2

The World of the Bank

An eighteenth-century visitor to Amsterdam (the City) wishing to see its Bank would have been directed to the Town Hall or *Stadhuis* (Figure 2.1), an imposing neoclassical building located on the central square known as the Dam.[1] The Dam was originally built as a structure to regulate the flow of the Amstel River through the City. Visitors to the Town Hall must have been impressed – as are tourists today – by the scale of its exterior, 79 meters wide by 55 meters high, and by its opulent reception room, the *Burgerzaal*, with 25-meter ceilings and marble floors inlaid with maps of the earth and heavens. A visitor to the Town Hall would not have left with an underestimate of Amsterdam's commercial ambitions.

The heavily guarded Bank was located on one side of this prominent building and the significance of this location was apparent to any resident or visitor. In addition to the Town Hall, the Dam was bordered by two other notable public structures. These were the Weigh House (seen at left in Figure 2.1), which was used for goods offloaded at nearby docks, and the Exchange (Figure 2.2), which housed merchants' markets for goods and financial assets. This physical setting is a tempting metaphor for the Bank's function of verifying and regulating the stream of precious metal flowing through Amsterdam, to the benefit of the denizens of the Exchange.

To continue setting the scene, this chapter will sketch the monetary, financial, and political environment in Amsterdam in the mid-eighteenth century – the high tide of the Bank. Historians have traditionally portrayed this period as an era of economic decline for Amsterdam and the Dutch

[1] The Town Hall was built in the 1650s to replace a burned-out medieval structure (Goossens 2009, 59–60; Dehing 2012, 82–88). In the nineteenth century, the Town Hall was repurposed as a palace of the Royal House of the Netherlands, a function it continues to serve today.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Figure 2.1. Amsterdam's Weigh House, Dam, and Town Hall, circa 1743
Source: Jan Gaspar Philips 1743–1744, courtesy of the Rijksmuseum
Note: The entrance to the Bank was on the south (opposite) side of the Town Hall.

Republic, but more recent research indicates that the Republic's economy may have instead continued at a high level (Israel 1989, 399–415; De Vries and van der Woude 1997, 681–83; van Zanden and van Leeuwen 2012). For certain sectors, banking and finance included, the latter half of the eighteenth century was even a time of "second bloom" marked by episodes of prosperity (Van Dillen 1970, 558–91). The activity recorded in the Bank's ledgers at mid-century is consistent with this characterization and reveals a vibrant financial sector supported by a sophisticated central bank.

How exactly did the Bank fit into Amsterdam's world of money and finance? This chapter will lay out the many ways the Bank was distinct from the other parts of Amsterdam's monetary system. These distinctions created room for financial markets to connect the Bank to the rest. Sometimes the Bank managed those markets, sometimes the reverse. Understanding how each of those markets worked is a research goal of this book. Pulling them together into a system is another goal. The Bank was central to only part of that system, so discovering how the Bank managed its role within the rest of the system is a third goal. Assessing how the political superstructure constrained the Bank and the system is yet another goal. Also, as these elements of the system were interlocking,

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

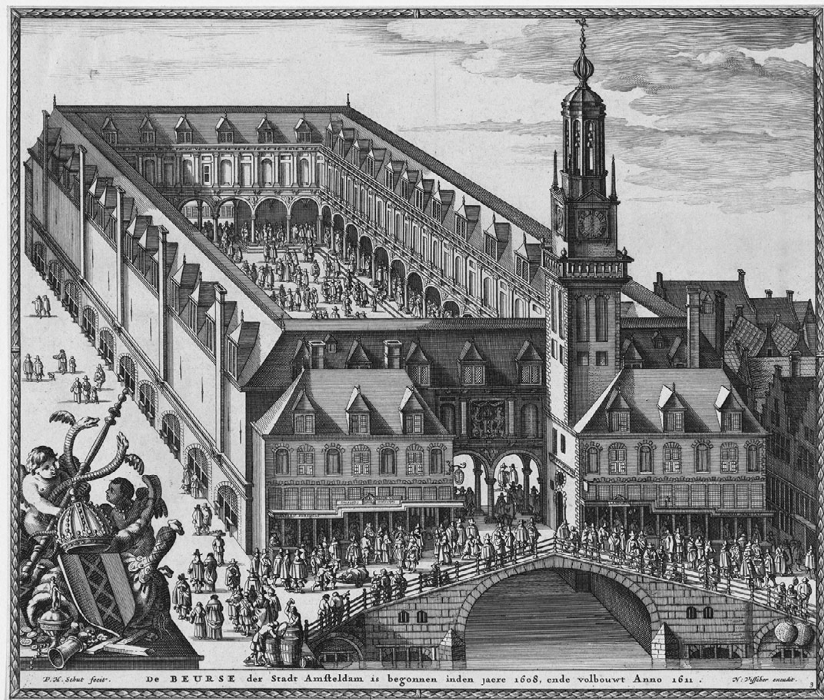

Figure 2.2. Amsterdam's Exchange, circa 1662.
Source: Pieter Hendricksz Schut 1662–1668, courtesy of the Rijksmuseum
Note: Merchants of the same type were to be found within assigned areas of the Exchange.

so too are the goals. We begin the analysis by first mapping Amsterdam's monetary system in terms of form and function at a point in time. This map will orient detailed stories of coins in Chapter 3, of receipts in Chapter 6, of stabilization operations in Chapter 7, and of monetary manipulations in Chapter 8. The map also shows the endpoint of the Bank's origin story in Chapter 4 and its transition to the eighteenth century in Chapter 5.

2.1 Political Location

It was natural for the Bank to reside in the Town Hall, because it was a municipal agency, owned and at all times controlled by the City of Amsterdam. Given the Bank's broader relevance to the Dutch Republic, Europe, and the world, municipal ownership may seem an odd

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

arrangement, but there were two reasons for this. The first was that during the era of the Bank, municipal rather than national public banks were the norm (Roberds and Velde 2016a). Public banks in commercial cities were seen as conducive to sound local money, and such institutions thrived in places such as Genoa, Hamburg, and Venice.[2] Within the Dutch Republic, the cities of Delft, Middelburg, and Rotterdam, in addition to Amsterdam, each operated a chartered public bank. Larger sovereign states at this time were often more interested in seigniorage than in sound money, and this preference was seen as incompatible with the operation of public banks.[3] The nationally chartered Bank of England, founded in 1694, offered an exception to this rule, although at the time it was so closely identified with the London financial markets, it was often called "the Bank of London" (Clapham 1945a, 107). Other early attempts at national public banks had led to either mixed results (in Sweden; see Heckscher 1934) or disastrous bankruptcy (in France; see Velde 2003).

A second reason the Bank existed as a municipal rather than a national institution was that decentralized governance was a characteristic feature of the Dutch Republic ("Republic"). The Republic (formally known as the Republic of the Seven United Netherlands or the United Provinces) existed (roughly) from 1579 (the signing of the Union of Utrecht, an alliance of provinces in revolt against Spain) until 1795 (when the Republic was invaded by France and converted to a client state).[4] The Republic was basically a provincial confederation with a weak central governing body: the States General (or the Estates General or *Staten Generaal*). The Republic had no monarch, although for much of its history it had hereditary leaders (Stadholders or *Stadhouders*) with limited executive powers.[5]

[2] Reliance on municipal banks in part reflected the general pattern of trade finance, which at this time was more of an intercity than an international phenomenon (Jobst and Nogues-Marco 2013).

[3] Summarizing the accepted wisdom of the time, Frederick the Great's financial counselor stated in 1765 that "a ledger-money bank is not allowed under a monarchy because it makes most coin payments unnecessary and therefore reduces the income from seigniorage" (Niebuhr 1854, 183).

[4] The United Provinces first tried establishing themselves as a protectorate under the English crown, but in 1588 rejected this arrangement in favor of a republican government (Israel 1995, 219–30).

[5] Before the Revolt against Spain, the Stadholders were provincial-level representatives of the Spanish monarchy. This function became obsolete after the Revolt, but the positions of the Stadholders were nonetheless retained, except during certain intervals ("Stadholderless periods") when the offices went vacant. Different provinces could have different Stadholders, but from 1747, all provinces had the same Stadholder, which led to more power being associated with that position. Technically speaking, the Republic's executive

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Decentralized governance was a hallmark of the Republic throughout its existence, although the largest province (Holland) and the commercial capital (Amsterdam) exerted disproportionate influence over policy decisions.

As a municipal agency, the policy decisions of the Bank were taken by a hierarchy of City officials ('t Hart 2009). Major policy decisions, such as the authorization of credit lines to the Dutch East India Company, were set by the governing council of the City (the *vroedschap*). More routine guidance was given by the City's executive council of four burgomasters (*burgemeesters*). Down one level of bureaucracy, short-term decisions and supervision of employees were delegated to a six-member board of commissioners (*commissarissen*), who were appointed by the vroedschap for one-year terms. An analysis of Bank commissioner biographies by 't Hart (2009) shows that during the eighteenth century, commissioners tended to be somewhat younger members (in their thirties or early forties) of well-connected political or mercantile families. Almost all of these were adherents of the Republic's dominant religion, the Dutch Reformed Church. The Bank's credibility with Amsterdam's financial markets was usually bolstered by its management's connections to the City's governing class.

2.2 Monetary Location

Eighteenth-century Amsterdam was well known as a globally significant entrepôt for precious metal assets of all types. Less visible but quantitatively larger than the metal flows were various forms of paper money entering, leaving, and turning over within the City: bills of exchange, private ledger-money (cashier ledgers and notes), and, at the heart of Amsterdam's monetary system, Bank money.

The Bank's money existed only as entries in its ledgers, as was common for early modern public banks.[6] As discussed in Chapter 1, however, a distinctive feature of eighteenth-century Bank money was that it was, according to modern concepts, fiat money. More precisely, people with

power resided in an organ of the States General, known as the Council of State (*Raad van State*), which consulted with the Stadholders (Israel 1995, 300–6; Fritschy 2017, 39–40).

