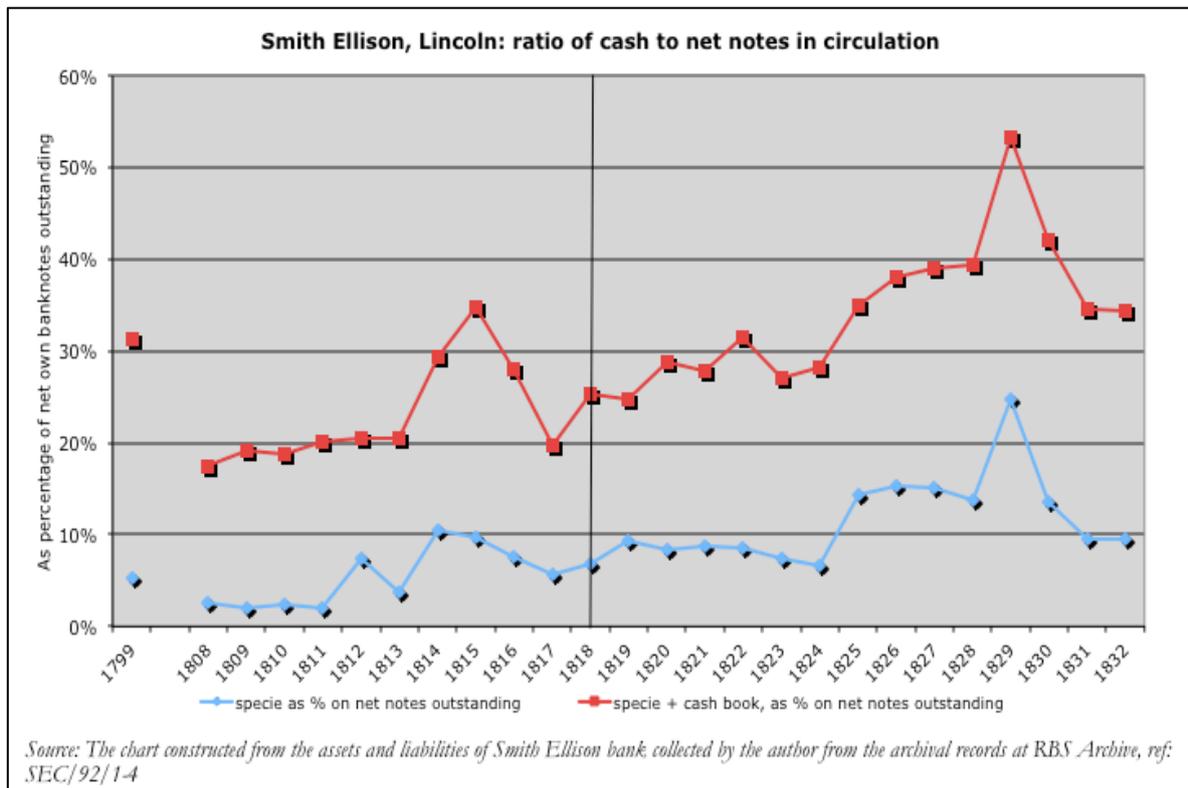
Appendix C – Smith group banks: lending to non-group entities

	total lending to non-group entities						
	SPS London tot lending	SPS Nottingham* tot lending	SEB Lincoln tot lending	SS Hull* tot lending		SS Derby tot lending	
	"Private ledger" + "Discounts"	"Advances"	"Debtors in ledger" + Borrowers secured on Bonds & Notes	"Advances"	Bill & Note a/c	total Hull	"Bonds & Notes" + Debtors in General Ldgr & Private Idgr + SPS nostro a/c + SS notes paid in Ldn
1795		58,139					
1796		46,136					
1797	609,924	36,531					
1798	765,319	39,592					
1799							
1800							
1801							
1802				52,643	43,618	96,261	
1803				119,140	57,019	176,159	
1804				111,513	43,990	155,503	
1805				63,199	45,496	108,695	
1806				92,431	35,280	127,711	24,567
1807				96,428	28,600	125,028	36,529
1808		83,639	147,180	68,788	52,558	121,346	45,722
1809			144,478	103,871	12,148	116,019	79,310
1810			144,393	112,960	24,778	137,738	121,909
1811			198,200	98,224	16,909	115,133	131,709
1812			173,511	46,493	17,440	63,933	139,617
1813	1,070,393		224,628	71,446	39,570	111,016	133,774
1814	1,071,571		162,443	45,630	51,580	97,210	134,560
1815			132,554	38,756	57,819	96,575	120,390
1816	1,282,449		125,101				89,226
1817	1,472,314		145,788				50,603
1818			119,127				57,252
1819			152,192				94,045
1820	1,588,100		142,573				94,803
1821	1,537,016		123,439				77,980
1822	1,926,992		109,253				73,167
1823	1,714,986		153,859				76,955
1824	1,821,503		183,817				92,045
1825			225,746				129,847
1826			267,956				85,635
1827			226,756				68,683
1828			237,872	31,734	0		88,917
1829	1,469,517		252,031				65,764
1830			218,365				66,397
1831			203,765				74,943
1832			238,957				77,959

