

## **Chapter 2: A History of Merchant, Central and Investment Banking**

### **Learning Objectives:**

- *To apply the history and evolution of money and banking to comprehension of existing systems*
- *To diagnose and calculate seigniorage and debasement*
- *To recount how conditions drawn from history led to today's instruments and institutions*
- *To examine how economic problems lead to banking and capital market innovations*
- *To describe how money and banking integrated into the many economies over thousands of years*
- *To summarize the many artistic, literary, technological and scientific achievements that were funded or otherwise facilitated by banking*
- *To recognize the problems associated with usury in religious, social and economic contexts*
- *To express how academic, exploration, technological, trading, religious and other cultural developments contributed to the practice of banking*

### **A. Early History of Money**

In Chapter 1, we briefly discussed the economic roles of a number of types of financial institutions along with their origins. In this chapter, we discuss in greater detail the history of money and banking, beginning with the early history of money and extending through the advent of modern banking in the early 20<sup>th</sup> century. In later chapters, we will discuss the repeated occurrence and consequences of banking crises and development of banking regulation from a historical perspective.

#### **Commodity and Representative Money**

The earliest forms of money tended to have alternative intrinsic value as commodities. For example, grain-money has been used since the dawn of agriculture. Neolithic peoples in what is now China are believed to have used cowrie (sea snail) shells as money perhaps as long ago as 4,500 years. Shell money has been used throughout Asia, Africa, Australia and the Americas. Visually attractive and pleasant to touch, cowrie shells had alternative value as body ornamentation.

Bullion in the form of metal bars, shapes or ingots (metal cast into shapes for further processing) valued by weight has served as money since metal-working was mastered by Neolithic peoples, and still serves as money in situations where representative money is not available or not trusted. As we will discuss shortly, in pre-Revolutionary America when the British restricted coinage and notes usage in its colonies, colonists used a variety of commodities as money including tobacco, wampum (beads made from clamshells), maize (corn), iron nails and beaver pelts.

Commodities such as metal can be used to make representative or commodity money. Metal coins (small replicas of knives, tools and other commodities, or tokens with pictures representing desirable commodities) were produced in China as early as 1,000 B.C.E. In the 4th century B.C.E., China minted coins with holes that could be carried with strings looped through the holes, facilitating transport and large transactions. In approximately 210 B.C.E., the first emperor of unified China, Qin Shi Huang, introduced a uniform copper coin to replace other types of money. Uniformity and fewer types of money simplified the process of creating and using money for commerce. Gold and silver coins generally had values proportional to their intrinsic values as commodities (von Glahn (2005)).

The earliest western coins, from Lydia (now, the western part of Asian Turkey) are said to date from approximately 700 B.C.E. Metal coins, particularly gold and silver (or electrum, a

naturally occurring alloy of gold and silver), tended to be very successful due to the value of their metal content. India adopted metal coinage in the 6th century BCE as did the Greeks, who, according to Mundell [1999], spread them where ever they went. Coins remained the primary type of money throughout the middle ages. For example, while silver coins replaced gold as the dominant coins throughout Europe in the 8th century, by the mid-13th century, the gold florin coinage minted in Florence beginning in 1252 was to become recognized throughout Europe. This recognition facilitated trade throughout Europe as mints in France, Netherlands, Hungary and elsewhere produced and distributed nearly identical gold coins (Deutsche Bundesbank (1983), p. 16).

The value of money need not depend on intrinsic value; *representative money* could be decreed by a ruling authority to have value. Representative money further simplified the use and transport of money. Paper currency, essentially receipts for coins, began to circulate during the Song Dynasty in China in about 900 C.E., created by merchants to enable them to avoid having to carry thousands of strings of coins over long distances, and the government realized that paper money facilitated tax collection. The Tang government created repositories into which merchants could deposit metal coins, obtaining promissory notes ("flying cash") in exchange (von Glahn (2005)). Samples of such paper money were brought back to the West by Marco Polo in the late 13th century, who wrote that this money was made from a thick skin between the wood of the mulberry tree and its thick outer bark. Refusal to accept and use this money in transactions, like counterfeiting, was punishable by death under the regime of Kublai Khan. Hence, we see that money can have value because a government authority decrees it so.

Banknotes were not universally accepted in the West until mid-17th century Sweden, when *Stockholms Banco* began circulating notes in 1661, redeemable against their stated amount of silver coins. This revolution seemed a false start because the bank began issuing more notes than it could redeem in silver, leading to the bank's 1668 failure. The Dutch financier, Johan Palmstruch, the bank's director, was convicted and sentenced to death for fraud, which was commuted to life imprisonment and he ultimately served a year. Nevertheless, as we will discuss shortly, the Bank of England and other European institutions would begin to print banknotes that would come to dominate coinage as money.

*Credit money*, which includes banknotes, might be characterized as future monetary claims against debtors that can be used to buy goods and services. As we discussed in Chapter 1, commodity and representative money are essential to the base of overall monetary supply. However, credit money comprises the majority of money supply in a modern economy. As we will discuss shortly, European church-related institutions, merchant banks, goldsmiths and banks were important institutions originating the use of credit money.

### Debasement and Seniorage

*Debasement* is the process of reducing the intrinsic value of money, typically by reducing its quality or quantity of precious metallic content. Essentially, the perpetrator, most frequently a government or bank minting the coins, or a criminal physically removing metal from coins, often from the edges, profits from debasement by reducing the intrinsic value of the coins, then trading them for full original value for goods and services or other coins or currency. As we discuss below, governments can mint and use debased coins to pay off its debt, to profit at the expense of its citizens or to prevent price deflation as the value of metals rise.

Ancient and early governments realized that they could profit handsomely from *seigniorage*, the profit made from decreeing a monopoly on the minting of coins (*droit de*

*seigneur*), calculated as follows:

$$(1) \quad \textit{seigniorage} = 100\% - \% \textit{cost of manufacture} - \% \textit{fall-back value}$$

Thus, seigniorage is the proportion (or monetary) profit made from issuing a coin whose monetary value exceeds its cost of manufacturer, including its metallic content. For example, if the cost of minting a coin were 10% of its monetary value, and its *fall-back value* (intrinsic value of metal content) were 60% of its monetary value, the seigniorage would calculate to 30% = 100% - 10% - 60%. Debasing the coin by using less valuable metal would further increase short-term profits to the mint. For example, reducing the fall-back value of the coin in our example to 50% would increase seigniorage to 40%.

