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Free Banking

The Scottish Experience as a Model for Emerging Economies

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Scotland's nineteenth-century experience with free banking offers lessons to inform contemporary policymakers. A relatively unregulated banking system may be a wise option for emerging markets, if high liability limits can be enforced.

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Summary findings

The notion of free banking is at least as difficult to define as the notion of central banking. Instead, Kroszner focuses on a relatively unregulated banking system that operated in Scotland in the eighteenth and nineteenth centuries. (Sweden adopted a similar system.) Kroszner argues that a relatively unregulated system is a wise option for emerging markets today, which exhibit many features of the eighteenth and nineteenth century Scottish economy.

In terms of private institutions and monitoring (typically thought to be a central bank responsibility:

- A private clearing system is feasible.
- So are private development and enforcement of capital and liquidity standards.

Financial institutions have strong private incentives to create their own clearing system, to benefit both banks and the public. In creating such a system, the institutions develop standards for capital, liquidity, and prudential management that will become requirements for membership in the system. Modern examples: the Chicago Board of Trade and Chicago Mercantile Exchange.

Competition is generally compatible with prudence and coordination (although the excessive note issue by the Ayr Bank demonstrates that the system did not eliminate all rogues). The Ayr Bank is the only major exception to the smooth operation of Scotland's private clearing and monitoring system in more than a century, and the system helped to contain the problems from this bank's collapse—fulfilled a role typically considered to belong to a central bank.

There are private alternatives to deposit insurance or to a central bank to maintain confidence in and foster the stability of the financial system.

- Sophisticated note and deposit contracts are feasible.
- Free entry is important to encourage innovation.
- Branching and portfolio diversification can substitute for deposit insurance, to stabilize the banking system. So can "extended" liability (beyond simple limited liability of the shareholders), to give depositors and note holders some assurance that a bank could withstand a negative shock. Another alternative to deposit insurance is the "option clause" or other contingent or equity-like contracts, which can solve or minimize the problem of bank runs.

Is any role left for a central bank as lender of last resort? An explicit central bank may not be needed, but rather mechanisms to provide added liquidity, perhaps through the clearing system, in times of trouble.

This paper — a joint product of the Finance and Private Sector Development Division, Policy Research Department, and the Financial Sector Development Department — was presented at a Bank seminar, "Financial History: Lessons of the Past for Reformers of the Present," and is a chapter in a forthcoming volume, *Reforming Finance: Some Lessons from History*, edited by Gerard Caprio, Jr. and Dimitri Vittas. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-061, telephone 202-473-8526, fax 202-522-1955, Internet address pinfo@worldbank.org. November 1995. (29 pages)

Free Banking: the Scottish Experience as a Model for Emerging Economies

by

Randall Kroszner

This paper was presented at a World Bank Seminar, "Financial History: Lessons of the Past for Reformers of the Present," and is a chapter in a forthcoming volume, Reforming Finance: Some Lessons from History, edited by Gerard Caprio, Jr. and Dimitri Vittas. The author wishes to thank the participants at that seminar and the editors for their comments.

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The notion of free banking is at least as difficult to define as the notion of central banking. Rather than enumerate the principles that must be met in order for a financial system to be characterized as a "free banking" system, this chapter focuses on the features of a relatively unregulated banking system that operated in Scotland during the eighteenth and nineteenth centuries. Although the term free banking is often used to describe U.S. banking during the mid-nineteenth century, its meaning changes when describing the Scottish experience. Other countries, such as Sweden, have had experiences similar to Scotland's during the nineteenth century. Allegedly, a Swedish clergyman visited Scotland, observed the wonders of its banking system, and proselytized its virtues back in Sweden, where it was eventually adopted.

Although I am certainly no clergyman, I will nonetheless attempt to convince you that a relatively unregulated system is a wise option for emerging markets today. I am somewhat critical of some aspects of this type of system—it definitely has impurities. I also wish to avoid defining pure freedom or complete lack of regulation. When considering the financial system, we must look beyond the explicit regulation of the banking and financial sectors to consider broader issues of, for example, contractual innovation and contractual enforcement.

In this chapter I first argue that many features of the eighteenth and nineteenth century Scottish economy are seen in emerging market economies today. Certainly there is much variation across transition economies, but at least some aspects of the Scottish economy are relevant for thinking about policies for these economies.

In the second part of the chapter I describe how the Scottish free banking system operated. The discussion will highlight how specific institutions emerged, identify the private incentives that led to their development, and show how they performed. In particular, I will focus on competition among the note-issuing banks, the innovative note contracts that became widespread, the emergence of a private clearing system, the stability of the banking system, and the role of bank branching. To evaluate performance, England provides a useful benchmark because although the macroeconomic shocks to the English and Scottish economies were highly correlated, their banking systems were very different. England, for example, had many restrictions on the size and expansion of banks and many protective regulations for the Bank of England, which was emerging as the central bank. Scotland had no such regulations. Rather, it had relatively free entry into banking and into the private issuance of bank notes. There was vigorous currency competition in Scotland, unlike in England, although both countries were on the gold standard for most of the period. The final section concludes with lessons for financial reform in emerging markets today.

Scotland as an Emerging Market Economy

While Scotland of 200 years ago may not immediately come to mind when considering emerging market economies today, it is very relevant for current development policy. The initial conditions and challenges faced by Scotland parallel those that many emerging economies are now grappling with. In particular, they share six common elements: an initial low level of GDP per capita compared with industrial countries, legal uncertainty over financial contracts, lack of experience with financial services, the importance of international trade, the dominance of a neighboring financial center, and substantial macroeconomic shocks, including wars.