[6] In the seventeenth century, the Bank engaged in some minor, largely unsuccessful attempts to issue banknote–like liabilities. These are discussed in Chapter 5. More generally, the Bank operated for too long for all behavior to conform to absolutes. We often acknowledge this through modifiers or counterexamples, and it is best to assume that the remaining generalizations have exceptions either unstated or undiscovered.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

funds in a Bank account, but without a coin receipt that had been issued by the Bank (discussed below), could not withdraw their account balance as coins. The term "fiat money" was not in common use during the eighteenth century, but people understood the irredeemable nature of Bank funds. To give one example, James Steuart (1767b, 76), in his description of the Bank, stated that "[t]he bank of Amsterdam pays none in either gold or silver coin, or bullion; consequently it cannot be said, that the florin Banco is attached to the metals."

Bank account holders were parties who dealt in bills of exchange, which were the dominant instrument of international credit. These parties were primarily wealthy merchants but also chartered corporations and governmental entities such as the City Treasury. Reflecting the high status of its clientele, payments through the Bank were usually made for large sums. A typical Bank transaction amount of 2,500 florins would have been in the order of 2,500 times the average daily wage in Amsterdam during this era, or more than 5,000 times the daily wage of a worker in contemporary central Europe or China (van Zanden 1999; Allen et al. 2011). The average Bank account balance in 1750 was for about 8,000 florins (Dehing 2012, 143). In January 1750, the Bank had 2,134 customer accounts as compared to Amsterdam's total population of about 200,000.[7] While in principle the Bank was open to any merchant in Amsterdam, in practice the Bank functioned as an institution serving the wealthiest tier of the City's population.[8]

Payment in bank occurred when an account holder ordered the clerks to transfer funds to another account. This was a giro system in which the payor pushed funds to the payee; that is, a transfer occurred when the clerks debited the payor's account and credited the payee's account. Such transfers had a special legal status (discussed below) that made Bank money into a uniquely powerful medium of exchange. In an era of hand calculation, it was no small job to keep track of these transfers, sometimes running to over 100,000 transactions per year. Inevitably, some errors crept in, as did occasional frauds. Key to the operation of the Bank were its bookkeepers as well as its auditors ("counter-bookkeepers"), whose job it was to ensure the accuracy of the Bank's financial records. Later chapters

[7] Data on account holders are from the Amsterdam City Archive (ACA) 5077/1167. Amsterdam population is from Israel (1995, 1007).

[8] Literally, the individuals who dealt with the Bank comprised 1–2 percent of Amsterdam's population. Assuming an average family size of four people, the Bank's clientele comprised the top 5–10 percent.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

will discuss the methodology the Bank employed to keep discrepancies to a tolerable level.

The vast majority of payments were made between customer accounts, but sometimes the Bank itself was payee or payor in a transaction, thereby creating new balances or destroying old balances, as metal flowed in or out of the Bank's vault. Those actions used a master account called the coin room (*specie kamer*). As managing its money stock was how the Bank conducted monetary policy, the master account is the research focus of this book. While the Bank had many employees, only two types had the authority to create balances with the master account from inflows of silver and gold: receivers and the assayer.[9] The job of the Bank's receivers (*ontvangers*) was to record coins sold to the Bank through the receipt facility, as discussed below. This activity entailed little discretion, and the results were routinely transferred to the Bank's master account.

The other official empowered to influence the master account was the assayer (*essaijeur*), who managed many of the Bank's idiosyncratic activities. As the title suggests, the assayer was tasked with ensuring that any coins or ingots entering the Bank were of requisite weight and quality, so a metallurgical background was necessary for this job. The responsibility of the assayer was more than that of a mere technician however, but on occasion closer to that of a modern-day head of central bank trading operations. The assayer would sometimes buy and sell coins and precious metals for their own account, but such transactions were clearly undertaken in order to implement policy when subsequently moved to the Bank's master account. This mingling of personal and business accounts was not unusual for the time. Unlike the receivers, the assayer at times ran large and persistent open positions in their Bank account, positions that were eventually transferred to the Bank. Or the assayer would sometimes conduct trades directly on behalf of the master account.

The Bank's relationship with its assayer was thus rather loose (by the standards of later central banks) and entailed a high degree of moral hazard. It was as if a modern central bank hired a primary dealer to trade on the bank's behalf. How the Bank attempted to align the assayer's incentives is in general unknown, but a 1782 directive to the Bank's commissioners is suggestive (Mees 1838, 327–28). The directive specified that the assayer should receive 10 percent of the Bank's gain from purchases and subsequent profitable resale of metallic assets.

[9] For a full organization chart of the Bank, see Dehing (2012, 102).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

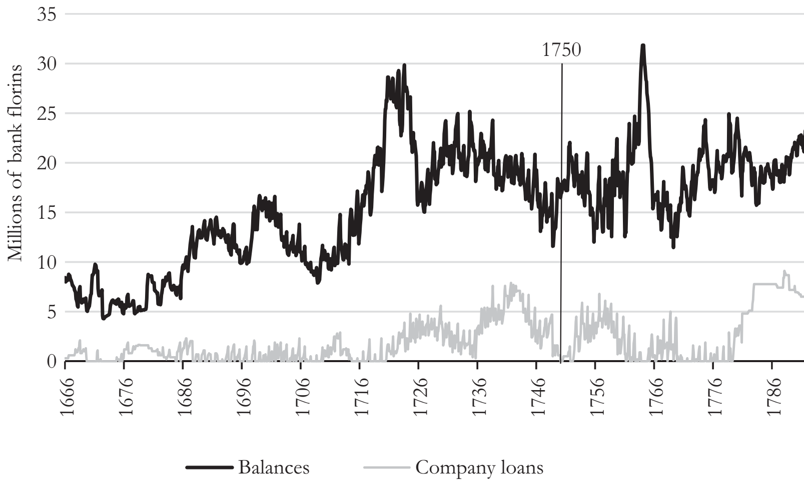

Figure 2.3. Bank money and Dutch East India Company credit, monthly, 1666–1792
Source: Authors' calculations

The activities of the receivers and the assayer created much of the aggregate stock of Bank money. To investigate this money creation, we encoded 172,000 extant master account transactions starting in 1666, when the Bank's accounts began to survive with regularity. Figure 2.3 gives the level of bank florins at the start of each month from February 1666 to January 1792.[10] The master account also included loans to the Amsterdam Chamber of the Dutch East India Company, or just "Company," and those levels are also displayed. Almost all of the remainder was created through flows of gold and silver, which is why so much of this book focuses on precious metals and their relationship to Bank money. Most transactions using Bank money did not involve coins, but most transactions that created or destroyed Bank money did.

The overall stock of Bank money is comparable to modern base money aggregates (stocks of central bank money, often denoted M_0), with several provisos. Unlike some modern central banks, the Bank imposed no reserve or minimum balance requirements and it never paid interest to its customers; a merchant's only motive for keeping a balance at the Bank would

[10] For readability, the series in Figure 2.3 and most figures in this book are presented from the start of each month. February was the first full month of each fiscal year, because the Bank closed for about two weeks each January to inventory assets and liabilities that were then reconciled into a balance sheet. These balance sheets were reproduced in van Dillen (1925b, 701–807). The Bank also shut each July but only to inventory balances.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

have been to use this balance for transactions. Also, the Bank generally did not issue circulating notes, which constitute a large part of the monetary base for modern central banks. In the mid-eighteenth century, the stock of Bank money tended to fluctuate between 18 and 20 million florins, about 7–8 percent of Dutch GDP.[11]

Descriptions of the eighteenth-century Dutch Republic often refer to its money as "the Dutch guilder." Guilder was, however, an ambiguous term, covering at least three different concepts. Bank money was denominated in a distinct unit of account called the *bankgulden*, which can be translated as "bank guilder" or "bank florin." Most other money in Amsterdam was denominated in another unit of account, *courantgulden*, translatable as the "current guilder" or the "current florin."[12] The symbol for both units of account was a script *f*. A separate unit of account for public-bank money was not a phenomenon unique to Amsterdam (for example, a similar distinction existed in Hamburg), but this separation enhanced the status of Bank money as a medium of exchange and store of value.

Both current and bank guilders were subdivided into smaller nominal units called stivers (*stuivers*, each equal to 1/20th of a florin) and pennies (*penningen*, each equal to 1/16th of a stiver or 1/320th of a florin), so an account entry in the Bank's books and most outside ledgers showed up as a triple of florins: stivers: pennies.[13] In the hope of minimizing confusion, throughout this book we will call bankgulden "florins" and courantgulden "guilders" (see Table 2.1). Yet a third type of guilder was the guilder coin, described later in this chapter.

Coins and bullion were valued in guilders when outside the Bank but in florins when inside. Bills of exchange were represented in guilders when made payable outside the Bank and in florins if payable inside. Most financial assets, however, were always in guilders because they had no direct interaction with the Bank. For example, cashiers' (private deposit banks') accounts were in guilders. So were the debt instruments of various

[11] This percentage assumes an annual GDP of 259 million bank florins, based on national income estimates for the Dutch Republic given in De Vries and van der Woude (1997, 702).

[12] The current guilder was also known as the *casgulden* or "cash guilder," a term we will avoid using in this book.