Seigniorage can lead to inflation, reduction in the demand to hold and use money for transactions and, in effect, allows the government to *monetize debt*; that is, create and use its money to pay off its debt, or to fund other activities. Paper and other pure representative money such as letters of credit, have been issued as early as the first and second centuries B.C.E. Such representative money might be regarded as the ultimate outcome of the debasement process, particularly when no actual commodity exists to back the paper.

Our history of money will continue as part of our discussions of the history of banking over the next several sections. In addition, a brief history of the international monetary system is offered in the appendix to this chapter.

## **B. A History of Merchant Banking through the Reformation**

Knowledge of the history of banking is important to appreciating the present day institutional and economic structures of banking. If we were to attempt to design and create an entirely new worldwide banking system today, without relying on the structures of previously existing systems, it is unlikely that our entirely new system would look much like the one that we currently have. Our banking systems evolved from earlier systems over many centuries. Essentially, banking centers were established by building on the practices and innovations of earlier centers, adapting them to new political, economic and technological developments. So to understand and appreciate the banking system and operations that we currently work with, it is useful to understand the histories of the banking systems, structures, institutions, instruments and operations that led to what we have today.

### Early Historical Roots of Banking

Early evidence of banking activities has appeared from Egypt and Mesopotamia, where gold, an easily stolen commodity, was deposited in temples, which were solid and sacred structures suitable for safe-keeping. In addition to their sound structures, temples frequently were patrolled by soldiers and maintained priests who, at times, could maintain records. Temples were considered to be sound repositories for valuables, and coins were sometimes minted in temples in the 5 centuries before the Common Era. Lending out valuables and tokens or other records of valuables was a profitable extension of such storage activities by temples. In 18th century B.C.E. Babylon, records of loans made by temple priests have survived, and seem to be the first to mention interest (See van de Mieroop [2005, p.21] and Homer [1963], p. 69). The Babylonian *Code of Hammurabi* from roughly 1750 B.C.E. regulated interest rates, provided for enforceable written loan contracts and, in Article 71, repudiated the debt of lenders whose interest rates exceeded mandated levels. The Code further allowed for hardship restructuring or even cessation

of loan repayments.

Banking activities became more varied and sophisticated with the Greeks and Romans from the 4th century B.C.E., spurred by active Mediterranean trade. Private entrepreneurs joined temples and public bodies in the practice of financial transactions such as accepting deposits, making loans, changing money, conducting auctions and maintaining records, all banking functions performed by individuals known as *argentarii*. Temples remained common venues for such banking activities, as did shops and stalls set up for such purposes. Romans minted coins in temples and ultimately innovated the use of private notaries to register transactions involving banks.

Until the dawn of the Industrial Revolution, several eastern economies, such as in China were more sophisticated and productive in most respects than their European counterparts, especially during the centuries after the decline of the Roman Empire. Chinese civilizations had developed a number of financial instruments and institutions, including paper currency and pawnbrokers, earlier than Europeans. Yet, the traditions and practices of most modern banking systems of the world descend from European financial centers, owing largely to European domination and economic development beginning shortly before and during the Industrial Revolution. Thus, our discussion of the origins of modern banking draw more from European rather than from Chinese or other eastern histories.

For hundreds of years beginning in the early Middle Ages, the only European institution with significant liquid wealth (money, precious metals, jewels and other portable wealth) was the Church, from which hoards of treasure were available for lending to finance wars, building, famine relief and crusades (See Kohn, [1999] and Pirenne [1937]). While landholding wealth was significantly greater than that of the Church or, later, of merchants, land-based wealth was not readily available for lending (Grassby [1970]); that is, real estate was not liquid. Credit markets were complicated further by religious restrictions.

### The Problem of Usury

Graeber [2011] describes the roles and prevalence of debt, which predates money itself by thousands of years, in which community economics involved webs of mutual debts. In fact, money might have been innovated by Sumerians for the purpose of simplifying debt records. Community life in such cultures required people to share favors, obligations and responsibilities, and people trusted that their favors would be repaid. Clearly, usury was an anathema to many early communities. Borrowing was more an act of desperation taken by an unfortunate as opposed to a businessman, investor or merchant, and charging of interest was interpreted as exploitation of the misfortune of another. Usury was a special problem for the small farmer, whose income was subject to natural events outside his control. For example, the farmer might well lose his mortgaged goods and even his families to slavery because of the usurer. In addition, usury restrictions might be considered to be a form of social insurance, shifting wealth from the wealthier to the less fortunate (Glaeser and Scheinkman [1998]). But, the development of international trade, the clear economic benefits that such trade produced, along with the major investments in transport and other infrastructure needed to support such trade eventually seemed to affect attitudes towards usury, despite ancient religious and social objections.

### *What is Usury?*

The concept of usury is often rather vague, despite many efforts to clarify it (e.g., the Franciscan San Bernardino of Siena in the 15th century), and its definition seems to vary

geographically across cultures and through the centuries. As in the case of San Bernardino, first and early second millennial definitions tended to be strict, *holding any payment above principal to be usurious*. His strict definition, was bolstered by the claim that usury "destroys charity; it is a contagious disease; it stains the souls of all in society; it concentrates all the money of the city into a few hands or drives it out of the country; and what is more, it justly brings the wrath of God upon the city, and invites the Four Horsemen of the Apocalypse" (see Rothbard [1995, p.84]).

Many Post-reformation definitions of usury tended to be less strict, often making references to *excess or oppressive rates of interest*, perhaps, in a manner similar to much earlier Roman law. Such definitions allowed lenders to charge for use of assets that reproduced, including livestock and business capital, or that subjected the lender to risk, etc. (see Spufford (2002), pp. 43-45). Sir William Petty (1682) offered a more approving redefinition of usury: "A reward for forbearing the use of your own money for a term of time agreed upon, whatsoever need yourself may have of it in the meanwhile," and Jeremy Bentham defined usury in 1787 as "the taking of greater interest than the law allows."

### *Philosophical and Religious Objections to Usury*

San Bernardino's attitude towards usury had substantial precedence in philosophy, law and canon. For example, Aristotle reasoned that interest is unnatural, since money, as a sterile element, cannot naturally reproduce itself (Aristotle [350 B.C.E.]). Money is merely a means of exchange. Aristotle notes that the Greek word *tokos* means both offspring and usury. Thus, usury or interest is the birth of money from money, or the breeding of money from money, an entirely unnatural practice.