In the beginning of the eighteenth century Scotland was much poorer than England. By the mid-eighteenth century the GNP per capita in Scotland was roughly half of that in England. By the mid-nineteenth century, however, Scotland's GDP per capita nearly equaled that of England. The relative poverty of many emerging countries is similar to Scotland's relative poverty in the 1700s, although the disparity in GDP per capita may be wider today. The example of Scotland gives us hope that many developing countries can reach Western European and U.S. standards of living if appropriate policies are pursued.

One of the most intriguing parallels between eighteenth-century Scotland and many developing countries today concerns the infancy of contract law and the difficulties in enforcing contracts. The common law of contracts was still in its early stages of development in the early eighteenth century, becoming what we think of as the common law only in the nineteenth century. During the eighteenth century many types of contracts and different types of enforcement mechanisms were tried, and new forms evolved. The legal form of the business enterprise was problematic. Following the Bubble Act of 1720, special grants from the Crown or acts of parliament were necessary to get a limited liability corporate charter, the form of incorporation that is the standard structure for most enterprises today. Instead, during this period the vast majority of banks as well as most other business enterprises were organized as partnerships. But it was often very difficult and costly to bring an enforcement action against a partnership because action would have to be taken against each partner. Sometimes businesses made sure that at least one of the partners was difficult to find—perhaps living in a colony—thereby delaying and making it more expensive to take action against the partnership.

Even if taking action against an enterprise or business person did not involve such travails, many financial contracts had only recently been developed or were being used in new ways. Because so much of the law was new, people could not rely on an extensive body of common-law decisions to interpret what each contract promised. At this time, for example, privately owned banks issued their own bank notes. The law was struggling to determine whether a bank note was a promissory note or a debt contract, and which obligations were associated with the contract. The Scottish case is thus relevant because we see many of the same problems in emerging markets today. There is uncertainty about contract law, which evolves rapidly. There was much experimentation with forms and obligations. But although having the law in such a state of flux was not a perfect situation, many different types of contracts were used and successful contracts emerged from this process.

The rapid changes were posing challenges for the law and lawyers as well as for ordinary citizens. Financial contracts and markets were new to the Scottish population during the free banking era, much as they are to the average person in many of today's transition and developing economies. Aspects of the financial system now considered commonplace, such as bank notes and checkable deposits, simply did not exist in Scotland before the eighteenth century. Financial innovations occurred quite rapidly, but the population was able to successfully adapt to them. There was no equivalent of the Securities and Exchange Commission to ensure full and fair disclosure beyond the standard antifraud aspects of the common law. While some may argue that the public is often not able to adjust to these types of rapid innovations, in Scotland competition provided a substantial amount of discipline and information to this market. When one bank or firm created a new type instrument or included a new type of clause, competitors often responded by publicly questioning the innovation in advertisements: "stick with our tried-and-true product because the new one has the following flaws..."

International trade played an important role in the Scottish economy, subjecting it to numerous external shocks. Scotland was, for example, very involved in the international tobacco trade. Many emerging countries today are closely tied to developments in the international economy (and many wish to be even more involved in international trade).

The domestic financial market of Scotland was not isolated from other financial markets. Economic historians have investigated and debated the extent of the integration of European capital markets during the 1700s and 1800s. It is very clear that Scotland was greatly influenced by activities in London—the Bank of England certainly exercised some control over the Scottish economy. The key question concerns the extent of that control. Such questions are raised today, for example, in the role that Tokyo plays in emerging financial markets in Asia; London or Frankfurt in the markets of the former Soviet Union and Eastern Europe; and the United States in many markets, such as those in Latin America.

Just as in many emerging markets today, the Scottish economy was subject to major macroeconomic and financial disruptions during its transition from a developing to an industrial economy. For Scotland, England, and Wales this time period was not one of perfectly smooth growth. Several wars were fought, perhaps the most important being the Napoleonic wars fought against the French. This war caused a major disruption in the financial system. The United Kingdom had been on the international gold standard until 1797, when they suspended it for roughly twenty years. Public debts to finance the war also increased.

Operation and Performance of the Scottish Free Banking System

The free banking era in Scotland begins with the end of the Bank of Scotland's monopoly on note issue in 1716 and ends in 1844-45 with Peel's Banking Act (figure 3.1). The legislative changes in 1844-45 effectively shut down free entry, and incumbents put limits on private note issue, thereby cartelizing the Scottish banking industry and making it much more like the English system. This Act brought the banking system of Scotland formally under the control of the Bank of England.

At the beginning of the period only one bank, the Bank of Scotland, was issuing currency. Two other banks then entered—the Royal Bank of Scotland and the British Linen Bank. The British Linen Bank began as a linen trading company, and banking functions developed naturally from its merchant activities. These three banks had charters from the Crown or special grants from parliament that made them limited liability corporations. Other banks that subsequently entered during the free banking era did so as unlimited liability partnerships (although there was a bit more flexibility beginning in the 1820s). The three big limited liability banks were a very important part of the financial system, initially holding the majority of Scotland's banking assets.

Private Note Issue

These banks freely competed in note issuance. The notes were denominated in pounds, and the pound was defined as a certain amount of specie. The notes were obligations of the individual banks, and they competed vigorously to try to get people to take their notes rather than those of a rival bank. The transactions technologies were not well developed. At the beginning of this era, for example, there were no checking accounts per se, and people relied primarily on coins and notes for most transactions. The equivalent of checkable deposits and automatic overdraft facilities developed later. The banks paid interest on deposits. For larger transactions businesses used instruments called "bills of exchange," which were similar to negotiable commercial paper and relatively large in denomination.