[13] To add to the complexity, there existed at this time a parallel unit of account known as the Flemish pound (*vlaamse pond*), which was used in the Dutch Republic as well as Flanders and other parts of the Southern Netherlands. A Flemish pound was equal to 6 Dutch guilders and was subdivided into 20 *schellingen*, which were in turn subdivided into *12 grooten*. Notations in Flemish pounds show up in many sources, but we will not use them in this book.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Table 2.1. *Nomenclature for types of guilders*

Dutch name	English names	Monetary function	Our preferred term
bankgulden	bank florin, bank guilder, florin banco	unit of account for Bank money	(bank) florin
courantgulden	current florin, current guilder	unit of account for money outside the Bank	(current) guilder
gulden (munt)	guilder (coin)	a coin with a face value of one current guilder	gulden

Source: Authors

Dutch provinces (van Bochove 2013), English government debt (when traded in Amsterdam), and stocks of various corporations (van Dillen 1931; Petram 2011).[14]

2.3 Conceptual Location

These distinctive features resulted in the separation, but not isolation, of Bank money from the other parts of the Amsterdam monetary system. This separation could be confusing to outsiders. In a 1753 banking manual, for example, Nicholas Magens was careful to warn English readers that "in the Bank of England, the Gold, Silver, and Credit runs promiscuously, but in Amsterdam they are Separate Things" (1753, 36).

To visualize the system around 1750, Figure 2.4 offers our conceptual arrangement: the "map." To sort the system into basic hows and whys, the monetary map placed Bank money in a space with two dimensions. On the horizontal, precious metals were the base form of money, and paper was the supplemental form that worked to reduce the use of coins. On the vertical, local methods of payment often differed from international methods. Local money was called current money (*courantgeld*) because, whether metal or paper, it was denominated in current guilders. Bank money was paper that mostly supported international payments, even

[14] The most heavily traded stocks in Amsterdam, according to van Dillen, were those of the Dutch East and West India Companies, the English East India and South Sea Companies, and the Bank of England. See Neal (1990) for the integration of Amsterdam and London stock markets. Investors could also trade stock futures contracts via brokers. For stocks in high demand, brokers offered options on futures. Prices of all these instruments were quoted in current guilders.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

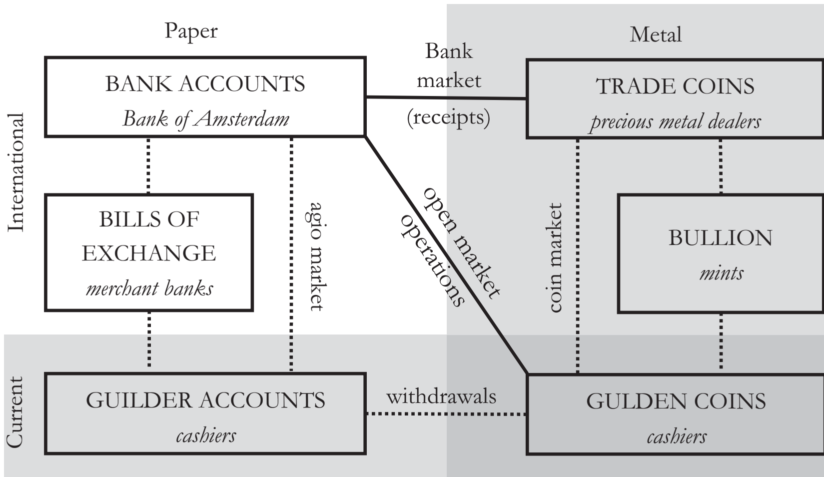

Figure 2.4. Map of monetary assets in Amsterdam, circa 1750
Source: Authors.

though Bank money never left the ledgers in the Town Hall. The schematic then located other major forms of payment: coins, bullion, bills of exchange, and cashier accounts. Each quadrant had a dominant form with an associated intermediary who helped make it work. In modern argot, each was a platform. Other activities at other scales and in other locations had other arrangements beyond the scope of this book. For example, Lucassen (2014) has assessed the availability of the Republic's smallest coins for use by day laborers, and Felten (2022) has investigated the monetary arrangements of farmers in Gelderland and in the sprawling estates of the Orange-Nassau family. In contrast, this book focuses on large payments made in Amsterdam between the economic elite who used the Bank, and in that situation accounts and big coins were the relevant monies.

Connecting the monies were markets, represented by lines in Figure 2.4. As a result, the map assigned Bank accounts four different lines of engagement with the outside platforms, and each will be reviewed in the following sections of this chapter. The interactions we reconstructed from the Bank's ledgers were shown as solid lines, and they will be the primary focus of this book in later chapters. The map also emphasizes that Amsterdam's system had markets that did not directly involve the Bank. They too were important as relevant alternatives. When taken as a whole, the map delineates what Bank money was central to (bills) from what was central to Bank money (trade coins) from what indirectly connected them (current money).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

2.4 Bills of Exchange

Most money entering or leaving Amsterdam came or went not as precious metal, but as paper bills of exchange (or "bills," *wisselbrieven*). Bills of exchange were the preeminent financial instrument of early modern Europe and could be used for many purposes, including remote payment, trade finance, or unsecured lending. Bills were typically written for large sums and their use was limited almost exclusively to merchants (*kooplieden)*. However, bills moving between merchants could be used indirectly by other parties, for example, by governments transferring funds for military expenses during times of war. An early modern city's success as a financial center depended on the strength of its bill market, and the broad purpose of the Bank was to support this market.

A bill consisted of a written order by a party *A*, the *drawer* (who made out the bill), to party *B*, the *drawee*, to pay a sum to *C*, the *payee* or beneficiary, at a certain time and place.[15] Upon presentment of the bill, *B* would indicate his willingness to pay by signing or *accepting* the bill, in which case it became a binding obligation on *B* (now called the *acceptor*) to pay *C* at the specified time. Or the drawee could refuse to pay the bill drawn on him, a formal act known as a *protest*, which in Amsterdam required a notary and two witnesses to have legal force.[16] Protesting a bill did not erase an obligation to repay an existing debt. Bills were customarily written or "drawn" in one city and made payable in another. These could be different cities within the same country (within the Dutch Republic, in the case of Amsterdam), but the more important types of bills were those that connected major commercial cities in different countries; hence the map represents bills as international instruments. Bills were typically specified to be payable at *sight* (upon receipt) or at a standard term known as *usance*, which varied by location.

Merchants during this era cultivated relationships with merchants in other places, known as "friends" or "relations," who could be called upon

[15] Here we employ (with some reluctance) modern legal terminology for parties *A*, *B*, and *C*. For contemporary terminology and examples of how bills were used, see Neal (1990, 5–9). Dutch terms for bill transactions are given in the Glossary.

[16] Our main source for bill market practice is Le Moine de L'Espine and Le Long (1763, 141), a later edition of a merchants' manual first published in 1694. At least by the time of this edition, bills originating within the Dutch Republic could sometimes be returned to the drawer in lieu of a protest. This informal procedure was not possible for the more important foreign bills. Records of bills protested to notaries have been preserved in the Amsterdam City Archive.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

to accept bills drawn on them, up to a mutually agreed limit. A merchant's friends were often (but not exclusively) firms with which the merchant had an ongoing trading relationship. Merchants wanting to send funds to a certain city, but not having a friend there, could purchase a bill drawn by another merchant who did. Bills of exchange drawn on Amsterdam merchants were *negotiable*, meaning that their use fell under strict rules enforced by law and custom. Among other things, negotiability meant that anyone endorsing a bill over to another party became liable for it, and the assurance provided by joint liability facilitated the circulation of bills as a type of money. It is not clear, however, how common it was for bills of ordinary Amsterdam merchants to circulate, as opposed to bills of banks and other financial specialists (De Jong-Keesing 1939, 65). Someone who ended up with a bill at its maturity, perhaps the original beneficiary or perhaps someone who obtained the bill via endorsement, was known as the bill's *holder*.

Formal settlement of a bill in Bank money occurred via an order from the acceptor to the Bank's clerks to transfer funds to the holder of the bill. To facilitate settlement, bills were commonly lodged with the Bank's clerks before they came due. A book-entry transfer then served as legal discharge of the acceptor's liability, and holders were advised to carefully verify the transfer of funds before returning a canceled bill to its acceptor (Le Moine de L'Espine and Le Long 1763, 206, 211–12). Because this was the legal and customary way to settle Bank-money bills, any Amsterdam merchant who regularly dealt in such bills needed an account at the Bank. To quote Adam Smith: "Every Merchant, in consequence of this regulation, was obliged to keep an account with the bank in order to pay his foreign bills of exchange, which necessarily occasioned a certain demand for bank money" (1981 [1776], 481).

The Bank's ledger entries usually do not record the purpose of a transaction, but most of these were undoubtedly transactions relating to bills, recording either the settlement of a bill at maturity or the purchase of another merchant's bill with Bank funds (called "discounting," since such purchases were usually for less than the face value of the bill). Indeed, the original purpose of the Bank was to expedite the settlement of commercial debts such as bills.[17] At its founding, the City granted the Bank a monopoly

[17] The negotiable bill of exchange was an up-and-coming financial instrument in Amsterdam at the time of the Bank's founding in 1609, eventually displacing an earlier form of commercial debt known as the letter obligatory. Bills of exchange were originally introduced into the Netherlands by Italian merchants and negotiable bills became used in

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

for settlement of all bills in sufficiently large amounts (600 florins, later reduced to 300), but this monopoly proved impossible to fully enforce. In practice, bills drawn on Amsterdam merchants had to specify whether they were payable through the Bank. If they were, then they were customarily settled through a giro transfer that was recorded in the Bank's ledgers.[18] Or if a Bank customer used his balance at the Bank to purchase a bill drawn or held by another Bank customer, this transaction also shows up in the Bank's ledgers. In the map, these types of transactions are represented as the line running between bills of exchange and Bank accounts.