Usury is included in a biblical list of "abominable things," along with rape, violence, robbery, to "come near to a menstruous woman" and idolatry in *Ezekiel* 18:6-24. Interest is prohibited, restricted or otherwise admonished by *Exodus* 22:25, *Psalms* 14:1-5, *Deuteronomy* 23:19-20 (which, in part, reads "Unto a foreigner thou mayest lend upon interest; but unto thy brother thou shalt not lend upon interest;") and *Leviticus* 25:35-37. While the passage in *Deuteronomy* does not explicitly preclude Torah followers from lending to outsiders (Gentiles), the New Testament book *Luke* 6:34-35 does advise against usury: "And if ye lend to them of ye hope to receive, what thank have ye?" Some readers note that Jesus did not explicitly mention interest, and might have simply been exhorting his followers to be generous with their needy neighbors. The Parable of the Talents, in which Jesus tells the story of a wealthy master entrusting his property to three servants in *Matthew* 25:14-30 has been taken to support the practice of usury, while other interpretations more broadly liken the talents to all of our God-given talents. Regardless, Christian Europe prohibitions on usury normally derive from Biblical passages and scholastic philosophers such as Aristotle.

In addition, other usury prohibitions are declared throughout *The Quran* (referred to as *riba*, including 2:275-276), Vedic law in Ancient India and by proclamation of the emperor Charlemagne in 789 and 806. Generally, speaking, in the three major western religions, loans were expected not to be an economic transaction, but to be a form of charity, for which just compensation was emotional gratification, recognition in the community and reward in the after-life.

St. Thomas Aquinas (1225-74), drawing from Aristotle, claimed that imposing interest was unnatural, arguing that usury amounted to "double charging," both for the money loaned and for the use of the money loaned, in a manner similar to charging for a bottle of wine and for

drinking that wine. Further, he argued, since interest is calculated based on time, usury is the theft of time, a sin against God. Bishop St. Ambrose of Milan stated that "If someone takes usury, he commits violent robbery (rapina), and he shall not live," probably drawing on *Ezekiel* 18:13.

Perhaps the prevailing attitude towards usury during the medieval era was that it was exploitative. For example, St. Albert the Great (1193-1280) wrote that "the usurer without labor, suffering or fear gathers riches from the labor, suffering and vicissitudes of his neighbor." Usury was considered a sin against charity, a failure to help a neighbor in distress.

### *Usury During the Usurial Prohibition*

Thus, during much of the first and early second Millennia, the Christian Church banned usury (then, strictly defined as any sum exceeding loan principal) as a mortal sin, as did many Moslem traditions, though interest-bearing loans could generally be issued to non-Jews by followers of Judaism, who often traded in grain and other commodities. Such usurial prohibitions had enormous influence on the conduct of European business and finance. But, usurial bans did not eliminate usury, even in Church-related activities. For example, the papacy encouraged lending money at usury to clergy, bishops and abbots for payment of taxes back to the papacy, and monasteries at times engaged in borrowing and lending (Wood [2004]). Non-military affiliates of the Knights Templar, a warrior monastic order, and of the issued fee-bearing letters of credit to participants in the Crusades, enabling them to deposit their wealth at their point of departure in Europe for withdrawal upon reaching their Near East destinations or points of rest along the way. Such arrangements provided a reasonably convenient and safe means for crusaders to transport wealth, though interest rates, or implied interest rates were generally in the double digits. The Knights Templar and the Knights Hospitallers both loaned extensively to royalty and the aristocracy.

Nevertheless, the Jewish communities were often the primary providers of consumer credit, largely through pawn shops for retail customers in many early municipalities and states and generally on a fairly small scale. Cities or states would license pawn shops, collecting fees in the process. Pawnbroking had developed independently in China many centuries earlier, and pawn shops had also existed in ancient Greece and Rome. Because Jews often had few rights to protections and little political power, many loans were forced and others were subjected to forced remission (forgiveness). Disasters such as the Black Plague often resulted in forced remissions.

Many lenders, including the Church itself (the 325 Council of Nicea condemned usurial activities undertaken by Church clergy as did Pope Leo the Great (440-461), who also condemned laymen for usury), were quite innovative in finding loopholes and creative workarounds for prohibitions on usury. For example, "late fees" might be charged for payments deferred as agreed. While such activities were still commonplace, many of these workarounds evolved into instruments commonplace throughout today's financial systems. Consider, for example, the *bill of exchange*, a written unconditional order or promissory note that requires one party to make a specific payment to the specified payee. Bills of exchange are essentially short-term interest-bearing loans, often involving two currencies specifying an exchange rate that might be deemed favorable to the "lender" instead of a specified interest rate. Many others of these workarounds evolved into instruments commonplace throughout today's financial systems. In approximately 1290 when they were coming into more common usage, such loans might have been mischaracterized as interest-free to elude usury restrictions, but often contained "insurance

premium" requirements or indications of gifts by borrowers and money changing services. Such bills of exchange frequently called for an advance of currency in one market to be repaid in a currency in another market (a likely source of profit to the "lender" if the exchange rate were carefully chosen). Such an arrangement, allowing for some degree of risk in the future cash flow made the interest easier to disguise. Furthermore, bills of exchange would prove to be easily traded amongst merchants, and later in public trading venues such as the Banco di Rialto (discussed shortly). In addition to helping to evade usury restrictions, repayment in different currencies was useful because merchant borrowers and lenders typically functioned in different currency (coinage) regimes, even when in reasonably close geographic proximity.

There were a variety of other types of contracts that seemed to function as workarounds to usury restrictions. Fifteenth century loans made to the Church by the de Medici family often did not stipulate interest payments, but instead allowed the bank to overcharge for cloth, jewels and other commodities provided by the merchant. In addition to bills of exchange, *repurchase agreements*, the contracted sale of assets by an entity needing cash followed by its contractual repurchase at a higher price, also known as a double sale, provided an easy cloak for what might resemble a pawn arrangement or interest-bearing loan. *Annuities*, the sale of a future stream of cash flows, sometimes known as *rentes*, were often used to disguise a lending transaction and its associated payments of interest. Annuities, and their non-terminating variation, perpetuities, obscured interest and principal payments, enabling transaction participants to argue that they weren't related to loans, let alone interest payments. For example, if principal repayment is never made on a perpetuity, how can the arrangement be a loan? In many instances, banks merely took equity stakes in venture partnerships, increasing bank risk due to the risky and long-term natures of such partnerships.