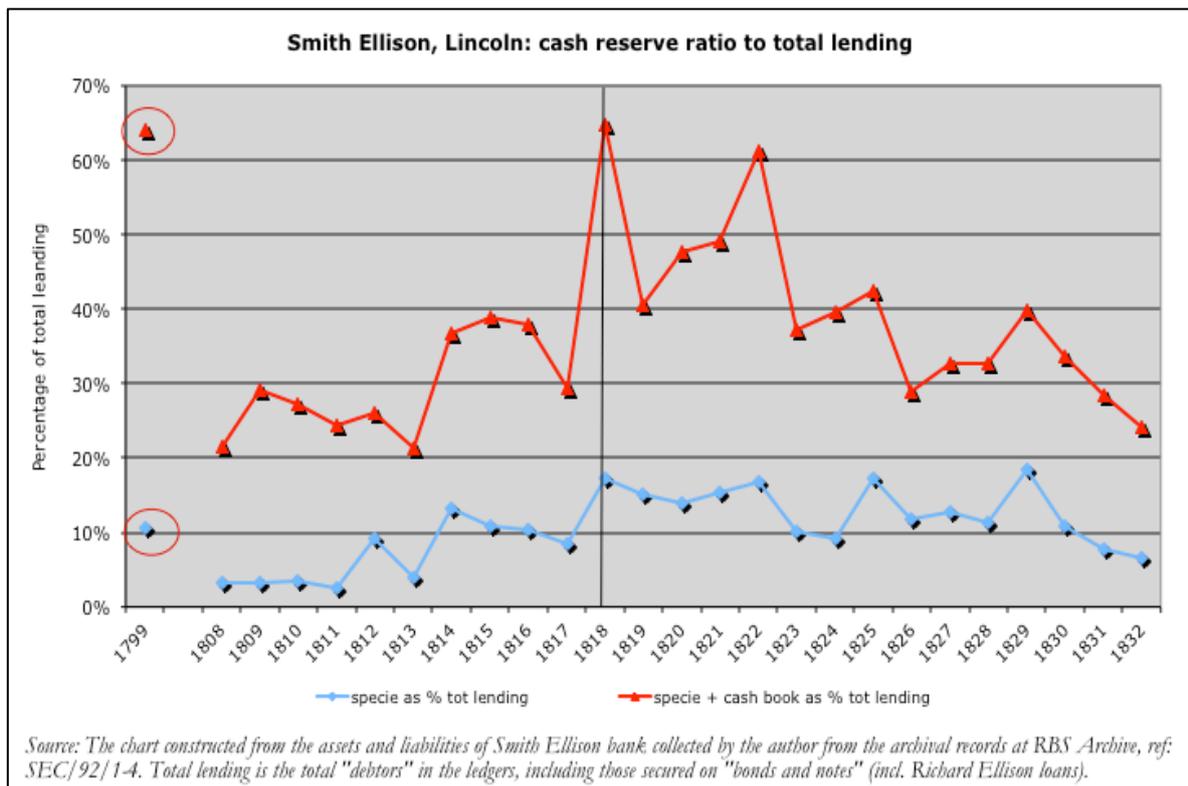
Appendix E – Smith group banks: notes outstanding as % of total balance sheet

founded in:	notes outstanding, as % bal sh				
	SPS London 1758	SPS Nottingham* 1658	SEB Lincoln 1775	SS Hull* 1784	SS Derby 1806
		gross notes	notes net of holdings in own chest	gross notes	notes net of holdings in own chest
1780			2.6%		
1781					
1782					
1783					
1784					
1785					
1786			5.5%		
1787					
1788			7.8%		
1789					
1790			10.2%		
1791			9.2%		
1792			13.0%		
1793			13.9%		
1794			14.3%		
1795			17.8%		
1796			19.2%		
1797			26.7%		
1798			32.3%		
1799				44.0%	
1800					
1801					
1802				36.2%	
1803				26.2%	
1804				34.9%	
1805				22.1%	
1806				18.8%	26.4%
1807				16.6%	23.5%
1808		22.4%	52.6%	16.0%	
1809			53.3%		30.5%
1810			52.7%	11.8%	
1811			53.7%	11.6%	
1812			49.7%	10.5%	
1813			54.9%	14.6%	
1814			50.5%	12.6%	
1815			45.2%	11.0%	
1816			46.4%		44.4%
1817			39.4%		37.2%
1818			42.9%		40.5%
1819			41.9%		45.4%
1820			42.2%		49.5%
1821			41.4%		45.6%
1822			38.0%		36.8%
1823			37.1%		36.6%
1824			35.8%		37.6%
1825			35.7%		31.9%
1826			38.8%		36.6%
1827			37.2%		34.3%
1828			38.0%	11.1%	28.2%
1829			40.5%		21.1%
1830			30.9%		18.9%
1831			34.4%		21.7%
1832			33.2%		18.9%