In an environment with this type of transactions technology the banks focused on trying to deliver their notes to the public and on having the public hold them for as long as possible, before bringing them in to be redeemed in specie. The banks would benefit when individuals deposited specie, which they would then issue notes on. Banks also benefited when someone brought a bill of exchange or some other instrument for discount, which they exchanged for bank notes. The notes they issued were non-interest bearing, at least in normal times. The profitability of issuance was thus directly related to the length of time that the public would hold the notes without demanding redemption. With less-frequent redemptions, banks could hold less gold reserves. The banks earned returns by holding interest-earning assets, such as government securities and commercial paper equivalents, or by making loans or other investments.

Competition among note issuers led each bank to try to demonstrate how solid and reliable it was relative to other banks, and this competition effectively regulated the specie reserves held in the banking system. Banks wanted to economize on the amount of specie they had to hold for a given level of note issue, but also had to maintain the public's confidence that they could redeem the notes. High demand for note redemption could cause a liquidity problem—and a general loss of confidence—for a bank unless it held high specie reserves, which would, of course, reduce the profitability of note issuance. The banks, realizing this, would keep a check on the liquidity ratios of their competitors through a process called "note dueling."

The Royal Bank of Scotland, for example, would attempt to gather up as much of the outstanding note issue as possible from its rival, the Bank of Scotland. The bank hired people called "note pickers" to collect the rival's notes, some of whom might even offer a little reward to individuals who would exchange their Bank of Scotland notes for the Royal Bank's notes. The note pickers would then simultaneously converge upon the Bank of Scotland and demand: "redeem these notes as you promised, give us the gold now." Because of this market mechanism—which could be thought of as runs on a bank—these banks, which were moving toward a fractional reserve system, could not reduce their reserves by too much (because of the threat of a redemption attack by their rivals). This mechanism was used by both large and small banks. Competitive rivalry thus had the salubrious effect of forcing rivals to maintain reasonable reserve ratios. And this important aspect of market discipline emerged naturally.

The Development of the Option Clause

This rigorous competition also generated substantial contractual innovation, known as "the option clause." In the 1750s the Bank of Scotland, a private bank, would pay the person holding one of its notes one pound on demand or, if the director decided, one pound and six pence at the end of six months, which is about a 5 percent rate of return—exactly the usury ceiling (figure 3.2). The Bank of Scotland was implicitly saying: "It is costly for us to hold very high amounts of reserves. We do not have a fractional reserve banking system anymore. We can try to insulate ourselves against these note attacks by saying that we will pay you if we can, but if too many people come in the door, we are going to hold off, and instead of having to liquidate our bank now—which would push us into bankruptcy—we will try to slowly liquidate our assets. You will not get your gold immediately but you will get it in six months, plus some interest for any inconvenience you might have experienced."

In response, the Royal Bank handed out leaflets and took out advertisements in the newspapers describing this innovation as an outrage: "How can you trust the Bank of Scotland? Don't accept their notes because you might not get your money back. We do not have such an option clause so you can depend on our notes." Also, there was uncertainty about the enforceability of this type of contract because it was a real innovation in note contracts. Given the concerns about people not understanding the derivatives markets today, you can imagine the potential difficulties faced by people in the mid-1700s trying to understand options. The rival bank thus found it in its own self-interest to help educate the public about this contractual innovation.

After much debate the banks and the public found that such a clause involved a perfectly reasonable trade off. The loss from the inconvenience of (possibly) not having immediate specie redeemability was compensated in three ways. The first was the direct payment of interest during the period of suspended convertibility. Second, if individuals deposited their money at the Bank of Scotland, the Bank of Scotland might be able to pay them higher interest. (Competition had already forced banks to pay interest on deposits.) Third, and most interesting, the option clause reduced the likelihood that a bank would experience a liquidity crisis, which could cause the bank to collapse, thereby decreasing the riskiness of the bank and its note issues. The option clause can be considered an endogenous market response to the classic "runs" problem, which plagues all fractional reserve banking systems in which demandable debt is issued. The more complicated debt contract, which gave the bank more time to deal with negative liquidity shocks, addressed the core problem of bank instability that can arise from immediate redeemability of bank debts. Here was a competitive contractual response to one of the standard reasons for establishing central banks' role as a lender of last resort.[1]

Notes with the option clause became widely accepted in Scotland. Almost all note issuers added the clause to their notes by the early 1760s. There was also a further development. The Bank of Dundee in 1763 offered payment of one pound or one pound and six pence at the end of six months in cash (gold), specie, or in the notes of the Royal Bank of Scotland. This type of option clause with multiple redemption alternatives represented a move away from using gold as the sole reserve currency. People had sufficient confidence in the Royal Bank of Scotland to accept this note from the Bank of Dundee (knowing that in six months they would not get their specie, but a contract from the Royal Bank of Scotland). Of course, the Royal Bank of Scotland notes contained the option clause permitting them to delay for six months before making payment in specie. Various contractual innovations thus arose to tackle some of the problems that we think of as rationales for central banks to have a lender of last resort function.

[1]. Forrest Capie makes this point in chapter 2.

The Banking Act of 1765 ended these contractual experiments: it outlawed the option clause. Rather than letting the market set the value of innovations, the bigger banks turned to the government to impose regulations that would put new competitors at a disadvantage. The option clause had helped to make entry feasible for small banks. The major banks did not like the increased entry and lobbied Parliament to restrict it. There was also concern that multiple options were not fully consistent with common law.

The Act of 1765 also outlawed small notes, those less than one pound sterling. The ability to issue small notes had also facilitated entry on a small scale. If the bank must have at least one pound of gold or specie available to meet any redemption demand (after the banning of the option clause), then the minimal scale of operation grows.[2] In addition, arguments were made about the immorality or irresponsibity of using paper rather than specie, which was especially problematic for the peasant and working classes. The Act of 1765 thus greatly restricted the competitive innovative process, causing the Scottish banking system to evolve toward the English system.