Consider the *contractus trinus*, which was a three-part contractual arrangement, with the following provisions:

1. The bank or "lender" takes an equity position in a venture, partnership or company
2. The bank or "lender" agrees to sell back to the "borrower" any excess of profit above a given percentage (which happened to be the presumed market rate of interest)
3. The bank or "lender" takes back from the "borrower" insurance guaranteeing a minimum return (again, equal to the "interest rate").

Each of the three parts of this set of contracts was considered legal, thereby avoiding usury charges. However, as a set, the contracts replicated the structure of a simple usurious loan contract. Essentially, the set of contracts provides for a fixed rate of return, which could easily be taken to be a fixed interest payment. Since each part of the arrangement was legal, the arrangement was itself was not banned during much of the medieval period. In a later chapter of this book, we will discuss the interest rate collar, a derivative contract or structured security similar to this arrangement.

By the 12th century in England, usury was said to occur whenever any excess beyond principal was taken by the lender. For several centuries, and with some minor exceptions, the prosecution of living usurers was left to the Church, though the Crown or a lord could seize property at the usurer's death (Helmholz [1986]). Usurers could be excommunicated and refused Christian burials at death. However, Helmholz notes that "annuities, shared risk contracts, or penal bonds to guarantee payment of debt - were held to fall outside the prohibitions of the law," providing opportunities to disguise illicit interest payments. On the other hand, such contracts

could well represent usury under the law if authorities were to find that they were intended to disguise interest-bearing loans.

### *Shifting Attitudes towards Usury*

Churches themselves benefited from usury transgressions as wealthy Christian lenders made many deathbed bequests to churches, monasteries and other institutions, seeking to improve their afterlife prospects (Kohn [1999]) or purchased "passports to Heaven" from the Church (Munro [2003]). In some scenarios, to work around church usury restrictions, banks simply gifted to their depositors, including church institutions, monies labeled as *discrezioni* (discretions). Le Goff [1990] argues that the late 12th century Church developed the concept of Purgatory, an afterlife venue with little basis in scripture, as a means for the Christian banker to be punished yet escape eternal damnation in Hell for worldly usurious activities. The expansion of commercialism and trade during the middle and later medieval eras followed by the Age of Exploration, along with the resultant expansions of wealth were both enhanced by banking activities and contributed to them.

As we discussed above, post-reformation prohibitions on usury, its definitions and its practice tended to be less strict, permitting lenders to charge for use of assets that reproduced or that subjected the lender to risk. In a letter to Sachinus in 1545, John Calvin wrote that "I do not consider that usury is wholly forbidden among us, except it be repugnant to justice and charity" (Calvin [1545]). Calvin understood that two distinct Hebrew words were used for usury, *neshekh* for "to bite" and *tarbit* for "legitimate increase" (See Buch (2005) for more discussion on this and related issues). This distinction was essential for modern financial development in the post-reformation era, enabling Calvin and his followers to perceive no condemnation of interest charges on commercial loans in the Bible except when excessive or hurtful to one's neighbor. Calvin and his followers viewed freely agreed business loans to be perfectly acceptable.

However, such views were not universally held during this period. For example, Martin Luther, in his 1524 Treatise on Usury, did define usury more strictly as involving any interest charge on lending. He also wrote "To exchange anything with any one, and gain by the exchange, is not to do a charity, but to steal. Every usurer is a thief worthy of the gibbet" (See White [1896], p. 628). But Luther himself was not entirely consistent in his views, writing later in life that usurers commit sin only when their banking activities violate the "do-unto-others" principal.

By the 16th and 17th centuries, European views towards usury had shifted considerably. The European economy had grown, financial distress had diminished in the general population and competition had increased in capital markets, all of which served to diminish the exploitative nature of lending. In the late 15th and early 16th centuries, the German theologians Conrad Summenhart and his student Johannes Eck offered risk-based justifications for interest as well as justifications for payment for lending services. Summenhart invoked the doctrine of *lucrum cessans* (profit ceasing, which had actually been acknowledged by San Bernardino in the 15th century as being acceptable for charitable lending), which holds that interest or other awards can be justified based on loss of reasonably anticipated profits or loss of property use. Summenhart pointed out that *census* contracts (rent on real property) had never been prohibited, and argued that money is a businessman's tool, and taking away that tool justifies interest as compensation. The Flemish-born Theologian Leonard Lessius argued in 1603 that lenders forgo profit, and that the burden of this loss should be passed on to the borrower, providing a rationale for charging interest on business loans. Despite these shifting attitudes as the medieval period drew to an end,



medieval banking was certainly a product of negative attitudes towards usury, growth in economics and trade, and efforts to prosper in an environment that discouraged essential banking activities.

### Early Merchant Banking: 12th through the 16th Centuries

The advent of the commercial age in southern Europe might date from the early 11th century, with advances in agricultural techniques, increased population and urbanization, and the opening of the University of Bologna as the world's first university. Some early innovations in mathematics facilitated banking and finance transactions. For example, Leonardo Fibonacci (also known as Leonardo Pisano) discussed applications of the Arabic numerical system (described by the developer of algebra Musa Al-Khwarizmi, from early 9th century Baghdad) to interest calculations. Imagine attempting such calculations using the Roman numeral system. Leonardo's early 13th century book *Liber Abaci* also detailed calculations of exchange rates and bookkeeping, and presented the mathematics needed for present value computations and comparisons. Living conditions in much of Europe improved considerably between roughly 1000 and 1300, with population levels more than doubling, cities expanding, long-distance commerce evolving and knowledge expanding.

The significance of Church usury restrictions began to decline somewhat with the rise of merchant lending beginning in the 13th century, and substantially more so with the advent of the Reformation weakening the Church's influence on the practice and ethics of usury, gradually diminishing the importance of the Church as a regulating institution in the economy. Merchant banking (or commercial banking), closer to banking as we understand it today, originated in southern Europe, with notarial records of 12th and 13th centuries indicating that Genoese *bancherius* (money changers) evolved to accept demand and time deposits along with the extension of loans. The system facilitated payment services by transferring deposits. Earlier merchant lending involved only the merchant's capital; later merchant lending involved deposits and financial instruments taken by merchants and transformed into loans to other individuals and institutions, initiating the era of merchant banking.