A complication of Amsterdam's bill market during this period was that it was also possible for merchants to draw and settle bills in current money, meaning money outside the Bank. Price currents (financial reporting sheets) in foreign cities sometimes list two sets of prices for bills drawn on Amsterdam: current-money bills and Bank-money bills. How current-money bills were actually settled remains something of a mystery. In principle, these obligations could be discharged by transfer of coin or by a giro transfer on the books of a private intermediary such as a cashier. De Jong-Keesing (1939, 80–81) describes a third mode of settlement, which was transfer of a deposit receipt issued by a cashier.[19] Amsterdam's cashiers would gather daily to net settle or "clear" mutual obligations arising from exchange of deposit receipts (Mees 1838, 250; Jonker 1996, 175). Unfortunately, no systematic records remain of this clearing process, making it hard to determine the size of the current-money segment of the bill market. Transactions in the current-money bill market are also mapped as a line running from the bills-of-exchange box to the guilder accounts.

Bills could serve simply as payment instruments, a way of moving money from one city to another, but bills could also have a credit function. In a classic use, a merchant *A* in one city would ship goods to a friend *B* in

Antwerp from the late sixteenth century (Van der Wee 1963, 340–52). Negotiable bills were popularized in seventeenth-century Amsterdam by immigrants from the Southern Netherlands (Heyvaert 1975, 94, 120–21).

[18] See Justine (1707, 335–36) and Le Moine de L'Espine and Le Long (1763, 204–5). Bills drawn in Bank money could also be settled outside the Bank, in current money, by mutual consent of the bill holder and the acceptor as to the appropriate adjustment in value. We suspect that this alternative was sufficiently cumbersome that it was infrequently used.

[19] Cashiers (proto-deposit bankers) were introduced in Chapter 1 and are discussed in more detail in Section 2.6.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

another city, who would then sell the goods on commission. Merchant *A* could tap the liquidity to be generated by these sales by drawing bills on *B*, subject to mutually agreeable terms.[20] In such cases, any advance credit granted by *B* to *A* would have been implicitly collateralized by the goods that were shipped.[21] The two hypothetical merchants could add liquidity to such a bill by finding a reputable third party in a location with a deep bill market, such as Amsterdam, to be the acceptor (Santarosa 2015, 697). To give one example, Postlethwayt (1774, 684) described purchases in St. Petersburg by London merchants as typically occurring via bills drawn on Amsterdam counterparties. Market depth in Amsterdam allowed an accepted bill (bearing a sufficiently reputable signature) to be sold at a discount to investors, and such discounting created a money market that funded merchant *A* before payment by the acceptor on merchant *B*'s behalf.[22]

Bills could be written without any implied bond to collateral, however, which meant that they could be used to generate credit without a connection to any underlying real transaction. For example, a merchant *A* could accept a bill drawn by a friend *B* with the expectation that *A* could then draw a bill on *B* that would cover the value of the original bill plus a premium that incorporated an implicit interest rate. Again, liquidity could be enhanced by drawing and redrawing bills (*wissel en herwissel*) through reputable Amsterdam merchants. The related and notorious practice of bill-kiting (*wisselruiterij*) consisted of indefinite cycles of drawing and redrawing, often among a small group who were simply gambling on better circumstances.[23] There was, however, no exact dividing line between legitimate bill finance and bill-kiting.

From a modern perspective, bills of exchange were neither pure credit nor pure money, but a mixture of both.[24] A twenty-first-century economist

[20] Wilson (1941, 11) suggests that credit granted by *B* under such circumstances would have been limited to a portion, say, three quarters, of the anticipated value of the goods shipped. In return, *B* would receive interest on any advance credit as well as a commission on the amount of the sale. In an earlier form of this arrangement, *A* would draw bills not on the commission agent *B* but on the party who purchased the goods from *B*.

[21] Collateralization was implicit because bills could not be formally bound to collateral.

[22] The acceptor would, of course, arrange to be repaid for this service, for example, via a bill drawn on the London purchaser.

[23] See, for example, De Vries and Van der Woude (1997, 154). Bill-kiting is our term. Contemporary, more colorful English-language terms for this practice included "raising money by circulation" (Smith 1981 [1776], 310) and "swiveling" (Kosmetatos 2018, 110–13).

[24] According to a definition proposed by Dang, Gorton, and Holmström (2019) and Gorton (2020), debt became money-like when it was short-term, information-insensitive, and backed by other debt. Bills that circulated by endorsement obviously met this definition.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

transported back to eighteenth-century Amsterdam would be frustrated in an attempt to construct M_1, M_2, and similar monetary aggregates. Because deposit banking and banknote issue were underdeveloped in Amsterdam, these concepts would have had little meaning. Perhaps a more relevant monetary aggregate would have been the mass of outstanding bills (call this *B*) either (1) drawn on Amsterdam merchants or (2) drawn on merchants in other locations and sold in the Amsterdam market. No official statistics were ever compiled on *B*, but the archives of the Bank contain an almost photographic record of the Bank-money component of Amsterdam's bill market. Due to data challenges, we must defer a comprehensive investigation of this market to future research. Using statistics compiled by Dehing (2012), however, it is possible to make an informed guess of its size.

Dehing (2012, 82) shows that the annual number of transactions through the Bank peaked during the 1760s at about 160,000. A typical eighteenth-century bill transaction was for about 2,500 bank florins (Dehing 2012, 140), suggesting a maximum annual payment flow through the Bank of about 400 million bank florins.[25] Assuming these payments were (1) all transactions involving bills and (2) these bills had on average a month to run before settlement, this flow of payments would imply a figure for *B* of about 33 million (=400 million/12) bank florins. If the stock of current-money bills was (conservatively) half as large as Bank-money bills, then *B* at its peak would amount to at least 50 million bank florins, or 19 percent of contemporaneous Dutch GDP. The ratio of M_1 to GDP in the United States today is about 18 percent, so even this cautious estimate suggests a high degree of financial development. More generous assumptions would imply a larger size for the Amsterdam bill market. For example, assuming a two-month average maturity for bills and a current-money bill market equal in size to the Bank-money bill market brings the total size of the Amsterdam market to 130 million (=2*400/6) florins. A roughly contemporary (1780) estimate puts the size of this market at about 190 million bank florins (Jonker 1996, 105), which may be near the upper range of reasonable figures.

All major European commercial cities had markets for bills of exchange at this time, but there are reasons to believe that Amsterdam's market was

Kahn and Roberds (2007) noted that a bill of exchange could meet this definition even when it did not circulate. More specifically, if the drawee *B* owed a prior debt to the drawer *A*, then by drawing a bill on *B, A* was in effect using the bill to transfer *A*'s claim on *B* to the beneficiary *C*.

[25] Of which 11 million, on average, would be through the master account.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

the densest of these, despite intense competition from cities such as London, Paris, and Hamburg. Researchers who have analyzed the frequency of eighteenth-century bill price quotations in European cities (Flandreau et al. 2009a; Dehing 2012) have concluded that bills were more likely to be drawn on Amsterdam than anywhere else. Gillard (2004, 261) argues that the success of the Amsterdam bill market derived in part from what economists would term a network effect: merchants in other cities believed that the density of the Amsterdam market, combined with its lack of capital controls, would protect them from idiosyncratic movements in precious metal prices and exchange rates. In addition, Amsterdam's wide range of market connections could allow them to redirect funds obtained there to elsewhere in Europe, at a low cost. Payment, borrowing, or lending through Amsterdam was thought to be cheap, reliable, and convenient. Such beliefs tended to be self-reinforcing, or in plainer language, success bred success.

The Bank of Amsterdam was functionally a central bank, in that its money was central to Amsterdam's core financial market, the bill market. Bank money was a vehicle currency, in that foreign borrowers relied on bills payable at the Bank and maintained access to Bank money through Amsterdam intermediaries, especially merchant banks. The records of this activity have survived for most years of the eighteenth century and comprise a vast amount of information, well beyond our ability to reconstruct. Instead, we focus on how the Bank interacted with the rest of the Amsterdam system.

2.5 Merchant Banks

In this mix of trade credit, discounting, and rollover lending, there was no sharp separation of banking and commerce. Any Amsterdam merchant with sufficient standing could draw a bill, accept a bill, or buy and sell a bill (the last as long as they could find a willing buyer). Yet, over time, there arose distinct types of financial specialists within the Amsterdam market, and the Exchange recognized the sorting of merchants into these types and others. To facilitate trading, merchant groups were assigned a specific area within the interior of the Exchange, which was an open rectangular courtyard surrounded by a colonnade of 46 columns (Figure 2.2). The columns demarcated areas ("arcades") that were allocated to different merchants according to type.[26] Table 2.2 compares three types of

[26] The allocation of the arcades is described in Le Moine de L'Espine and Le Long (1763, 49) and illustrated in Petram (2009, 76). Much business, especially money changing, was also conducted just outside the Exchange.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Table 2.2. *Select types of merchants in Amsterdam, circa 1750*

	Approximate number	Specializations
Merchant banks	10	Commission trading, acceptance credit, proprietary trading, sovereign lending
Precious metal dealers	30+	Trading and brokerage of precious metal assets
Cashiers	60	Brokers in the agio (spot) market for Bank money; deposit banking

Sources: van Dillen (1925a, 381–82, 1403–29); Jonker (1996, 235).

merchants that receive attention in this chapter because of their conspicuous presence in the Bank's master account. The Bank's ledgers did not record merchants by type, and these must be inferred from other sources (e.g., Van Dillen 1925a, 1403–29).

The dominant players in Amsterdam's bill market were the merchant banks (*banquiers*), which we will call "banks" (lowercase *b*). Whereas a typical merchant's account at the Bank had one or two transactions a week and a balance of several thousand florins, a top merchant bank's account might record a balance of hundreds of thousands of florins and contain dozens of transactions each week.

The merchant banks' business was often based on family connections. Many banks had family origins in other countries and an extensive network of international contacts.[27] Banks accepted and drew bills from merchant relations all over Europe, and the complexity of a larger bank's account at the Bank (measured in numbers of transactions and counterparties) often rivals or even exceeds that of the Bank's master account. It should be emphasized that the merchant banks did not see themselves as competitors of the Bank, since they occupied distinct niches in the marketplace. This was in part because the concept of a bank in mid-eighteenth-century Amsterdam, as epitomized by its great merchant banks, was quite different from that of deposit banks as then existed in England and as exist in most countries today.[28]

[27] Famous examples of Amsterdam banks with foreign roots include Cazenove (France), Clifford (England), Deutz (Germany), Hogguer (France), Horneca (Switzerland), and Hope (Scotland).