The Private Clearing House System and the Check on Overissue

Another fascinating development in the Scottish banking system occurred in 1770-71 with the creation of a note exchange and clearing system. These functions are typically associated with central banks today, and it is often argued that the government has a comparative advantage in setting uniform standards and coordinating different actors. In Scotland the note exchange system developed privately, and there was no government intervention to force the two together.

[2]. One pound is worth about two hundred dollars today.

But it was in banks' private interest to develop a payment mechanism, which was beneficial both to the banks and the individuals. During the free banking era there was currency competition: the large banks were competing to expand their note issues at the expense of the others. In the first half of the eighteenth century banks would frequently refuse to accept notes from other banks because acceptance might promote liquidity and hence the demand for the rivals' notes. But refusal to accept others notes was inconvenient to bank customers. Banks began to experiment by making bilateral exchanges. The first bilateral exchanges were made in Edinburgh in the 1760s; some of the smaller provincial banks also provided note acceptance services and set up some bilateral exchanges. Eventually, by 1771, the three big banks, all of which were headquartered in Edinburgh, were willing to bring the provincial banks into their main note-clearing system. A private clearing system thus emerged without any government intervention.

The note clearing system was based in Edinburgh and met once a week. Banks would net their balances against each other. The Royal Bank, for example, would claim to have 1,000 pounds of Bank of Scotland notes. The Bank of Scotland would claim to have 900 pounds of Royal Bank notes. The Bank of Scotland would then transfer 100 pounds, either in specie, securities, or deposits to the Royal Bank.

The increased acceptance of bank notes was most important for the smallest banks because the largest banks — the Bank of Scotland, the Royal Bank, and the British Linen Bank — were already very well known and accepted. If a Bank of Dundee note would be accepted at the British Linen Bank or the Royal Bank, the note became much more valuable.

Why would the big banks want to include the little banks if, by doing so, they were primarily benefiting the little banks? Because this system helped keep the notes in circulation a lot longer. If customers could go to any bank to redeem a note, then they would accept a Royal Bank of Scotland note, for example, and hold it longer. The Edinburgh bank notes could thus be used more easily at greater distances from the head offices (where redemption would take place). All banks wanted to increase their note circulation since their notes, as long as the option clause was not invoked or banned, were non-interest bearing. The private note exchange and clearing system that developed in Scotland is not an isolated example. In the United States during the nineteenth century a similar private system developed—the Suffolk system.

In addition to the convenience for the users of notes and convenience for the banks from the weekly netting of claims, the note exchange and clearing system put an important a check on excess note growth by any of the individual issuers. The "law of reflux" is how the Scots described the mechanism by which this system restrains note growth. To see how this system operates, consider a case in which the Bank of Dundee began to issue a lot of notes relative to their gold reserves or the amount of good assets they might be able to turn into gold. What will happen at the weekly meeting? The Bank of Dundee will begin to have adverse clearings because all other banks will be holding a lot of Bank of Dundee notes relative to the amount of their notes that the Bank of Dundee is holding. At the weekly meeting the other banks will demand specie, London deposits, or securities from the Bank of Dundee. And the Bank of Dundee will then have to reduce its note issue or face bankruptcy.

Still, there were attempts to inflate away the value of one bank's notes. The spectacular collapse of the Ayr Bank is one example. The Ayr Bank began to have adverse clearings and delayed, claiming that the funds were on their way up from London. But the funds never arrived. The Ayr Bank dramatically over-issued and went bust. While this example illustrates that the note clearing system was not perfect, the Ayr Bank's over-issue was detected early, and the losses were fairly limited.[3] And there were not any other important instances of over-issue during the period.

In order to get into the note exchange, a bank would have to be reputable. The clearinghouse did not set up explicit liquidity requirements or explicit capital requirements. And there were no government requirements on these matters. Members simply had to be able to meet the regular netting payments by the end of the week. Adverse clearings would signal to the other members that something may be wrong, and exclusion from the system was possible. The clearing system thus turned into a system of prudential private regulation because being in the note exchange system was sending a clear signal to the public that if these other banks, who best knew what was going on within the bank, are willing to accept these notes, then an ordinary person might be willing to accept them also. It thus performed an important information function. No system of prudential regulation, publicly or privately created and enforced, is without flaws, but this system was relatively successful.

The note exchange system also had some beneficial effects on the fractional reserve system in its ability to conserve on specie holdings and maintain stability. After the option clause was outlawed, banks had to increase their specie reserves substantially, typically holding about 50 percent of their demandable liabilities in their own specie or directly available specie through their correspondents in London. But this amount fell dramatically to roughly 2 to 3 percent of what they were actually holding

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[3] As noted above, all except the three large chartered banks in Edinburgh have unlimited liability so this was another mechanism that helped to protect the holders of Ayr Bank notes. For the Ayr Bank, there was roughly between a five-fold and a ten-fold assessment on each share, that is, if an owner had a share worth one pound par value, that person would then have to pay to the creditors between five and ten pounds for the losses that occurred. Eventually the note holders of the Ayr Bank did receive most of their nominal value, although they did have to wait before getting their money back.

in terms of gold or direct access to specie. The conveniences of the note exchange system helped customers to become more accepting of these notes and more confident in the system.