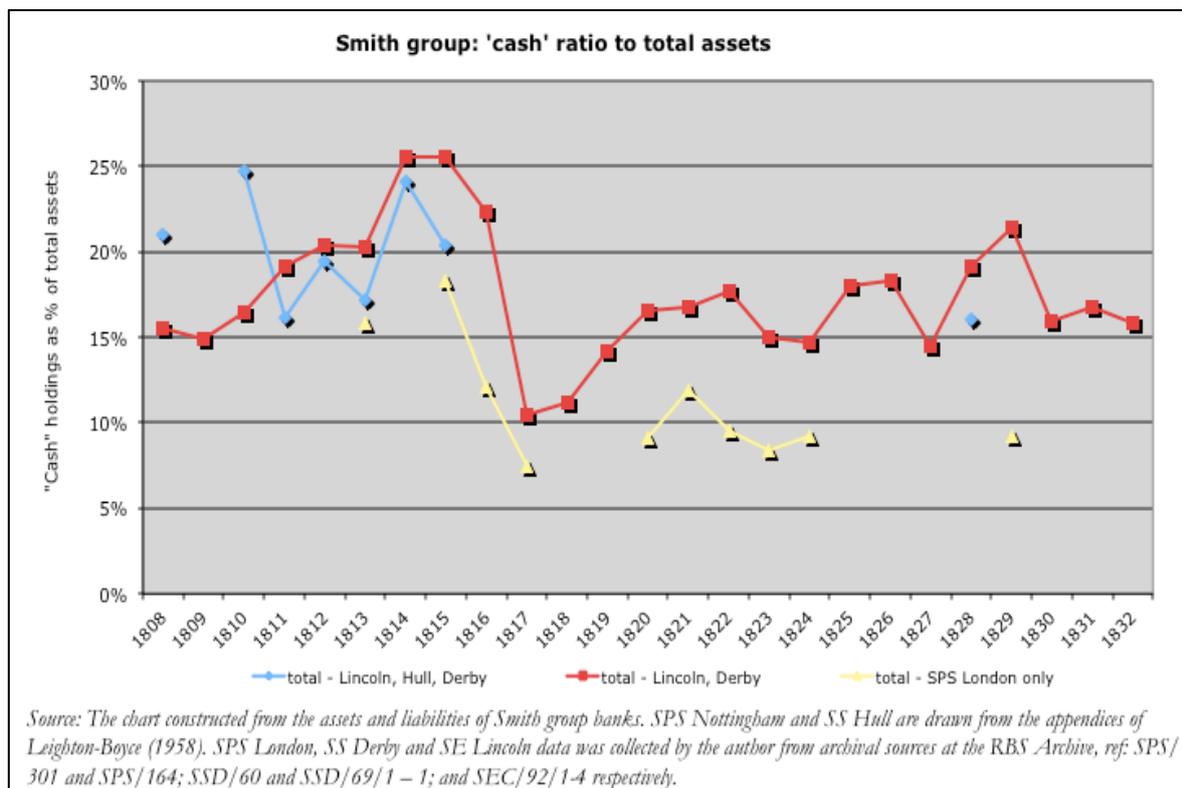
Appendix F – Lincoln bank: cash reserves and note issuance