[28] According to Clapham (1945a, Chapter 4), few London firms specialized in English deposit banking before 1750, and it then developed rapidly nationwide.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Amsterdam's banks were also merchants, and they dealt extensively in goods as well as finance.[29] Accordingly, assets held by these banks included goods as well as bills and other financial claims. On the liability side of the balance sheet, these banks did not rely on deposits but sought out other channels of funding, notably the Amsterdam bill market. Any bill that bore the signature of a major merchant bank (as drawer, acceptor, or endorser) found ready buyers in the Amsterdam market. Funding via the bill market was seen as a normal way of running a banking business, rather than deposit-taking. The 1763 partnership contract of Hope & Compagnie, one of the largest Amsterdam banks of its day, made this preference explicit with the warning, "... that this firm shall deal exclusively in matters of commerce and commissions, and shall not trade in moneys of deposit or the like" (De Jong-Keesing 1939, 69). This funding preference was evidently not limited to Hope. In Le Moine de L'Espine and Le Long (1763, 50), Amsterdam's banks are generically defined as "great banks [which deal] in bills of exchange" (*groote banquiers in wissel*).

Despite merchant banks' aversion to deposits, their voluminous transaction records show that they did not lack in funding. No charter or other official sanction was required to become a bank, but other merchants only applied the esteemed title of banquier to firms that had demonstrated the requisite financial muscle over long periods of time. At any given moment, there were maybe ten firms in Amsterdam that indisputably qualified as banks, but many more that aspired to be known as such.

A defining activity of merchant banks was placing loans from Amsterdam creditors to foreign sovereigns (Van Dillen 1970, 456–57; Buist 1974; Riley 1980). Sovereign lending was pioneered during the seventeenth and early eighteenth centuries by high-profile firms such as Deutz, Pels, Muilman en Meulenaar, Horneca en Hogguer, and Hope (De Vries and Van der Woude 1997, 140). By the mid-eighteenth century, however, the sovereign lending business had flattened out somewhat and was largely restricted to two borrowers: Britain and Austria (Riley 1980, 119–36). The annual amount of new foreign sovereign debt floated in Amsterdam at mid-century was only about 4 million guilders, small in comparison with its bill market (De Vries and Van der Woude 1997, 120). During the latter half of the eighteenth century, however, demand for sovereign loans (and hence the services of Amsterdam banks) expanded rapidly, increasing Amsterdam creditors' holdings of foreign sovereign

[29] Reflecting this real-side activity, an alternative designation for the merchant banks was *handelshuizen* ("trading firms"; see Jonker 1996, 188).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

debt from 200 million guilders in 1763 to 350 million by 1780 (Riley 1980, 221). Perhaps the most enduring achievement of the Amsterdam banks would occur later in the century, when a group of them, headed by the Van Staphorst firm, floated loans that refinanced the United States' shaky war debt (Veru 2018, 2021a, b).

The elite merchant banks formed the core of Amsterdam's financial system (Carlos and Neal 2011, 28). Bills drawn on and accepted by the most reputable banks enjoyed special status (i.e., favorable prices and unquestioned liquidity) in the Amsterdam bill market, and by virtue of this status, banks were large suppliers of "acceptance credit," a form of bill finance in which foreign merchants drew bills on Amsterdam merchants, with repayment occurring through bills drawn in the opposite direction.[30] The liquidity of these merchant banks was in turn largely channeled through a single institution, the Bank of Amsterdam, on whose books the bills were traded and settled. The volume of Bank money used by the merchant banks in the bill market was usually much larger than their participation in the other linkages, but merchant banks took full advantage of the Bank receivers' receipt window (described below) to accommodate their own and their customers' needs. Hence, Amsterdam's banks were a major channel through which one form of paper money (bills) was exchanged for metallic assets (especially trade coins), with Bank money serving as the intermediate asset in many such exchanges. In short, merchant banks were all over the map.

Another noteworthy point about Amsterdam's merchant banks is that they were, as compared with deposit banks of later eras, institutions of indeterminate financial "polarity" (Howell 2020, 50). That is, the banks could supply large amounts of liquidity to other participants in Amsterdam's bill markets, but it would be a mistake to think of them as net liquidity providers under all circumstances. Because these banks faced no regulatory constraints on their own trading activity, "polarity reversals" could occur in which the banks could pull liquidity from the Amsterdam market in order to support their own trades. Chapter 8 will provide evidence of a reversal during the Seven Years War, when the banks as a group relied heavily on the Amsterdam bill market in order to fund their

[30] See, for example, Büsch (1797, 121) and De Jong-Keesing (1939, 71). The market for acceptance credit was sufficiently competitive that the fees charged by banks for acceptance were surprisingly low, with one-third percent (0.33%) being typical. The availability of such cheap "credit insurance" enhanced the attractiveness of Bank money as a vehicle currency. A disadvantage of this arrangement was that acceptance credit could be withdrawn suddenly in crisis situations, as famously occurred in 1763 (Chapter 7).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

large purchases of trade coins, most likely to supply the needs of warring countries.

2.6 Cashiers

Merchant banks were not the only financial intermediaries operating in eighteenth-century Amsterdam. Another important category of intermediaries were the cashiers, who offered paper-based accounts denominated in current guilders. Jonker and Gelderblom (2018) have shown how Dutch commerce made prolific use of ledger balances for payments, of which cashiers were the most specialized in offering accounts that circulated as a medium of exchange. To do so, cashiers also took deposits in local coins, represented by the silver *gulden* coin worth one current guilder. The gulden was the name for a traditional coin in the Netherlands that had disappeared from circulation during the sixteenth century, but which had persisted as the Dutch Republic's unit of account (Korthals Altes 2001, 33–47). A new gulden coin was then reintroduced by Dutch mints starting in 1681 (Polak 1998a, 197–98) and became more prevalent in the eighteenth century. We will refer to the gulden coin by its Dutch name to avoid confusion with the current-money unit of account, the current guilder (cf. Table 2.1).

A deposit and withdrawal relationship with a cashier connected local coins and current-guilder accounts, so cashiers spanned the bottom half of Figure 2.4. The monetary map also splits coins used in international transactions from those used in local transactions. Large coins dominated foreign trade and small coins dominated retail trade, but the line between these types of coins was not always distinct. For simplicity, we will take one current guilder as the boundary between small-value and large-value coins.[31] Various types of small-value coins (*kleingeld*) were used for local transactions, typically coins with some silver content but below one guilder in nominal value (*schellingen*, *dubbeltjes*, and *stuivers*), sometimes referred to collectively as *payement* (Lucassen 2014, 111–21). At the bottom of the monetary prestige scale was the humble *duit*, a copper coin with a nominal value of two pennies or 1/160th of a current guilder.

As noted in Chapter 1, the original business of the cashiers was limited to payments, that is, book-entry settlement in lieu of transfers of coin (Van

[31] For an authoritative introduction to the coinage of the Dutch Republic, the reader is referred to Van der Beek, Brzic, and Pol (2009). Our classification of the Republic's coins follows theirs (p. 47).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Velden 1933, 48–50; Heyvaert 1975, 100–5). In the early seventeenth century, widespread complaints about the cashiers caused Amsterdam's governing council to repeatedly attempt to ban them outright (in 1604, 1608, 1609, and 1619) and to displace their business through creation of the Bank (Van Dillen 1925a, 1, 12, 23–25, 45–46). These efforts at eradication were not successful. The services of the cashiers proved too convenient to forgo and they were again given legal status in 1621 (Van Dillen 1925a, 47–49). The business model of the cashiers then expanded toward fractional reserve banking along the lines of the better-known early London goldsmiths.[32] On the liability side of their balance sheet, eighteenth-century cashiers issued deposit receipts or *kwitanties*, demandable obligations that resembled the London goldsmiths' notes (De Jong-Keesing 1939, 80; Jonker 1996, 174–75). On the asset side, the cashiers had become heavily involved in direct lending by the mid-eighteenth century (De Jong-Keesing 1939, 80–84).

Cashiers connected to the Bank in two ways. The first was account-for-account swaps of Bank money for current money, labeled the *agio market* on the map, that cashiers conducted each morning outside the Bank. Persons other than cashiers could participate in this market, but the cashiers were active as brokers. Cashier accounts and Bank accounts were thoroughly separate, so a typical trade in the agio market was for one side to transfer current guilder accounts and the other side to transfer bank florin accounts. Neither transfer created or destroyed either type of account money. Instead, they swapped ownership. The market measured prices of this domestic exchange as the ratio of the two units of account: current guilders per bank florin. For most of the eighteenth century, the ratio favored Bank money, so florins enjoyed a premium. As Dutch book-keeping was derived from Italian accountancy, a premium was often called an agio, and people reported this local rate as the agio of the Bank (a term also applied to monies of other public banks).

At mid-century, a normal range for the agio was between 4 and 5 percent. Bank money was consequently seen as a reasonably stable store of value. Because it did not pay interest, however, and because it had a unique role in the Amsterdam bill market, Bank money tended not to sit idle in customers' accounts. Subsequent disruptive events would cause the agio to fall below this range for extended periods. Figure 2.5 plots monthly agio premia from 1711 to 1793, the period for which the Bank's records are most complete.