Competition was pushing the banks to reduce reserves so that they could provide higher interest rates or more services to their depositors. The margin of 2 to 3 percent of reserves worked fairly well because the Scottish system was more stable than the English system, which did not have this sort of note clearing system, but rather the Bank of England monopoly of note issuance. The English had relatively small banks that were restricted in how large they could grow because the Bank of England did not want to face competition. Assuming that bank failure rates are a measure of relative stability, the banking system in Scotland was much more stable. Less failures occurred even though the Scottish banks were holding relatively low amounts of specie. People had great confidence in the system, and the system was run very well, so that it survived several shocks without disruptions. One major shock that affected to both the English and Scottish systems, however, was the Napoleonic wars. The Scottish system followed the English system in suspending all specie payment in 1797 (even though initially they had no legal basis for doing so), when the Bank of England suspended redemption on its notes. This example shows the importance of London as a financial center for Scotland—the Scottish banks relied heavily on their correspondents in London for access to specie. The Scottish banks did not open branches in London because they would have lost their right to issue notes. The Bank of England had secured a regulation preventing any bank operating an office within a certain distance of London from issuing notes. Hence, the Scottish banks relied on these correspondent relationships.

During the twenty-year suspension period the note exchange system operated in Scotland but without the anchor of gold. In Scotland, as in England, the price level did not rise rapidly until the end of this period. When the Bank of England resumed gold redemption, the pound was returned to its presuspension level, and thus the price level returned to its previous level. During the suspension the note exchange helped to prevent wild overissue, even though there was no explicit requirement of redemption in gold, because they required redemption in other assets—bills of exchange, government securities, and so on.

Resumption of the gold standard was followed by some banking problems in England during the 1820s. These problems sparked some legal changes that permitted some partnerships to have limited liability. This change allowed some larger partnerships to form and compete more directly with the Bank of Scotland, the Royal Bank, and the British Linen Bank. But the competition with respect to note issue ended in the 1840s with Peel's Bank Act. This act also marked the end of the Scottish free banking era. Free entry was no longer allowed, and a cap was put on note issuance. This regulation effectively created a cartel among existing note issuers. Also, the Scottish banks became much more directly controlled by the Bank of England.

Unrestricted Branching as a Substitute for Deposit Insurance

An important aspect of the Scottish system during the free banking era was the unrestricted ability to set up branches. Branching helped make the system stable by allowing regional diversification and thereby acted as a substitute for deposit insurance. During the free banking period banks in Scotland were consolidated in the main financial center of Edinburgh but stretched, through unlimited liability partnerships, to secondary cities and towns (table 3.1). Through time, both the public banks (limited liability) and the others increased their number of branches, but the public banks' branching networks were far more extensive (table 3.2). In the 1820s the public banks had almost fifteen branches each, whereas the other banks had an average of three branches each. The three public banks also tended to be much larger than the other banks. The big three banks were branched throughout the country; they could receive deposits from and make loans in many different areas and, consequently, were relatively well diversified. The smaller banks were less diversified. In the absence of a deposit insurance system banks naturally diversified their deposit and lending base through branching.

A Comparison of the English and Scottish Banking Systems

Before drawing lessons from the Scottish experience, I will contrast some aspects of the banking system in the emerging market of Scotland with its more-developed southern neighbor. This comparison is necessary because I am arguing that the Scottish banking system helped Scotland to quickly catch up to England.

The English system is much more heavily regulated because of the Bank of England's dominance, the restrictions on note issuance, and, importantly, the prohibition on entry with more than six partners. The last regulation forced the English banks to remain fairly small. Clearly, the restrictions were directed at shielding the Bank of England from competition.

The density of banking (as measured by the number of banking offices per ten thousand inhabitants) is greater for Scotland at the turn of the century, when Scotland was still developing relative to England (table 3.3). By the end of the free banking era, however, the figure for Scotland had grown by roughly 250 percent, whereas in England it had increased by less than 50 percent. The Scottish system thus offered far more opportunities for banking activities.

Banking depth is a measure often used in the development literature to determine how successful the banking system is at intermediating and whether it is playing an important role. Comparing per capita banking assets in pounds sterling, this number is approximately 20 percent greater in Scotland than in England. The turn-of-the-century numbers are particularly striking when you consider that the Scots were less wealthy and consequently had fewer assets per capita at that time. By the middle of the century banking assets per capita had grown to be more than twice that of England. These brief comparisons underscore the success of Scottish system.

One of the innovations made during the Scottish free banking era, which also may have contributed to the rapid development of the Scottish economy, was the "cash credit overdraft" system, which is analagous to writing overdrafts on a checking account today. The Scots may have been the first to create a line of credit that a firm or merchant could obtain in advance. This overdraft ability gave great flexibility to individuals wanting to take advantage of immediate purchasing opportunities or to industrialists who might not be able to exactly predict their cash needs six months in advance. Such innovations may have facilitated investment and industrialization in Scotland; they were much less common in England.

Finally, note that both of these systems were concentrated initially. Open entry is not inconsistent with dominant players. There is not as dramatic a contrast as one might have originally thought between the market share of banking assets in Scotland held by the three public banks with the Bank of England's share in England. The three Scottish banks and the Bank of England began the century with a majority of banking assets held in their respective countries, but have their market shares eroded by the middle of the century. The large role of the three public banks in Scotland, however, differs from that of the Bank of England because the Scottish banks were competing and the Bank of England had many monopoly protections. In addition, the Bank of England enjoyed a much closer relationship with the government.

Lessons for Reformers Today

Can any lessons for current policy can be drawn from this historical episode? I have argued that the situation of eighteenth and nineteenth century Scotland is very similar to that in many emerging markets today. Thus I believe that the Scottish free banking experience can inform the policymaking process.