The Italians were both the principal merchants and principal bankers of the 12th through early 16th centuries; the Catalans (i.e., from Barcelona), while also important, were much less so. Markets were the nexus of medieval local and retail trade, beginning in the early 12th century, medieval fairs were the essential markets for international trade. Most notable among these were the well-organized Champagne fairs, regular several-week trade fairs held as often as 6-times annually, rotating among the towns of Bar-sur-Aube, Lagny, Provins and Troyes. Other fairs included those at Lyons, Antwerp, Geneva and Hamburg. While such fairs provided for the trade of many commodities from many countries, the most important tended to be cloth and wool from France and Flanders, and spices and luxuries provided through Italy and Provence from farther east. The fairs drew up and enforced contracts, provided for safe passage by merchants, and, very importantly, provided for Italian sophistication in the extension of exchange, credit, clearing and other banking services.

Pre-13th century banking normally required face-to-face interaction between bankers and their clients. Bills of exchange, innovated in the 12th or early 13th centuries, involving signatures and notary stamps, eventually provided bankers with a mechanism for doing business in different and even distant geographic locations. In addition, bills of exchange freed merchants and other travelers from the burden of having to travel and carry large weights in precious metals and coins, and the assumption of the various risks associated with their transport (including

shipwrecks, pirates, marauding armies, thieves, etc.), significantly facilitating commerce and trade. Such transaction facilitation greatly expanded and modernized medieval economies.

City and state authorities seized taxing rights from feudal lords and ecclesiastical institutions during the 13th century, and these rights served as collateral for loans and provided for revenue streams to fund them (Pezzolo [2007]). As the need for civic financing increased, 12th century Genoa and Venice and later other Italian cities imposed "forced loans" on their citizens, based on wealth or income, and against predictable payment streams. Venice restructured, consolidated and began allowing trading many of these perpetual forced loans in 1262 as fully tradable instruments. After Venetian secondary markets arose in 1262, they expanded elsewhere as cities opted to service loans through consumption taxes rather than redeem them. By the middle of the 14th century, Venice, Florence and Genoa all permitted their bonds or restructured bond securities (e.g., equity-like instruments issued by Casa di San Giorgio in Genoa beginning in 1407) to be transferable, and maintained active secondary markets with annual turnover rates of about 5% (see Pezzolo [2007]).

Improved bookkeeping technique facilitated the development of merchant banking. In 1494, Luca Pacioli argued for use of double-entry bookkeeping (used earlier by Giovanni de Medici) and discussed principles that served as a foundation for modern accounting practice, though the actual practice of double-entry bookkeeping had been used by some Italian institutions for over a century (Hodgett [2006]). Early and creative Italian peninsula accountants circumvented usury restrictions by making references to borrower gifts and payment for risk-taking rather than payments towards interest. For example, as discussed earlier, a 15th century banker, rather than pay interest on client deposits might instead make periodic gifts of money to depositors based on deposit size.

Merchants depend on readily available financing for conduct of commerce, transport and trade in commodities such as spices, silk, metals, the enormous and liquid profits from which were readily available to finance other merchant activities. Merchants served as significant sources as well as users of liquid assets. Thus, merchants were involved in both the extension and receipt of credit. Earlier Church (and Islamic) prohibitions against usury subjected bankers to the ire of the Church (and Islamic authorities), contributing to increased Jewish dominance in 12th to 15th century Western and Central merchant and consumer financing. This niche further suited Jewish financiers due to persecution that often restricted their landholding ability and necessitated mobility. Jews also tended to be more literate and adept at working with numbers than their Christian peers, and sometimes had well-developed international networking abilities. Nevertheless, bankers were beginning to develop tools such as craftily-phrased letters of credit and money exchange (e.g., requiring a currency exchange at rates favorable to the lender to conceal interest on loans - *palliate usury* in the parlance of de Roover [1963]) as means to circumvent church prohibitions on usury.

Usury restrictions and enforcement diminished as religious authorities gradually made exceptions for government borrowing, opportunity costs, credit risk, credit sales, late payments, repurchase agreements, etc., then eventually, redefining usury as merely the imposition of exploitative interest rates. Relaxation of such restrictions enabled families in Christian communities to fully participate in the lending business.

The growth of mutual confidence among merchants led to the Italian merchant banking industry, which originated with merchants lending their own capital, evolving to the creation of a variety of instruments (e.g., bills of exchange) evidencing acceptance from and lending of capital to others. For example, 12th and 13th century merchant bankers from Piacenza, Siena, and Lucca

actively engaged in borrowing and lending activities, and bills of exchange were widely issued, discounted and accepted by merchants in the major trading arenas.

Fourteenth century Florentine families, including the Bardi, Peruzzi and Acciaiuoli, and later elsewhere on the Italian peninsula, Pisa, Volterra, Norsa, Del Banco, and Tivoli families accepted from and loaned deposits to other merchants (Kohn [1999a]). Many of these family banking businesses expanded well beyond the Italian peninsula. For example, the 14th century Peruzzi family operated facilities in Majorca, Paris, Avignon, London, Bruges, Tunis, Rhodes and Cyprus (Hodgett [2006]), expanding opportunities and improving investment and loan diversification. Banking was a source of great wealth to Florentine banking families in the early 14th century, particularly high-interest rate lending to monarchs. However, Florentine banking also financed numerous unproductive wars and led the important banking families to experience significant financial distress, particularly those who loaned to English kings. Prior to the Black Death, intermittent poor weather conditions in 14th century Northern Europe led to numerous crop failures. Extensive lending in the mid-14th century to King Edward III of England for his part in the Hundred Years War with France was disastrous to the Florentine banking families. Edward III declined to pay his country's war debts in 1340. Robert, the Angevin King of Naples, also defaulted on his debts and more general mismanagement of banking operations resulted in massive Florentine banking defaults. Such defaults along with losses in grain trade forced the Peruzzi, Acciaiuoli and Bardi families into bankruptcy (de Roover [1963]) by 1346 and coincided with economic upheaval and decline in Florence.