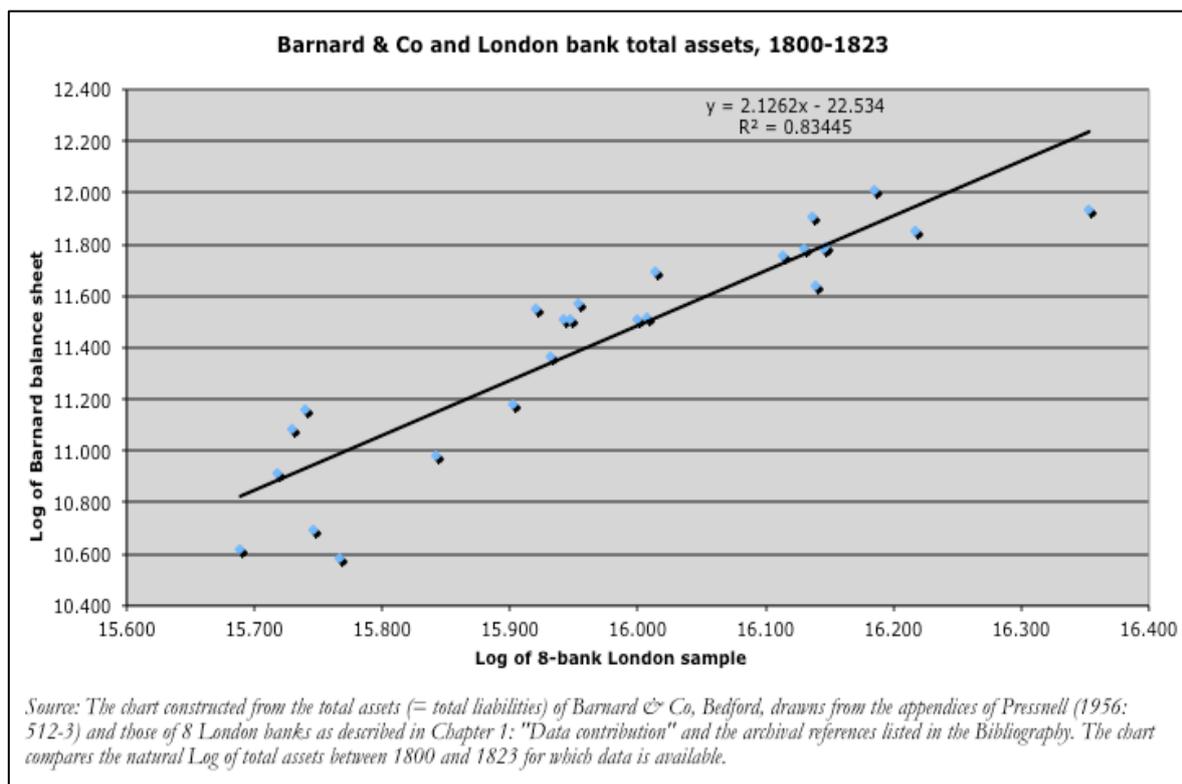
Appendix G – Lincoln bank: cash reserves to total customer lending



Appendix H – Smith group: cash ratio to total balance sheet



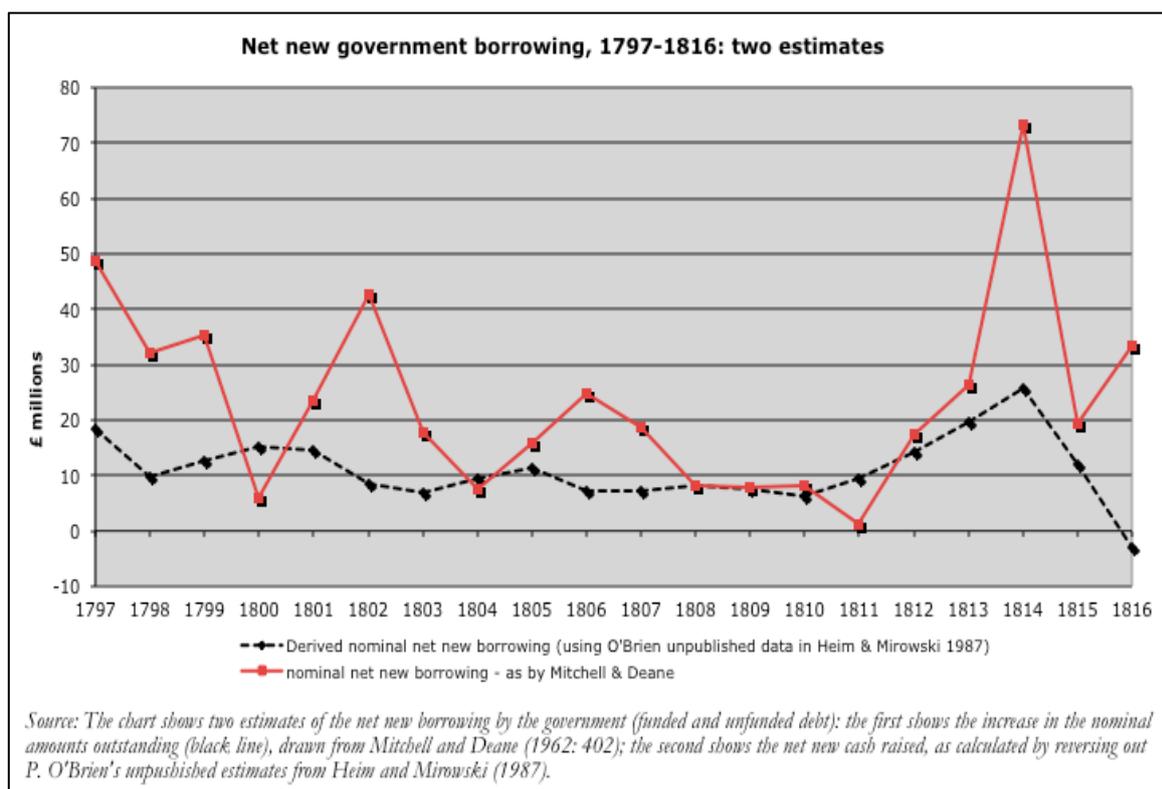
Appendix I – Barnard & Co, Bedford: correlation with London banks