What are the lessons then that can be drawn for current policy (table 3.4)? I will group them into three related sets. The first set concerns private institutions and monitoring, which is typically thought to be the responsibility of central banks. Two issues arise: the feasibility of privately developing and operating a clearing system and the feasibility of privately developing and enforcing capital and liquidity standards. As the Scottish case illustrates, financial institutions have strong private incentives to create their own clearing system, which would benefit both the banks and the public. In creating such a system, the financial institutions develop standards for capital, liquidity, and prudential management that will become requirements for membership in the system. Illustrations of these incentives at work today are the private clearing houses that the Chicago Board of Trade and Chicago Mercantile Exchange have set up, which enforce such requirements on their members. Another lesson holds that competition is generally compatible with stability and coordination, although the excessive note issue by the Ayr Bank demonstrates that the system did not eliminate all rogues. The Ayr Bank is the only major exception to the smooth operation of the private clearing and monitoring system in more than a century, and the system helped to contain the problems from this bank's collapse. The system worked well in fulfilling the roles typically thought to be the domain of a central bank.

The next set of lessons concerns private alternatives to deposit insurance or to a central bank to maintain confidence in and foster the stability of the financial system. We learn that bank branching and portfolio diversification can contribute to the stability of the banking system. In addition, some form of extended liability beyond simple limited liability of the shareholders might give depositors and note holders some assurance that a bank could withstand a negative shock. Notes issued by both limited and unlimited liability banks successfully competed against each other during the free banking era, so it is unclear from this experience whether one is clearly superior to the other.

An option clause and other contingent or equity-like contracts can solve or minimize the problems of bank runs that can cause trouble for a fractional reserve banking system. Even in the relatively unsophisticated financial environment of eighteenth century Scotland, where the law was unsettled, clever contractual solutions to problems of instability, like the option clause, developed and became widely accepted. Exploring such alternatives could hold great promise for emerging and transition economies.

The final set of lessons concern broad features of competition in the financial system. In Scotland we witnessed the feasibility of new and sophisticated bank liability contracts created through competition, even if people had no experience with such instruments before. The final lesson, closely related to that above, establishes the great importance of free entry for promoting innovation and providing information. Competition gave rise to the option clause innovation, and rivals made the public aware of the consequences of the new contract. What may seem like a fabulous idea to policymakers may not survive the market test, and this test is fundamental for any financial innovation.

I will end with a question: is there thus any need for a central bank acting as a lender of last resort to the financial system? There has been controversy about the role of the Bank of England in the Scottish system. The Bank of England certainly had no legal obligation to intervene in the Scottish system. In fact, it was not explicitly obligated to intervene in the English system during this period. To some extent (mostly after resumption of the gold standard in 1819) the Bank of England did operate like a shadow central bank (particularly in times of trouble) and provided loans to some large lenders and some large borrowers. As Forrest Capie showed in chapter 2, central banking functions can evolve without explicit passage of regulations. The Bank of England may be an example of a bank that has no requirements to intervene, particularly in Scotland, but occasionally provided some extra support to the system in times of stress. An explicit central bank may not be needed, but rather mechanisms to provide added liquidity, perhaps through the clearing system, in times of trouble.

Bibliography

Cameron, R. 1967. *Banking in the Early Stages of Industrialization.* New York: Oxford University Press.

Carr, J., and F. Mathewson. 1988. "Unlimited Liability as a Barrier to Entry." *Journal of Political Economy* 96 (June): 766-84.

Carr, J., S. Glied, and F. Mathewson. 1989. "Unlimited Liability and Free Banking in Scotland." *Journal of Economic History* 49: 974-78.

Checkland, S.G. 1968. "Banking History and Economic Development: Seven Systems." *Scottish Journal of Political Economy* 15: 144-66.

_______. 1975. *Scottish Banking: A History, 1695-1973.* Glasgow: Collins.

Cowen, T., and R. Kroszner. 1989. "Scottish Banking before 1845: A Model for Laissez-Faire?" *Journal of Money, Credit, and Banking* 21: 221-31.

_______ and _______. 1990. "Predictions of the New Monetary Economics: Perspectives on Velocity." *Journal of Policy Modelling* V(Summer): 265-79.

_______ and _______. 1992. "Scottish free banking." In J. Eatwell, M. Milgate, and P. Newman, eds., *New Palgrave Dictionary of Money and Finance.* London: Macmillan.

_______ and _______. 1994. *Explorations in the New Monetary Economics.* Cambridge, Mass.: Blackwell Publishers.

Diamond, D., and P. Dybvig. 1983. "Bank Runs, Deposit Insurance, and Liquidity." *Journal of Political Economy* 91(June):401-19.

Hamilton, H. 1956. "The Failure of the Ayr Bank, 1772." *Economic History Review* 8(April):405-17.

Hayek, F. A. 1978. *Denationalisation of Money: An Analysis of the Theory and Practice of Currency Competition.* Second edition. London: Institute of Economic Affairs.

Kerr, A. W. 1918. *History of Banking in Scotland.* Third edition. London: A&C Black.

Munn, C. W. 1975. "The Origins of the Scottish Note Exchange." *Three Banks Review* 107:45-60.

_______. 1981. *The Scottish Provincial Banking Companies, 1747-1814.* Edinburgh: John McDonald.

Slaven, A., and D. Aldcroft, eds. 1982. *Business, Banking, and Urban History: Essays in Honour of S. G. Checkland.* Edinburgh: John McDonald.

Smith, A. 1776. *An Inquiry into the Nature and Causes of the Wealth of Nations.* E. Cannan, ed. 1937. New York: Random House.

Vaubel, R. 1984. "The History of Currency Competition." In P. Salin, ed., *Currency and Monetary Union.* The Hague: Martinus Nijhoff.

Wallace, N. 1984. "Do We Need a Special Theory for `Money'?" University of Minnesota, prepared for *Money: A Search for Common Ground.*

White, L. H. 1984. *Free Banking in Britain: Theory, Experience, and Debate, 1800-1845.* Cambridge: Cambridge University Press.