After some instability and much maneuvering, these 14th century failures led to the rise of the de Medici family in the banking arena, building on Giovanni de Bicci de' Medici's establishment of the de Medici Bank in 1397. To ward off usury charges, the de Medicis often made use of an elaborate network for bills of exchange and disguised interest payments as "profit and loss." The de Medici banking operations were not as large as the Peruzzi and Bardi banking operations, though the family became leaders in the Italian Renaissance as key patrons of the arts (including Botticelli and Michelangelo), literature, the Church and architecture. The bank's fortunes flourished and peaked under Giovanni de Bicci's son, Cosimo de Medici, who funded building of the Duomo and the artistic geniuses of his time. Cosimo's grandson, known as Lorenzo il Magnifico was more active in local affairs and politics, and focused less on the management of bank operations, weakening the bank (see de Roover [1948]). For reasons related to patronage, political and social intrigue, Church affairs and management, and for extensive record-keeping, the de Medici family and its banking operations are particularly well-known to this day.

The slow decline of the de Medici family in banking in the late-1400s was largely rooted in mismanagement, particularly in foreign branches of the bank, loan defaults by the losing side of the War of the Roses in England, an 18-year expulsion of the de Medici family from Florence, and family distractions into Church and political affairs. Another contributor to the decline was the 1478 Pazzi Conspiracy, a partially successful assassination attempt by rival banking family of Francesco de' Pazzi on Lorenzo and his brother Giuliano de Medici, the latter of whom died. Lorenzo's sons Messer Giovanni and Piero were unable to effectively manage the bank's operations, particularly those outside of the Italian Peninsula, causing significant weakness in the bank and branch closures. Invading French forces caused members of the family to flee, the bank became insolvent in 1494 and the bank's records and assets were seized by creditors. Nevertheless, the family remained powerful in church, political and other arenas.

### *Banca Monte dei Paschi di Siena*

At present, the oldest continuously-operating bank in the world is Banca Monte dei Paschi di Siena (BMPS). It was originally founded as a *banchi di pegno* (pawn-broker) for charitable purposes in 1472, following the 1462-3 pawnshop openings in Peroussa and Gubbio. In the latter part of the 15th century, observant Franciscans seeking to expel Jews maneuvered for numerous nonprofit municipal pawnbrokers that would free the poor from usurers (Lane and Mueller [1985]), and who would lend on personal collateral. Such *monti di pietà* (banks of piety) were created around Europe, including 89 in Italy alone by 1509 (Kohn [1999]).

BMPS began to resemble its current form in the 18th century, and expanded throughout the peninsula after Italian unification. Another expansion spurt (e.g., its acquisition of Banca Antonveneta) ensued in the early 20th century, resulting in the bank's relative global importance. By 2013, the bank required a government bailout due to losses on derivative contracts and fraud, and another bailout from the E.U. in 2017. Still, as of late 2020, BMPS has been experiencing serious financial difficulties, and 5 of its officers received prison sentences for related fraud. Regardless, in the early 17th century, Grand Duke Ferdinand II of Tuscany began to state guarantees of BMPS deposits, making the bank essentially the earliest recorded beneficiary of deposit insurance.

### *Early Banking Activities outside Italy*

While the Italian Peninsula was clearly the center of medieval banking, such activities did occur on a smaller scale elsewhere in Europe. As we discussed above, many Italian banking families maintained centers spread throughout the continent, and Barcelona was an important banking center in its own right. Bruges, Paris, London and Seville also were medieval banking centers, though generally rather minor prior to the 16th century compared to those in Italy. Pawnbroking was introduced to the British Isles after the 1066 Norman invasion, but either Italian merchants or Jewish financiers would remain central to British credit activities through the 16th century.

## **C. The Expansion and Modernization of European Banking**

Outside the Holy Roman Empire, European principalities, city-states and other smaller sovereigns began to consolidate in the late Middle Ages into larger kingdoms and empires, building great armies and navies and seeking greater wealth. Global exploration and trade blossomed during the 16th century, and direct access to the European Atlantic coast provided strategic advantages relative to Mediterranean access, leaving Genoa, Venice and other Italian cities less competitive on a global larger scale.

### Major European Banking Centers Begin to Move North

Money and capital markets were evolving at both local and international levels. The Italian Wars (1494-1559), including invasions launched from Spain, France and Germany, hastened the end of Italian dominance in banking. After the Reformation further weakened Rome's influence in banking, and after the Christian usury restrictions waned, partly the result of Jakob Fugger's 1515 negotiations with Pope Leo X (aided by the scholar Johannes Eck), European banks were providing deposit and lending services to the general populations of Europe. Nevertheless, merchants remained primary providers of funding, and through the 19th century, governments were among the primary recipients of funding, largely for war financing.

### *The Fugger Family*

As the de Medici family's banking empire declined and the importance of the Hanseatic League further north waned, the Fugger family from the Free Imperial City of Augsburg, in what is now Bavaria, was positioned to become the principal international banking dynasty in Europe from the late 15th to early 17th centuries. This shift in banking power corresponded with the rise of the importance of mining in Northern Europe, the importance of Antwerp as a trading and financial center, the Reformation and the Habsburgs as the center of European power. By bankrolling the 1519 election (essentially by bribing imperial electors) of the Holy Roman Emperor Charles V, Jakob Fugger (1459-1525) was able to capture for himself enormous power. He essentially became arguably the wealthiest person in world history, whose fortune may have totaled practically 2% of all European economic output (Steinmetz [2016]).

The earlier Fuggers were textile merchants, then branched into trading and mining copper and silver, bankrolled and ultimately, merchant banking, with Johannes Fugger (1348-1409) leaving a substantial inheritance, which ultimately was passed to his great-grandson Jakob. Highly profitable mining rights were often obtained by Fugger in exchange for loans as a means to circumvent Church restrictions on usury. As the most significant merchants of the era, the Fugger family was also among the most significant bankers. Jakob Fugger mastered multiple languages and mathematics for commerce, was an outstanding negotiator and adapted double-entry bookkeeping from the Italians. He financed the House of Tutor in England and the House of Habsburg elsewhere on the continent, with his family marrying into the latter, all very profitable to the Fuggers (at least in the short-term with respect to the Habsburgs).