[32] On the London goldsmith-bankers, see Quinn (1997) and Temin and Voth (2013).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

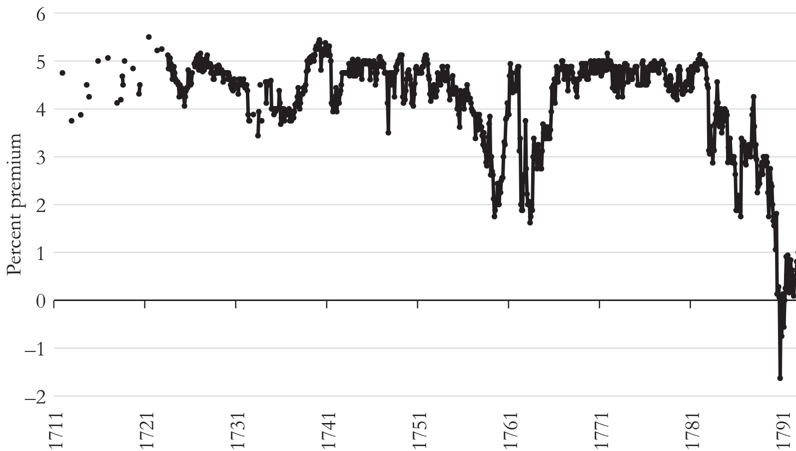

Figure 2.5. Agio premia, monthly, 1711–1793
Sources: Gillard (2004) and Schneider, Schwarzer, and Schnelzer (1991).

The other cashier-dominated connection involved the occasional trade of local coins for Bank accounts. These operations were initiated by the Bank as a discretionary policy to stabilize the quantity of Bank money (Quinn and Roberds 2019).[33] The map represents this as a diagonal line labeled open market operations. When the Bank purchased gulden coins with Bank money or the reverse, cashiers were the frequent counterparty because they traded in both types of money. Cashiers kept accounts at the Bank to be able to take either side of the agio trade, and cashiers held gulden local coins to satisfy withdrawals. These operations let the Bank manipulate the current side of the monetary system without directly interacting with the current guilder accounts offered by cashiers. In effect, the Bank engaged in domestic exchange interventions, as will be detailed in Chapter 7.

As many as 61 firms operated in mid-eighteenth-century Amsterdam as cashiers (Jonker 1996, 235). These appear to have been much smaller firms than the merchant banks, judging from tax records (Gelderblom, Jonker, and Kool 2016, 1180) and cashiers' names that can be matched to specific Bank accounts.[34] Despite their lesser individual size, the cashiers in

[33] It is unknown whether these transactions occurred privately or in the daily open market for Bank money. A 1782 directive required that all trades by the Bank's assayer remain secret, which we suspect was the usual practice (Mees 1838, 327–28). Technical details of these transactions are deferred until Chapter 7.

[34] Unlike Amsterdam's precious metal dealers (discussed below), there were a few (if any) Jewish cashiers (De Jong-Keesing 1939, 83).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

aggregate formed a substantial deposit-based, current-money banking system that operated in parallel to the Bank-money system that was dominated by the merchant banks.[35] Compared with the deposit banks that were developing in contemporary London, however, Amsterdam's cashiers operated at a relatively informal level. Specialized rules governing creditors' recourse with kwitanties, for example, were not published until 1776 (Van Dillen 1925a, 424–25).[36] The slow development of deposit banking in Amsterdam was likely more attributable to the success of the traditional alternative – merchant banking in combination with the services offered by the Bank – than financial backwardness (Gelderblom, Jonker, and Kool 2016). With the decline of the Bank at the close of the eighteenth century, the cashiers grew to occupy a more prominent position in the Republic's financial system (Jonker 1996, 233–47).

The roles of banks and cashiers in eighteenth-century Amsterdam offer a notable contrast to the present-day situation in the United States. Especially since the 2008 financial crisis, there has been much discussion of "shadow banks" in the US-dollar financial system (Pozsar et al. 2010). Modern shadow banks have been defined as institutions that functionally resemble banks but (1) lack bank charters and so cannot take deposits and are thus entirely market-funded and (2) have no public-sector credit guarantees. Shadow banks nonetheless have created liabilities that, under normal conditions, are seen as safe and liquid enough to substitute for bank deposits. Loss of confidence in these pseudo-deposits played a prominent role in the 2007–2008 financial crisis.

In eighteenth-century Amsterdam, the status of market-funded and deposit-funded institutions was reversed. The more respectable institutions were the market-funded merchant banks, which were also the institutions most connected to the Bank. Playing second fiddle were the deposit-taking cashiers, who could interact with the Bank, but preferred to do much of their business away from the Bank and its tight restrictions on eligible collateral (generally, only trade coins qualified for Bank credit at the receipt window). The distinction between mainstream (merchant) banking and lesser (cashier) banking was underlined by the existence of dual units of

[35] Knowledge of the cashiers' operations has been limited by the lack of any surviving set of books. Some indirect evidence on the cashiers' activity was provided by Dehing (2012, 138–39). Dehing identified 55 cashiers that had active Bank accounts in 1726. The total turnover in their Bank accounts, 30 million florins for that year, was about equal to that of the merchant banks.

[36] We conjecture that these formal rules were a response to distress experienced by cashiers during financial crises in 1763 and 1772–1773.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

account, merchant banks dominating transactions in the former (bank florins) and cashiers the latter (current guilders). Mainstream banks lacked state guarantees, but strove to be seen as above the market disruptions that could buffet smaller players such as the cashiers. As occurred in 2008, however, the walls separating mainstream banks and lesser banks did not always hold. The Crisis of 1763, discussed in Chapter 7, was an event where failure of one merchant bank provoked widespread runs on the cashiers, which in turn exerted pressure on even the most respected merchant banks in Amsterdam.

Both merchant banks and cashiers used the Bank of Amsterdam, but their relationships were different. The Bank was central to the international bills of exchange used to fund the merchant banks. The Bank was not central to the current money system used to fund cashiers, and it was the cashiers who maintained the agio market that connected current and Bank money. The Bank only occasionally intervened in current money with open market operations that constituted monetary policy of the large-scale, operational style. What remains to survey is international trade coins, the type of money central to the Bank and thus a focus of this book.

2.7 Trade Coins and Precious Metal Dealers

Trade coins dominated the last quadrant of the monetary map. Many types of coins were present in the eighteenth-century Republic and in large numbers. De Vries and Van der Woude (1997, 90) put the Republic's total stock of coined money at 200 million guilders by the end of the century, equal to about 73 percent of its annual GDP. Coins present in Amsterdam included both Dutch coins and foreign coins of gold and silver. Oftentimes the Bank's vaults held more foreign than domestic coins. Foreign coins tended to be large-value trade coins used for international transactions (*negotiepenningen* or *handelspenningen*), and people could utilize precious metal dealers to move between them and domestic coins. Some types of large-value Dutch coins functioned mainly as trade coins and others functioned mainly as local coins (*standpenningen*). The economic distinction between trade coins and local coins is the focus of Chapter 3.

The direct connection between Bank money and trade coins was a standing facility we call the *receipt window*. With this facility, a merchant could sell eligible (Dutch and foreign) trade coins to a Bank receiver at a fixed price, receiving in turn credit on their Bank account and a receipt (*recepis*). The receipt was a negotiable American call option (a purchase option) on the sold coin, entitling its holder to repurchase that coin within

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

six months at a slight premium over the sale price (¼ percent for most silver coins). The option could be rolled over at the same cost. A merchant wishing to redeem Bank money for a certain type of large coin could either redeem their own receipt or purchase a receipt from another merchant (van Dillen 1934, 102–3). Small-value coins were not eligible for use at the receipt window.[37]

We will cover the origins of the receipt window in Chapter 5, and we will delve into the challenge of making it work in Chapter 6, but receipts had several features that merit mention here. The Bank viewed credit granted through the receipt window as extremely well secured, so well secured that it did not even consider it as credit, even though the fee for redeeming a receipt often functioned as an interest rate on Bank money (if the receipt was eventually redeemed, as most were). If a receipt expired without being exercised, however, the Bank simply kept the "fallen" coin and sold it off when conditions were right. This degree of comfort allowed the Bank to offer uniform, low interest rates (i.e., receipt redemption fees) at the receipt window to all customers, with some rare exceptions, a feature that contributed to the receipt window's popularity as a funding channel. Also, the Bank only rarely varied redemption fees in response to market conditions, another feature that increased the predictability of merchants' funding costs and bolstered the Bank's popularity.

The monetary map also reveals an alternative way to exchange trade coins for Bank money. This took three steps that could be combined: trade foreign coins for domestic coins, deposit the domestic coins with a cashier, and have the cashier sell your account balance to someone for their Bank balance. The process relied on (1) a price set in the market for coins and (2) a price set in the agio market, the daily spot market held outside the Town Hall. Spot trades in the second market could be executed either directly or through cashiers, who served as brokers in this market. Trading of coins (in addition to cashiers' balances) in this market was normally for small-value coins, although large-value trade coins could also be exchanged at a premium (Le Moine de L'Espine and Le Long 1763, 187). These transactions occurred outside the Bank and created a relevant alternative that constrained Bank policies governing the receipt window.

Merchants we will designate as *precious metal dealers* mediated these various ways to trade between coins, and between coins and accounts. These dealers were firms with family roots in Germany or eastern Europe,

[37] The term "small" here is relative, meaning less than one guilder in value. In today's money, a gulden (one-guilder) coin would approximate a €200 note.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

were invariably Jewish, and in contemporary sources are often referred to simply as *hoogduytsche Joden* or German Jews.[38] Like the cashiers, Amsterdam's precious metal dealers were smaller-scale firms than the merchant banks and were not involved in sovereign lending. Nor did they offer proto-deposit banking services, as did the cashiers. Entries in the Bank's master account and other sources suggested that during the mid-eighteenth century, about 25 to 30 of these firms were active in Amsterdam.[39] Lacking the same easy access to bill market funding as the merchant banks, the precious metals dealers' business was focused on trading and arbitrage of various types of gold and silver, coined and uncoined. These firms' trading activity is reflected in their frequent sales of trade coins at the receipt window, and equally in their frequent repurchase. The precious metal dealers served as intermediaries for other merchants and were also important suppliers of metals to the Dutch mints, an activity we will return to in later chapters. Again returning to the map, the precious metal dealers played an instrumental role in every connective market that involved gold and silver.