Table 3.1 The Number of Banks in Scotland in Selected Years

District	1772	1810	1830
Edinburgh	21	13	12
Glasgow	5	4	5
Secondary burghs	4	12	15
Lesser burghs	1	8	4
Total	31	37	36

Source: Carr and Mathewson (1988); Checkland (1975).

Table 3.2 Bank Size in Scotland in Selected Years

	Average for the three "public" banks		Average for unlimited liability banks	
Year	Mean Total Assets (in pounds per bank)	Mean Number of Branches per Bank	Mean Total Assets (in pounds per bank)	Mean Number of Branches per Bank
1772	220,000	1.3	88,000	0.07
1802	2,215,000	12.3	200,000	0.86
1825	3,754,000	14.7	398,000	2.82

Source: Carr and Mathewson (1988); Checkland (1975).

Table 3.3: Contrasts between Banking in Scotland and England

A. Banking density (number of bank offices per 10,000 inhabitants)

Year	Scotland	England
1802	0.56	0.48
1845	1.41	0.71

B. Banking depth (banking assets per inhabitant in pounds sterling)

Year	Scotland	England
1802	7.46	5.97
1845	18.05	9.00

C. Banking concentration (share of bank assets held by three public banks and Bank of England)

Year	Scotland	Bank of England
1802	54 %	58 %
1845	33 %	36 %

Source: Checkland (1975); Munn (1981); and Slaven and Aldcroft (1982).

Table 3.4 Lessons from the Scottish Free Banking Experience

- o Feasibility of private clearing system
- o Feasibility of private development and enforcement of capital and liquidity standards
- o Competition is compatible with prudence and coordination
- o Feasibility of sophisticated note and deposit contracts
- o Importance of free entry to promote innovation
- o Branching and portfolio diversification can substitute for deposit insurance
- o "Extended" liability can substitute for deposit insurance
- o "Option clause" and equity-like contracts can substitute for deposit insurance
- o Is any role left for a central bank as lender of last resort?

Figure 3.1 Time Line of Selected Events during the Scottish Free Banking Era, 1716-1845

1716	Bank of Scotland monopoly of note issue ends. Entry of Royal Bank of Scotland and British Linen Company. "Note Dueling."
1750s/1760s	"Option clause" note develops and becomes widespread.
1765	Option clause notes and small denomination notes outlawed.
1770s	Note exchange and clearing system develop.
1797	Suspension of gold convertibility (Napoleonic Wars).
1819	Resumption of gold convertibility at pre-war par.
1820s	Restrictions on entry by limited liability partnerships eased.
1844-1845	Peel's Banking Acts end free entry into note issuance.

Figure 3.2: BANK OF SCOTLAND NOTE WITH OPTION CLAUSE

Source: Checkland (1975)