Appendix J – Comparison of estimates of Bank of England banknotes in circulation

	Circulation (incl. Drawing accounts)	Banknotes					composite estimate of Circulation - using BoE for 1797-1818
		Mitchell & Deane (1962) [av. Of Feb & Aug]	Mr. Pearse, for Bullion Cmmttee (1810)	David Ricardo (1811)	BoE figures produced for House of Lords (1818) [av of yr]	Parnell (1827)	
1770	5,237,000						5,237,000
1771	6,823,000						6,823,000
1772	5,962,000						5,962,000
1773	6,037,000						6,037,000
1774							
1775	8,762,000						8,762,000
1776	8,626,000						8,626,000
1777	8,033,000						8,033,000
1778	7,099,000						7,099,000
1779	8,145,000						8,145,000
1780	7,376,000						7,376,000
1781	6,701,000						6,701,000
1782	7,394,000						7,394,000
1783	6,991,000						6,991,000
1784	5,898,000						5,898,000
1785	6,247,000						6,247,000
1786	7,883,000						7,883,000
1787	9,008,000						9,008,000
1788	9,782,000						9,782,000
1789	10,465,000						10,465,000
1790	10,737,000				10,217,360	11,000,000	10,651,453
1791	11,556,000						11,556,000
1792	11,157,000				11,349,450		11,253,225
1793	11,377,000						11,377,000
1794	10,515,000						10,515,000
1795	12,440,000					11,600,000	12,020,000
1796	9,988,000					9,700,000	9,844,000
1797	10,394,000	8,500,000		11,019,829		11,600,000	11,019,829
1798	12,638,000		13,334,752	12,579,616			12,579,616
1799	13,175,000	13,500,000	14,062,327	13,450,294			13,450,294
1800	15,946,000		15,841,932	15,160,641		15,451,000	15,160,641
1801	15,385,000		16,169,594	15,810,902		16,000,000	15,810,902
1802	16,142,000	16,500,000	17,054,454	16,427,889		17,000,000	16,427,889
1803	15,652,000		16,847,522	16,505,272			16,505,272
1804	17,116,000		17,345,020	17,408,060		17,600,000	17,408,060
1805	17,130,000		17,241,932	16,876,071			16,876,071
1806	19,379,000		17,135,400	16,791,824		16,800,000	16,791,824
1807	18,315,000	18,000,000	17,405,001	16,705,903		16,800,000	16,705,903
1808	17,650,000		17,534,580	17,128,650		17,100,000	17,128,650
1809	19,059,000	18,000,000	19,001,890	18,927,833			18,927,833
1810	22,907,000		22,730,285	22,541,523		22,500,000	22,541,523
1811	23,324,000		23,547,525	23,282,672			23,282,672
1812	23,218,000			23,237,318	23,237,000		23,237,318
1813	24,020,000			24,023,569	24,023,000		24,023,569
1814	26,585,000			26,901,422	26,901,000		26,901,422
1815	27,255,000			26,887,017			26,887,017
1816	26,886,000			26,574,841			26,574,841
1817	28,471,000			28,274,902			28,274,902
1818	26,987,000						26,987,000
1819	25,190,000						25,190,000
1820	23,892,000					24,500,000	24,196,000
1821	22,090,000						22,090,000
1822	18,065,000						18,065,000
1823	18,812,000				17,750,473		18,281,237
1824	19,935,000						19,935,000
1825	20,076,000				20,861,123	19,800,000	20,245,708
1826	23,516,000						23,516,000
1827	22,319,000						22,319,000
1828	21,669,000						21,669,000
1829	19,709,000						19,709,000
1830	20,758,000						20,758,000
1831	19,069,000						19,069,000
1832	18,016,000						18,016,000

Appendix K – net government borrowing, in nominal and cash terms: 1797 - 1816



Appendix L – London banks: balance sheet totals, 1770 - 1844

[Please contact author]

Source: see Chapter 1: “Data contribution” and archival references listed in Bibliography.