The receipt facility was how the Bank conducted its routine, daily monetary policy. Chapter 5 visits how this facility came to be, and Chapter 6 reveals how the Bank's choice of terms and conditions dramatically affected customers' use of the window. The underlying factor driving these developments was the universal recognition of trade coins as safe assets, and that function of trade coins will be addressed in Chapter 3. To explore the last major way the Bank created money, we now turn to lending.

2.8 The Dutch East India Company

The monetary map and preceding sections focused on merchants who made the money markets work: merchant banks, cashiers, and

[38] This group was described, for example, in Le Moine de L'Espine and Le Long (1763, 49, 59) or van Dillen (1970, 452). Van Dillen described another group of Jewish firms in Amsterdam of at least equal economic importance, most with family roots in Portugal. This group served as brokers in bills of exchange and other financial claims, and showed up less frequently in the Bank's master account. Brokerage and precious metal dealing were among the limited number of occupations open to Jewish residents of eighteenth-century Amsterdam.

[39] The total number of precious metal dealers was uncertain. Dehing (2012, 383) counts 49 German Jewish account holders at the Bank in 1726. By 1749, however, only 26 Amsterdam merchants with German Jewish family names are listed on a petition concerning coinage (van Dillen 1925a, 381–82).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

moneychangers. These merchants also used most of the types of money. The same was true for the Bank's largest customer: the Dutch East India Company (units of the *Vereenigde Oostindische Compagnie*, often known by its initials *VOC*), a limited-liability, nationally chartered company. The Bank also serviced a second chartered company, the West India Company (*Westindische Compagnie* or *WIC*), but the East India Company had by far the greater impact on the operations of the Bank. This was in part because the Bank from its earliest days extended credit to the East India Company (van Dillen 1934, 94). Such lending was an apparent departure from the Bank's original mission, but it was nonetheless repeatedly sanctioned by the City's governing council (van Dillen 1970, 449). The Bank was reluctant to extend credit to the less successful West India Company (van Dillen 1970, 168).[40]

The Dutch East India Company (VOC), founded in 1602, enjoyed a legal monopoly on the Dutch Republic's trade with Asia. Its scale of operation was remarkable for the time. Over the course of the seventeenth and eighteenth centuries, the VOC dispatched approximately 4,700 ships and 1 million people to Asia (Bruijn, Gaastra, and Schöffer 1987, 143). In the 1750s, the VOC was sending about 23 ships and 8,000 personnel eastward each year, and it employed some 36,000 people worldwide (DeVries 2003, 57, 72). The organization of such a large, geographically dispersed enterprise was necessarily decentralized. Top-level management decisions were made by a board of directors, known as the Seventeen Gentlemen (*Heren Zeventien*). Each year the directors decided, based on a request from the Governor General (the highest official stationed in Asia), what goods would be imported to various Dutch cities and what goods would be shipped out to exchange for Asian goods (Gaastra 1983, 462–63). Implementation of the directors' master plan, however, was delegated to the VOC's semi-autonomous divisions or "chambers" based in six Dutch cities: Amsterdam, Middelburg, Enkhuizen, Delft, Hoorn, and Rotterdam (Gaastra 1983, 448). The Amsterdam Chamber was by far the largest player among these, and for shorthand, we will often refer to the Amsterdam Chamber of the VOC simply as the Company. Each chamber had an active account at the Bank, and the complexity (as measured in

[40] In the eighteenth century, the West India Company's principal line of business was delivering slaves from Africa to the New World, many of them to Spanish colonies (Postma 1990). This activity brought the WIC into direct competition with state-sponsored traders based in other European countries and private slave traders. The East India Company's trade with Asia was logistically more challenging and thus more secure from competition.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

transactions and counterparties) of the Amsterdam Chamber's account rivals that of the Bank's master account.

The overall character of the Company's relationship with the Bank was one of symbiosis occasionally straying into parasitism. The Bank helped the Company acquire the enormous amounts of precious metal necessary for its trade with Asia, and loans to the Company provided the Bank with a steady stream of rich earnings. These were profitable activities but not without risk.

The VOC's business model relied on ready access to large amounts of hard assets – gold and silver in both trade coin and bar form, often supplemented with copper coin – because European goods were not in demand in Asia. The basic mix of metallic assets chosen for each year's voyages was determined by the Seventeen Gentlemen, with leeway allowed to the individual chambers. Records compiled by Gaastra (1976, 1983) and Bruijn, Gaastra, and Schöffer (1987, 187, 223–45) show an upshift in the VOC's precious metal demand after about 1685, which was attributed to Japan curtailing its silver exports. In earlier decades, the VOC had been able to rely on Japan as its principal source of precious metal to purchase goods from other places in Asia.[41] Afterward, it relied increasingly on Europe and especially on Amsterdam. During the 1750s, the VOC sent about 6 million guilders in metallic assets around the Cape of Good Hope each year, equivalent in value to 58 tons of silver (De Vries 2003, 76). Most (about 85 percent) of this material was destined for India (De Zwart and van Zanden 2018, 155). One measure of the stress placed on the VOC by this cash flow was its tolerance of insider chicanery as a secondary means of transporting silver to Asia. During this time period, silver transport via unofficial channels (mostly, smuggling by VOC ships' crews) amounted to about 2.3 million guilders or 22 tons of silver annually (Gaastra 1976, 259; Lucassen and Van Rossum 2016; this activity is discussed in Chapter 3). Other ongoing sources of cash drain on the VOC included the outfitting of trading fleets, as well as payment of wages to crews and dividends to stockholders.

The Bank helped maintain the liquidity of the Dutch East India Company (and its silver-smuggling employees) in several ways. Pol (1985) documented that the VOC often purchased coins held at the

[41] The VOC's other within-Asia sources of silver were Persia and the Philippines (Gaastra 1983, 466–67; De Vries 2003, 76). Early eighteenth-century political developments shut off supply from these countries as well as Japan, leaving Amsterdam as the VOC's main source of silver.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Bank for its supply of hard money. Favored types of coin included Spanish dollars, Dutch gold coins, and Dutch *ducatons* (also called *zilveren rijders*), silver trade coins that were also heavily used for smuggling. In addition, the Bank often directly sold trade coins on its own account to various chambers of the VOC (Pol 1985, 181–85). Finally, when prices were right, various parties would withdraw coins from the Bank and melt them into specialized ingots for use by the VOC.[42] All of these activities tended to place the Bank and its customers into competition with the Dutch mints as purchasers of precious metal and as VOC suppliers. This sometimes led to complaints by the mint masters that the Bank and the Company were overbidding the metal prices, thereby undermining the Republic's monetary standards (see, e.g., Van Dillen 1925a, 359–60).

A more profitable, but ultimately more destructive channel of Bank support for the VOC took the form of direct loans to the Amsterdam Chamber. The Bank granted the first such loan in 1615 and the loans continued up until the Bank's downfall in 1795, with occasional pauses (Van Dillen 1934, 110–15). Much of this lending nominally took the form of anticipation loans (*anticipatiepenningen*), advances granted by the Bank against the expected sales of Company goods in transit from Asia. In practice, one anticipation loan would often be granted by the Bank just as another was paid off, effectively giving the Company a standing credit balance at the Bank, one that could be increased or paid down, largely at the Company's discretion (Van Dillen 1970, 449). At the mid-eighteenth-century, Company debt carried an interest rate of 3 percent and payment of this interest was an important source of income for the Bank (Van Dillen 1934, 110–12).[43]

Lending large sums to a globally extended mega-firm was an inherently risky line of business. The Bank seems to have done very little to actively manage this risk, such as accumulate reserves against possible loan losses or significantly adjusting the interest rates charged to the Company. Instead, the Bank's comfort with a steady source of income led Bank managers to accept a status quo of high exposure to the Company (Uittenbogaard 2009). This exposure expanded sharply during the

[42] For much of its trade in Asia, the VOC used standardized silver ingots, whose weight and fineness were matched to the specifications of Indian and Thai mints (Pol 1985, 73). Some of the VOC's trade ingots were cast by the Bank, others by Bank assayers for their own account, and yet others by Dutch provincial mint masters, again trading for their own account (Pol 1985, 104).

[43] Before 1751, the rate was occasionally adjusted within the range of 2.5–3.5 percent (Van Dillen 1925a, 950).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Fourth Anglo-Dutch War, with disastrous consequences for the Bank. Later chapters will explore these and other aspects of the relationship between the Bank and the Company.

2.9 Fiscal Aspects of the Bank

To operate as a central bank, the Bank needed political support, and the quid pro quo for that support was fiscal exploitation. Although the Bank was not conceived as a debt management agency, it was subjected to fiscal pressure from its earliest days. Subsequent chapters will note that the City's fiscal exploitation of the Bank took two forms, in addition to the lending to the Amsterdam Chamber of the VOC that was described earlier. The first and more routine form of exploitation was the City's annual skimming of Bank profits. A second and more insidious form of exploitation nominally took the form of loans granted to the City, which only rarely were followed by repayment of either principal or interest. Instead, the loan balances were written off on a gradual schedule that preserved the nominal solvency of the Bank. Our more realistic view is to recognize such loans as immediate and permanent subtractions from the Bank's equity.

Why was the Bank exploited in this way? The relevant records are incomplete, but available evidence indicates that the City of Amsterdam was not under acute fiscal pressure in the mid-eighteenth century. This was to some extent a reflection of the Republic's fiscal structure, which delegated tax burdens primarily to the provincial rather than to the municipal level (Fritschy 2003). At mid-century, the City's annual interest expense was about 300,000 guilders, an amount easily covered by tax revenue (Fritschy 2003, 81). The City's fiscal exploitation of the Bank continued nonetheless, perhaps as a politically expedient means of extracting revenue in a high-tax environment. Given the close connections of the Bank's management to the Amsterdam patriciate, however, it is unlikely that the Bank's fiscal exploitation would have continued without their consent.