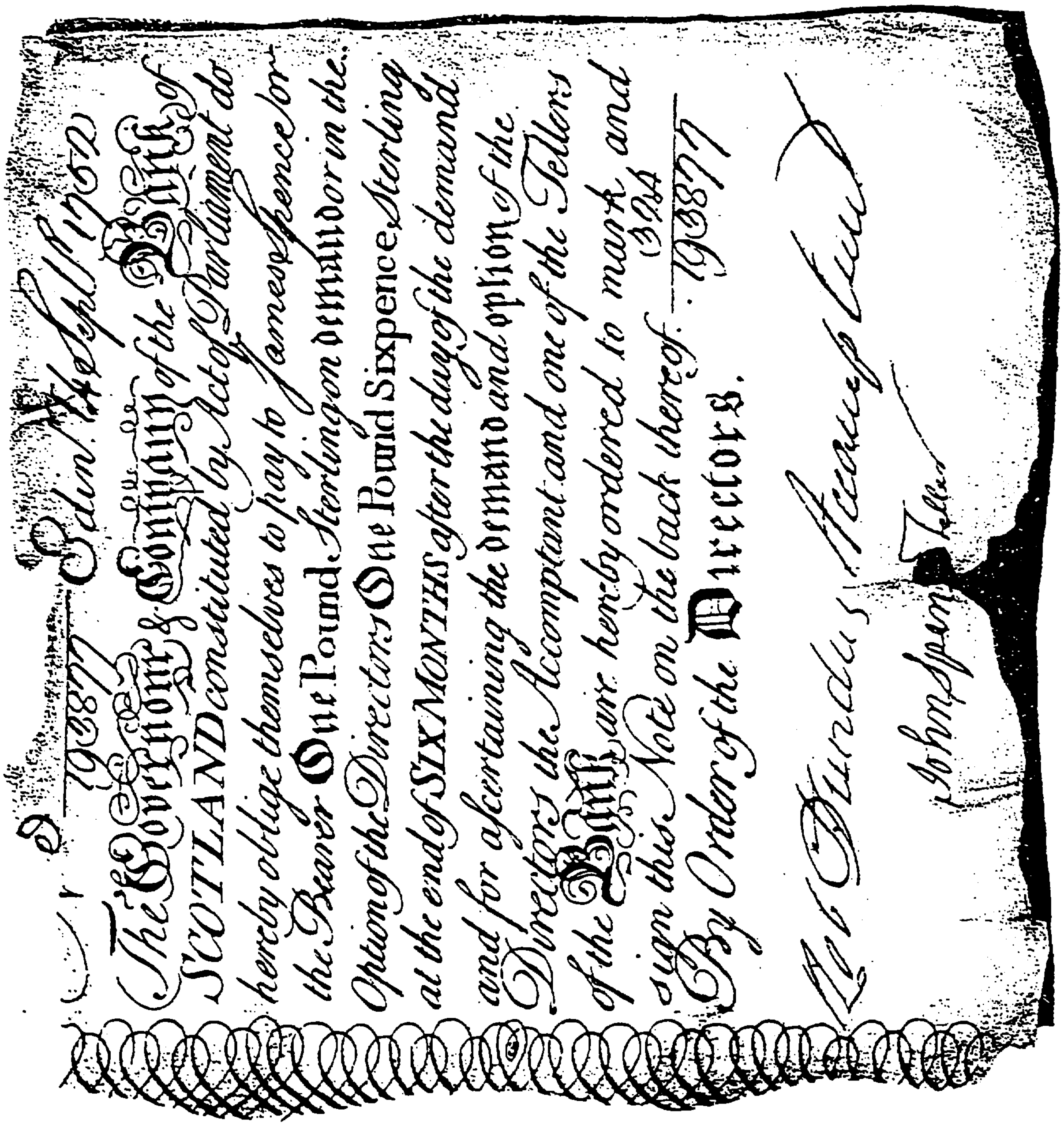
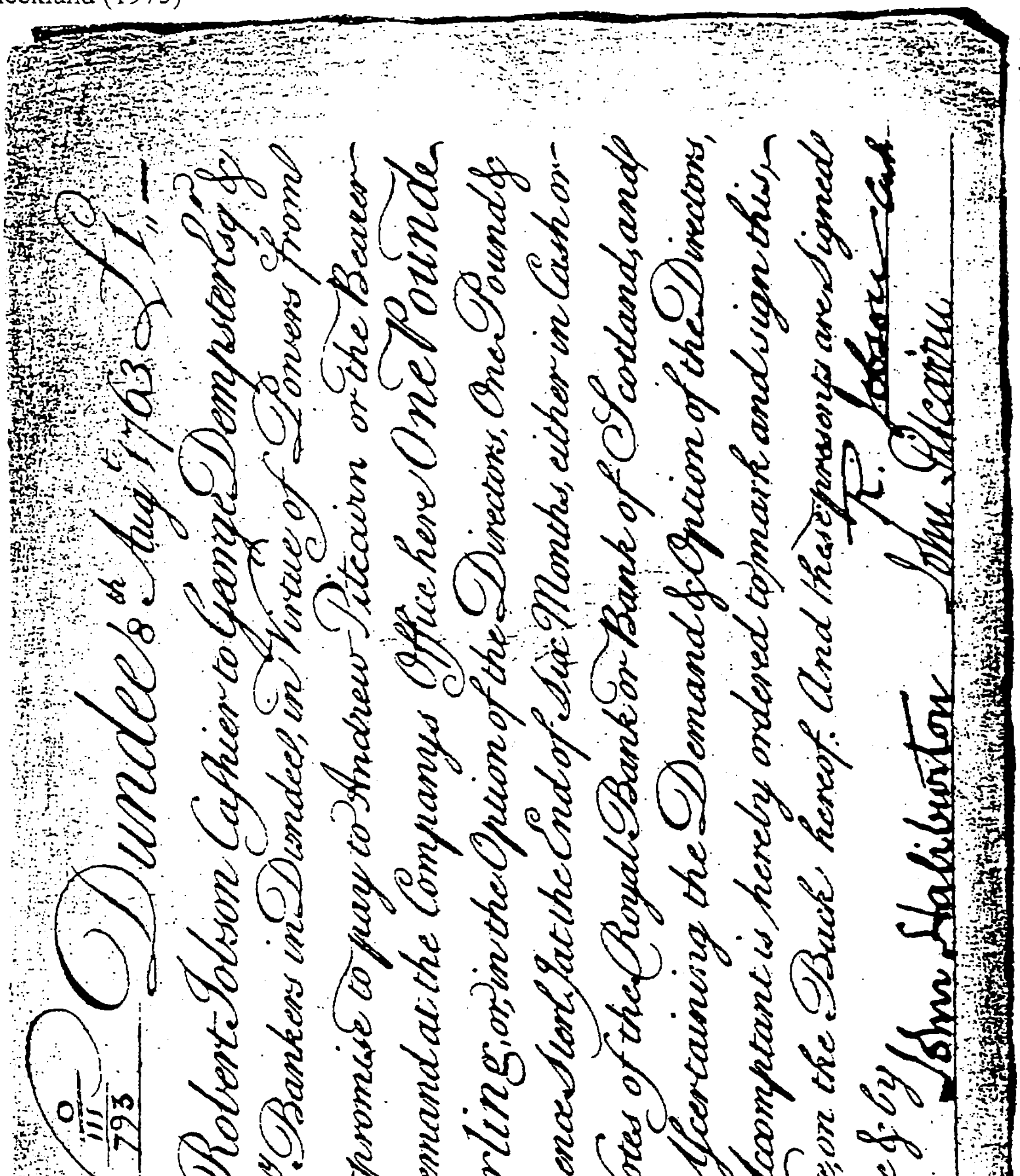


Figure 3.3: BANK OF DUNDEE NOTE WITH OPTION CLAUSE, PAYABLE IN GOLD OR BANK OF SCOTLAND NOTES
Source: Checkland (1975)


No 0/111/793 Dundee 8th Aug 1763 £1

I Robert Jobson Cashier to George Dempster Esq & Compy Bankers in Dundee in Virtue of Powers from them, promise to pay to Andrew Pitcairn or the Bearer on Demand at the Companys Office here One Pounds Sterling, or, in the Opinion of the Directors, One Pound & Sixpence Sterl. at the End of Six Months, either in Cash or in Notes of the Royal Bank or Bank of Scotland, and for Ascertaining the Demand & Opion of the Directors, the Accomptant is hereby ordered to mark and sign this Note, on the Back hereof. And these Impressions are Signed by me & by John Haliburton

R. Jobson Cash

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