The advent of the Age of Exploration and the discovery of new trading routes provided new financing opportunities in Spain and Portugal, in which Fugger participated. Financial exchanges had been established in Antwerp and elsewhere in the Low countries, providing new sources of capital for Fugger operations. Fugger successfully lobbied Pope Leo X for moderation of usury restrictions (in part, with the assistance of Conrad Summenhart, discussed above), enabling bankers to pay depositors interest and significantly enlarging capital availability to the banking business. Fugger loaned money to Pope Leo X to rebuild St. Peter's Basilica in order to establish business with the Vatican, which included serving as a transfer agent for proceeds of the sales of indulgences. He also financed recruitment and salaries of the Swiss papal guards and minted papal currencies. The Fuggerei, the first European social housing complex for poor Catholics, including Jakob Fugger's servants, was built beginning in 1514 and, though badly damaged in World War II, is still inhabited in Augsburg. Fugger left his empire to the management of his nephews, though the family's importance as bankers diminished over the next few generations as subsequent generations showed less interest in the family business.

### *Other Augsburg Banking Families*

Augsburg was a major city in Europe during the early 16th century, and was home to other major merchant bank families such as the Welser and Höchstetters. As a trading center, the city was well-located for trading of silks and spices imported from Asia through the Mediterranean, jewelry, metals, salt, cattle, grain, timber from the north, etc. The Welser family rose as another leading financier of Charles V, marrying into the House of Habsburg and controlling large sectors of the European economy. The family acquired rights to the Venezuela colony from Charles V (who also held the title King Charles I of Spain) in 1528 by promoting an expedition under Ambrose Dalfinger to seize the province of Caracas, holding it nearly 30 years.

While also amassing great wealth in banking, the Höchstetter family fortunes lasted less

than 50 years. After making efforts to corner tin and silver markets, Ambrosius, his brother, son and son-in-law failed in their various speculation and gambling pursuits, with Ambrosius dying bankrupt and in prison. The center of European continued to move northwards and towards the Atlantic.

### Banking and Finance in the Low Countries

As we have discussed, pre-17th century merchant banks were generally organized as family businesses and limited partnerships, just as their Italian and German ancestors. They tended to develop in European trading centers such as Florence, Genoa, Venice, Barcelona, Augsburg and Antwerp. The Berenberg Bank, one of the oldest currently operating banks in the world, was started in 1590 in Antwerp by the Berenburg family, originally cloth merchants. The financial center in Antwerp, initiated by Italians in the 14th century and taken over by the Flemish, had served as a major funding source for the Augsburg banking families.

Bruges was centrally located as a merchant center for traders of wool and textiles from the British Isles, providers of timber, tar, metal and other mined goods from Baltic (Hanseatic League) cities and regions and spices and other exotic items from the Mediterranean and their suppliers. The establishment of securities exchanges was a key financial innovation in northern Europe stemming from the Low Countries during the 13th through 17th centuries. First, 13th century Bruges (Belgium) commodity traders assembled in the van der Beurse family home and inn, where the innkeepers brokered and facilitated transactions among merchants from different countries and regions. Trading grew into a major activity at the inn, which ultimately become the “Bruges Beurse” (Bourse). Additional bourses opened elsewhere in Flanders and Amsterdam, and the region became the dominant European financial trading center. In order to decrease the reliance on coinage in exchange markets, 14th-century moneychangers in Bruges developed a transfer banking system to move money between accounts of artisans, merchants and innkeepers. As the Zwin Channel, (the Golden Inlet), which had made Bruges such an important port began to silt up around 1500, the center of Flemish commerce gradually moved to the nearby city of Antwerp.

By the 15th century, Flanders (here, referring to Flemish-speaking cities and areas) had grown in importance to become the most important trading region in northern Europe. As earlier on the Italian peninsula, banking and finance were among the major drivers of increased incomes and wealth in 15th through 17th century Flanders. While Bruges had been a major regional financial center from the 13th to early 16th centuries, Antwerp (with the Fuggers, Welsers and Imhofs from Augsburg) would dominate as the world's major financial center during most of the 16th century. Antwerp would dominate in trading with spices from the far east, copper from Hungary, silver from Germany and the Americas and wool from England. The securities markets at the Antwerp Exchange would dominate European money and securities trading. *Letters obligatory*, predecessors to the modern day letters of credit (see Chapter 6) were frequently used as money among traders. During and shortly after this era, wealth brought with it the cultural Renaissance, notable by great visual artists such as Rubens (1577-1640), Pieter Bruegel the Elder (-1569) and Van Dyck (1599-1641)) and music, including Josquin des Prez (ca. 1450-).

Antwerp peaked as a financial center in the 1530s, struggled in the 1570s and early 80s, and fell to Spain in 1585. The Dutch closed off its port, and Antwerp lost its dominance in international commerce. Antwerp's merchant community migrated to Amsterdam along with over half of its residents over the next few years. This facilitated the move of the center of European banking and global and financial trading from Antwerp to Amsterdam in the still-

independent part of the north, and with Amsterdam replacing Antwerp as the major regional port.

### *Joint Stock Company and Exchange Market Development*

The first joint stock company, the Muscovy Company, was chartered by Queen Mary in England in 1555 to find and exploit a northwest passage to the Orient and to trade with Russia. But, there was no mechanism yet to trade its shares, so the company's shares were illiquid. Financial exchanges that were developing in the Low Countries were essential to exploit massive funding opportunities because much larger sums were needed for the much longer expeditions. Banks and other companies could raise long-term capital from the general public by listing and selling their shares in these markets. With the ability to sell their shares on these exchanges, shareholders could invest long-term while maintaining liquidity. In addition, these exchanges became centers for trading of syndicated and other debt instruments issued and marketed by banks, enhancing their liquidity, and providing important public capital for bank financing and their securitization and offloading of debt instruments. This securitization and offloading was particularly important to the funding of huge loans to governments. The development of the joint stock corporation as a structure had one other important economic effect: the structure was designed to eliminate all moral and fiduciary imperatives except for shareholder profit.

The Dutch developed the basis for the publicly-traded joint stock limited liability company, which allowed for merchants to fund trading expeditions with much larger amounts of capital from many diverse shareholders. These shareholders' liability was limited to their investment, and trading shares was fairly easy on newly created exchanges. The Amsterdam Stock Exchange opened in 1602, trading shares of the Dutch East India Company, the world's first public stock issue. The exchange also traded a variety of debt instruments issued by banks, and continues to operate as a unit of Euronext, a family of European exchanges, as the world's oldest continuously operated exchange.