Appendix M – London bank liabilities: % of Country bank balances, 1780-1844

	Country ledger as % of total liabilities (net of Country bank overdrafts)			simple average	LogE trend
	SPS	BHHB	Barclays		
1780					8%
1781					9%
1782					9%
1783					9%
1784					9%
1785					9%
1786					9%
1787					10%
1788					10%
1789					10%
1790					10%
1791					11%
1792					11%
1793					12%
1794					13%
1795					14%
1796					14%
1797	16%	11%	9%	12%	14%
1798	16%	13%	7%	12%	16%
1799			15%	15%	16%
1800		15%		15%	17%
1801		15%	29%	22%	17%
1802		14%	35%	25%	18%
1803		16%	26%	21%	18%
1804		15%	22%	19%	18%
1805		19%	16%	17%	19%
1806			16%	16%	19%
1807		19%	12%	15%	19%
1808		20%		20%	19%
1809	26%	21%		24%	19%
1810		20%	27%	24%	20%
1811		20%	27%	24%	20%
1812	21%	24%		23%	20%
1813	17%	21%	26%	21%	20%
1814	16%	16%		16%	20%
1815		16%	28%	22%	20%
1816	22%	21%		22%	20%
1817	23%	16%		20%	20%
1818		21%	30%	26%	20%
1819		15%		15%	21%
1820	15%	16%	23%	18%	21%
1821	16%	25%	29%	23%	21%
1822	16%	20%	28%	21%	21%
1823	19%	14%		17%	21%
1824	12%	18%		15%	21%
1825		18%		18%	21%
1826		23%		23%	21%
1827					21%
1828					21%
1829					21%
1830					21%
1831					21%
1832					22%
1833					22%
1834					22%
1835					22%
1836					22%
1837					22%
1838					22%
1839					22%
1840					22%
1841					22%
1842					22%
1843					22%
1844					22%

Source: Constructed from the respective archival records – see Bibliography.

Appendix N – Case study of Locke, Hughes, Saunders & Co, Devizes

Thirty miles east of Bristol and the Old Bank was the market town of Devizes where James Sutton, John Bevan and Richard Read had first set up a bank in 1775, later also styled as Devizes & Wiltshire Bank (hereon "LHS"). Semi-annual balance sheets survive only for 1825-1829, which give us no overlap with the Old Bristol Bank, but provide useful insight into the financial crisis of 1825.

In 1825 the business was owned the 46-year-old Wadham Locke (3/8th), William Hughes (3/8th) and Henry Saunders (2/8th). The records do not state the paid-up capital at this time, but the previous partnership (which included Francis Locke and a Henry Oliver) was reportedly set up in 1803 with a fixed capital of £20,674 (The Bankers Magazine, 1845: 420). Locke came from a well-to-do family, his father having bought the splendid Brownston House in Devizes in 1784. He acquired additional valuable land by his marriage to Anna Maria Powell in 1801 and by 1808 he was able to buy from the Duke of Marlborough the imposing Rowdeford House in Rowde and completely rebuild it. In 1804 he served as High Sheriff of Wiltshire and later became a Liberal Party MP for the town in 1832. William Hughes was son of a local attorney, Solomon Hughes, and served as Deputy Sheriff in 1794 (Bull, 1859: 125).