Modern macroeconomists (e.g., Bassetto and Sargent 2020 or Buiter 2021) might even be tempted to argue that the Bank's exploitation by the City and the Company was only a matter of bookkeeping, since a true accounting would unify the balance sheets of the fiscal authority (the City), its government-sponsored enterprise (the Company), and its central bank (the Bank).[44]

[44] Perhaps one of the few contemporary thinkers to have understood the unity of fiscal accounting was John Law (Murphy 1997; Velde 2003; Neal 2012). However, Law was unable to convert his prescient vision into a viable monetary and fiscal system.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Practical unity, however, would have required explicit acknowledgment of responsibility by the City for the financial condition of the Bank. During the Crisis of 1790, angry Bank customers presented a petition to the effect that such a City guarantee had always been implicit in the Bank's charter (Van Dillen 1925a, 449–54). While City leaders agreed with the petitioners in principle, their subsequent attempt at bailing out the insolvent Bank was belated and partial.

2.10 Conclusion

Eighteenth-century visitors to Amsterdam's Town Hall may have been surprised to learn that this monumental building, the Bank included, rests on a seemingly precarious foundation. To erect a 22,000-square-meter sandstone structure on the fluid soil bordering the Amstel River, engineers first had to drive over 13,000 wooden piles into the earth beneath. The Town Hall, the Bank included, was thus not so much anchored into the underlying ground as it was balanced above it. Amsterdammers themselves were not bothered by this building technique, which was common to many structures throughout the city, their (often slightly tilted) houses included. Wooden piles were widely used in construction throughout the Republic, not in the least as a component of the dikes that provided protection against floods.

The mid-eighteenth-century Bank's financial condition embodied this same tension between solidity and fragility. Outwardly, the Bank was wildly popular, the liquidity available through its receipt facility attracting and dispensing trade coins to and from diverse locations, and in record quantities. Atop this pool of metallic liquidity was a dense bill market, whose credit-creating capability extended over much of Europe. Market insiders, including chartered corporations, banks, precious metal dealers, and cashiers, transacted in and arbitraged across various types of monetary assets: bills of exchange, bullion, trade coins, gulden, cashiers' receipts, and, above all, Bank money.

The great buzz of metal and paper around the Bank masked an inward vulnerability, however. At the end of the day, the Bank was a lightly capitalized fiat money issuer chartered by a single municipality in a small country with a weak central government. Within Amsterdam, the Bank enjoyed firm political support though from a narrow, if politically dominant clientele, but interests aligned with this clientele (the City Treasury and the Amsterdam Chamber of the Dutch East India Company) subjected the Bank to routine and at times excessive exploitation, without providing guarantees in return. Since the Bank's financial condition was not public information,

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

the only binding limit on such exploitation was that it would not put the Bank into obvious financial distress, that is, put the Bank into a situation that would require an immediate capital injection from the City. Later chapters will show how the Bank was able to manage away from this vulnerability, in the sense that capital injections were avoided until late in the Bank's existence (1791). The downside of this vulnerability, however, was that the Bank's policy choices were sharply constrained in crisis situations.

During the eighteenth century, many coastal areas of the Republic were invaded by a mollusk, the *paalwurm*, which attacked and gradually hollowed out the wooden piles that were exposed to the sea (De Vries and Van der Woude 1997, 22). Residents in these areas were left with little choice but to replace these piles at enormous expense. In what follows, we will argue that a similar if less obvious hollowing out was occurring at the Bank, with the role of the paalwurm played by prominent local interests. Efforts at shoring up this vital piece of financial infrastructure did not come until they were too little and much too late.

A.2 The Fiscal and Monetary Policies of the Dutch Republic

Readers familiar with the history of the Bank of England may ask why the Bank of Amsterdam did not assume a more active role in managing the debt of the Dutch Republic. This appendix attempts to shed some light on that issue by providing a brief overview of the fiscal and monetary policies of the Republic and how these related to the Bank.

The most remarkable attribute of the Dutch Republic may be that it survived for over two centuries, despite its loose political organization and the active hostility of larger countries. While it is a gospel of American history that states with weak central governments are fragile constructs (the United States of America under the Articles of Confederation cited as the canonical example), the seventeenth-century Republic contradicted this principle by repeatedly getting the best of larger adversaries. Full independence from Spain was achieved in 1648 and a major invasion by France was repelled in 1672.[45] A successful takeover of the British throne was implemented in 1688.[46]

[45] 't Hart (2014) attributed these victories in part to a high degree of professionalism in the Republic's military, which itself was revolutionary for the time.

[46] This last event was known as the Glorious Revolution, and in classic accounts (e.g., Macauley 1848) is presented as the Stadholder of several Dutch provinces, Willem

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

The Republic enjoyed at least two key advantages in such conflicts: a natural endowment of waterlogged terrain that was resistant to invasion, and an acquired advantage of a robust fiscal capacity that allowed the Republic to outlast its often bogged-down (fiscally as well as physically) enemies. The Republic's fiscal policy, though evidently effective, was complex due to its decentralized character.[47] In keeping with the political structure of the Republic, most of its public debt was issued by individual provinces and the dominant province Holland bore a disproportionate share of the fiscal burden. High taxes were a fact of life, although 't Hart (2014) notes that much of the Republic's military expenditure occurred within its own territory, with the resulting economic stimulus helping to offset its cost. The bill for ongoing warfare against larger countries was nonetheless substantial, and by the early eighteenth century, the Republic's per capita tax burden was easily double that of even its richest rival, Britain (Fritschy 2017, 270).

By the mid-eighteenth century, the accumulated cost of various wars pushed Holland's debt to 300 million guilders or twice the province's annual GDP (Fritschy 2017, 165). This debt load could only be sustained through a combination of imaginative marketing and the Republic's immense pool of accumulated savings, which combined to keep interest rates low (Gelderblom and Jonker 2011). This was nonetheless a barely sustainable debt burden and one with negative consequences. Following the end of the costly War of Spanish Succession in 1714, the Republic attempted to limit its fiscal commitments by withdrawing from European politics. In the 1740s, however, it was pulled back into the political theater by the War of Austrian Succession, leading to a surge in military expenditures and to forced reductions of interest (i.e., partial default) on Holland's debt (Fritschy 2017, 158), as well as to the imposition of a one-time, Republic-wide wealth tax (the "Liberal Gift" of 1747; see Liesker and Fritschy 2004, 104). In 1748, dissatisfaction with increasing taxation led to riots against tax farmers, threatening the Republic with civil disorder (De Vries and Van der Woude 1997, 123). By mid-century, Holland's debt

(William) III, graciously accepting an invitation from English dissidents to take over the British throne. Modern scholarship (Israel and Parker 1991) has emphasized that Willem acted on this invitation by showing up with a well-funded invasion force, double the size of the better-known Spanish Armada.

[47] Literature on the fiscal history of the Republic has included DeVries and Van der Woude (1997, 91–129), Fritschy and Van der Voort (1997), 't Hart (1997), Gelderblom and Jonker (2011), and the recent monograph by Fritschy (2017).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

had ballooned to 350 million guilders (Fritschy 2017, 165) and carried a hefty annual interest expense of 14.5 million guilders (Fritschy 2003, 77).

In this environment of fiscal duress, it is notable that little provincial debt found its way onto the books of the Bank, which remained firmly in the grip of the City. At the mid-eighteenth century, Holland's loan balance comprised less than 2 percent of Bank assets, and this balance was not a major source of income or risk exposure to the Bank. With so much government debt being issued, it is also significant that the Dutch Republic did not develop a centralized secondary market for the debt, as occurred in contemporary Britain. Reasons for this divergence are laid out in van Bochove (2013). Diffusion of political power discouraged the formation of a centralized market. Debt tended to be issued and redeemed at the provincial or even local level. Creditors were dispersed throughout the Republic rather than concentrated in Amsterdam, and much of the public debt was issued as short-term bills that were either rolled over or simply held to maturity rather than traded in secondary markets. The overall level of satisfaction with this system was sufficiently high that there was little impetus for the creation of an entity to manage government debt at a national level.

The Republic also took a decentralized approach to monetary policy. Coinage standards were set in mint ordinances enacted by the States General, but actual production of coin was delegated to mints owned by the provinces (Polak 1998a).[48] In particular, for reasons of political jealousy, no mint was located in Amsterdam. The two closest provincial mints to the Bank were in the cities of Utrecht (owned by the Province of Utrecht) and Dordrecht (owned by the Province of Holland). The latter attempted to open a branch office in Amsterdam, which was soon shut down by the States General (Van Dillen 1925a, 382). Typical for the time, these mints were run as entrepreneurial, revenue-producing operations, with negative implications for coin quality. A national supervisory body, the General Mint Masters (*Generaalmeesters van de Munt*), monitored the mints and reported its findings to the States General, but in practice, the General Mint Masters could not exercise perfect control. Decentralization of responsibility for coin quality inevitably led to conflicts among the Bank and its Amsterdam clientele, the provincial mints, and the General Mint Masters. Chapter 4 will explore these conflicts of interest and their consequences for the Bank.

[48] Municipal mints had operated in earlier times, but these were closed at the end of the seventeenth century (van Dillen 1970, 445).

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press

Of course, the Republic's decentralized approach to monetary policy could not alter the de facto concentration of money and credit flows through Amsterdam. As noted previously, however, bills drawn on Amsterdam counterparties from within the Republic were often current-money rather than Bank-money bills. In this sense, the Bank did not play the role of a national central bank for the Dutch Republic.

https://doi.org/10.1017/9781108594752.002 Published online by Cambridge University Press