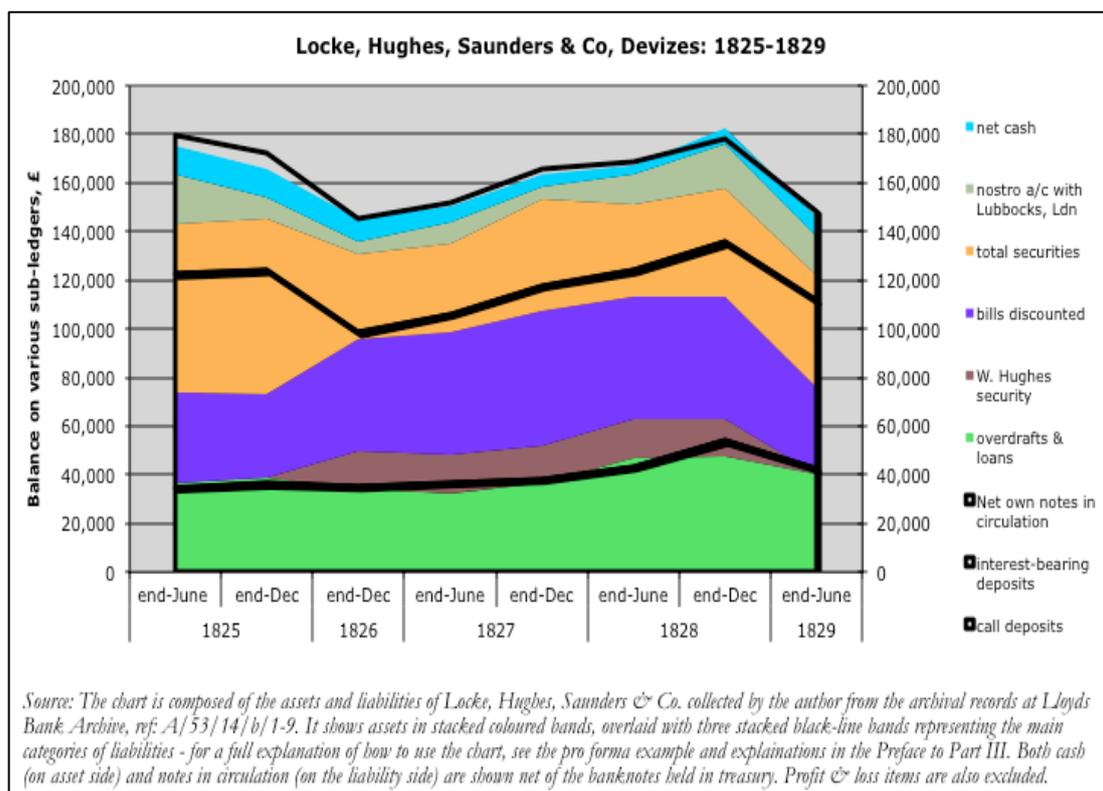
Balance sheet and note issuance strategy

During this short period LHS followed a balance sheet strategy focused on managing liquidity through appropriate asset and liability matching. The bank made no long-term loans, and overdrafts were closely matched to call deposits on which it paid no interest. Some 40-50% of net liabilities were made up of more 'sticky' deposits on which it paid 2.5%. These deposits were made by some 300 different customers, all recorded as individuals rather than commercial entities, and usually in round amounts ranging from £30 to £500, but with a few for £1,000 to £2,000. These deposits were used to finance the discounting of bills (which generated gross yields in excess of 5%) and any excess was invested in Exchequer bills and government bonds that yielded rather less than commercial bills after 1825. It appears interest-bearing deposits were also used between mid-1825 and the end of 1828 to make a loan to William Hughes secured on government bonds on which he was paying "the Firm" a rate of 4% per annum. Just as the Smith group in the north-east of Britain, LHS used its capacity to 'push out' its own (low cost) notes to fund its most

liquid, safest assets: government securities, the balance on its *nostro* account at its London correspondent (Lubbocks), and its cash reserves⁸⁷ (Exhibit O.1).

The policy proved its worth during the 1825 crisis. When interest-bearing deposits fell 30%, the bank responded by selling down its large holdings in government bonds in order to be able to meet its depositors' withdrawals and still maintain (and even increase) the discounting of its customers' bills. No doubt this projected confidence in the bank's solvency amongst the local population and, it seems, allowed LHS to maintain almost unchanged the net circulation of its own notes.

Exhibit O.1 – Locke, Hughes, Saunders & Co, Devizes: asset and liabilities, 1825 - 1829



A&L structure and the Stable Fringe Velocity

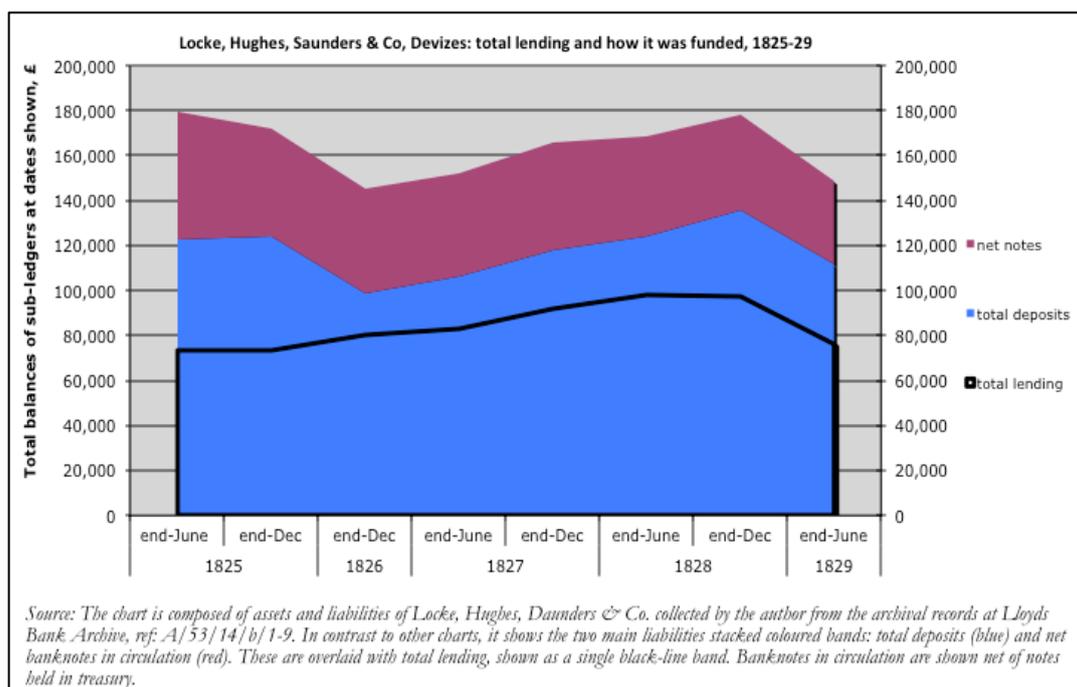
During this period after Britain had returned to the gold standard, LHS provides evidence that is generally supportive of what we observe elsewhere: a stable multiplier of Country bank balance sheets to deposit flows (liability-side) appears to have been re-established, but

⁸⁷ LHS does not specify what is included in “Cash in hand” but we have assumed that it followed other banks in including holdings of its own notes returned but not cancelled, which are shown in separate records, and we have therefore excluded these from ‘net cash’. The latter will have contained specie and Bank of England notes.

not to cash reserves (asset-side). With the exception of the second half of 1825, (a) total lending broadly followed the evolution of total deposits, and (b) net notes in circulation followed deposits (Exhibit O.2).

The behaviour of cash reserves is more problematic. Firstly, cash excluding own notes, but including Bank of England notes represented only 2.3 to 6.6% of the net balance sheet. This is similar to the proportion of 5.1% to 6.0% held by Smith Ellison in Lincoln during the same years (whose accounting allows direct comparison) and suggests that pure specie was playing a minor part in ‘money’ transactions. Secondly, if there was a relationship between net cash reserves and total lending, it was the wrong sign: increases in total lending were associated with a reduction in net cash⁸⁸ - *prima facie* evidence that lending was demand-led. Not only was the multiplier of lending to the stock of cash reserves not stable, but also its behaviour favours the view that lending was driven by demand for loans more than the supply of specie and Bank of England banknotes.

Exhibit O.2 – Locke, Hughes, Saunders & Co, Devizes: lending and funding, 1825 - 1829



⁸⁸ Statistically it appears there was one, despite the few data points: Regressing total lending, y (overdrafts plus bills discounted) on net cash, x (cash, excluding holdings of its own notes) yields the equation: $y = £109,931 - 3.23 [t=-3.87] * x$ (with $R\text{-sq} = 0.714$)

Profitability and the Real Bills Doctrine

In 1825, LHS suffered severe losses equivalent to an estimated 40% of paid-up capital, and in the following three years the total net assets stagnated. The losses that year were three times the size of the accumulated loan loss reserves. At the end of June, in order to offset a loss of £3,782, the partners used the entire accumulated loss reserve of £3,177 (the “Accumulation Account”) and also paid-in a further £605. They also jointly bought £1,000 of the Reduced 3% government bond “for the purpose of establishing a New Accumulating Fund”⁸⁹ and undertook to double that by further reserving part of the profits in future. Unfortunately losses incurred during the subsequent six months were even worse. The ‘new’ fund was wiped out, and the partners had to inject a further £4,978. In one year the partners had suffered total losses of £9,583 compared to typical annual net profits of less than £4,000.

It is possible to argue that for banks following the practice of reserving part of the yearly profits against future loan losses, that such reserves represent the bankers’ rationalization of the expected natural long term wastage occurring amongst ‘real projects’ and hence that part of the banks’ gross excess return which bankers’ expected to lose while making only ‘real loans’ for ‘real needs’, as stipulated by the advocates of the Real Bills Doctrine. Losses in one year that were three times what had been expected and reserved for are unlikely to be consistent with such a hypothesis of perfection in bankers’ information or expectations.

⁸⁹ Lloyds Bank Archive: Locke, Hughes & Co records ref: A/53/14/b/1 to 9, *General Balance Book* for 30 June 1825 (p.31) and for 30th December 1826 (p.29).

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(especially ref: 1/b/1 to 8)
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