Smaller private banks prior to the late 16th century tended to operate either regionally or developed specialties that required less capital such as advising mergers or investment banking. While family banks such as those on the Italian Peninsula and the Berenberg Bank were able to make the larger loans required by the city-states, principalities and smaller sovereigns in what are now Italy and Germany, they were not large enough to accommodate the military, trade and venture needs of the enormous kingdoms and empires that were forming elsewhere on the continent. A new type of bank structure was needed, one that was capable of bringing in the much larger capital available from the general public. This set the stage for the modern public bank charter, one that limited the liability of all or most shareholders who provided equity capitalization.

The limited liability feature of equity shares, as we will discuss in the next chapter, confers significant value to equity shareholders. Limited shareholder liability enables the chartered bank to assume risk-taking and risk-shifting opportunities on a scale much larger than available through family-banking. The chartered company, with shares traded in a public securities market, facilitates raising bank capital through limited liability share sales, enabling the publicly-traded bank to exploit substantially more and larger financing opportunities.

### *The Amsterdamsche Wisselbank*

By the early 17th century, the Atlantic seaport city of Amsterdam was ideally located between Scandinavia, the British Isles and the Mediterranean as a central point for trade. Owing to this extensive Dutch trade, a large merchant marine fleet and urban populations, the 1609

founding of the *Amsterdamsche Wisselbank* (Amsterdam Exchange Bank or Bank of Amsterdam) became the first major European public bank. The bank was owned by limited liability shareholders whose shares were traded on the public Amsterdam Stock Exchange. As was the case for the earlier founding of Venice's *Banco di Rialto* as a public institution, *Amsterdamsche Wisselbank* was founded with a civic purpose. However, the *Banco di Rialto* was founded in 1587 as a response to private bank failures, whereas *Amsterdamsche Wisselbank* was founded to limit coin debasement, and to facilitate trade, financial development and economic stability.

There were numerous mints in the Netherlands, which, along with their customers, tended to debase coins, leading to monetary instability and inflation. When it was founded, the *Amsterdamsche Wisselbank* took coinage as deposits, issued negotiable certificates for these coins, which retained more value than the actual coins produced by the numerous mints and debased by users of the coins. These certificates, served as a type of paper money as a standardized fiat currency (bills) for banking purposes, providing for simplified payment transfers and a more stable unit of value than the often debased coins from the many mints.

The *Amsterdamsche Wisselbank* was a major early financier of the Dutch East India Company, which more than successfully competed with Portuguese trading in East Asia. The bank served as a global clearinghouse for bills of exchange, facilitating both trade and international capital flows throughout the Netherlands.

#### *Additional Contributions of Dutch Banking*

Two additional financial innovations from 17th century Amsterdam were the development of the mutual fund as a means to source and combine capital from many investors, the *letter of acceptance* (guarantee of payment), which enabled issuing banks to market their inside information concerning borrowers' credit risk, and the *trade acceptance* for exporters.

Such major banking innovations and practices enabled the Netherlands to develop a prosperous and relatively stable economy. As on the Italian peninsula a few centuries before, and then in Flanders, banking helped usher in the 17th century Golden Age of the Netherlands, during which standards of living rose significantly and the visual arts (e.g., Rembrandt, Vermeer), sciences (e.g., Huygens and Descartes) and literature (e.g., van den Vondel) thrived. The relative freedom of the Netherlands attracted Sephardi Jews from Spain and Portugal and Huguenots (Protestants) from France, who contributed significant skilled labor to key industries such as shipbuilding and intellectual talents.

#### **D. Early Banking in the British Isles**

Medieval Britain did not have an active banking sector. Aside from the Jews and Lombards, discussed shortly, one of the few institutions conducting limited banking activities were the Knights Templar, who built the Temple Church, consecrated in London in 1185. This warrior monastic order, discussed earlier, was dedicated to facilitating passage by pilgrims to Jerusalem. Pilgrims would purchase letters of credit from the Knights Templar to pay their journey expenses at the Temple Church before departure. The Temple Church also served as a repository for wealthy Londoners, and the Knights Templar also engaged in other banking activities such lending to Kings John and Henry III for military expenses and assisting in deal negotiations. Templar fortresses elsewhere in Europe, including Paris and Aragon performed similar safekeeping functions.



### The Jews and the Lombards

As on the Italian peninsula, early English usury activities were largely left to Jews, who were generally disliked and mistreated by the English. However, the lombards, the term used by the English to refer collectively to financiers from Northern Italy, including Genoa, Lucca, Venice and Florence, and still used to refer to London's main banking street, began to squeeze out the Jewish financiers in London. Finding the Jews less useful as the lombards gained more of the lending business, King Edward I issued the Statute of the Jewry in 1275, banning Jews, who were already precluded from many other professions, from the practice of usury. The Edict of Expulsion issued by Edward in 1290 forced Jews from the country, caused their property to be confiscated and canceled his debts to them.

The lombards filled the financing void left by the departed Jews for several centuries. The Italian banking dynasties eventually declined and were ultimately replaced by northern European and English banks. Usury, given its varying definitions and legality, tended at times to be severely punished in England. As we discussed earlier, lending with interest had long been outlawed among Christians, and usurers could be denied Christian sacraments and burials. Such restrictions were relaxed under Henry VIII in 1545, when Parliament set a maximum lending rate at 10%, which later varied. Usury was still prohibited from time-to-time (e.g., 1552-1571) until usury restrictions were finally abandoned entirely in 1854.

### Goldsmith Banking

While the lombards largely filled the financing void left behind by the departed Jewish bankers, the English themselves began to play more important roles in banking, particularly after the Reformation. A number of early 17th century goldsmiths (technically, metal dealers, who in earlier times were affiliated with guilds of artisan goldsmiths), known as exchanging goldsmiths were dealing in coins. At the time, the Royal Mint warehoused stocks of gold on behalf of merchants, goldsmiths and the wealthy of England until its 1642 seizure by Parliament during the English Civil War. Ultimately, the Mint's creditors were repaid, but the Mint was no longer considered to be secure for holding gold, and this business of safekeeping gold was passed on to private goldsmiths who maintained secure vaults as a necessary part of their business.

Goldsmiths began to supplant merchants started in many of the more important roles in banking. Goldsmiths issued receipts (acceptances, which evolved into banknotes and checks) for gold deposited with them, which took on value as money stock by depositors. These receipts could be used as money, similar to modern banknotes, and could be endorsed with a letter of instruction to deliver assets to another, similar to a modern check. Furthermore, goldsmiths realized that they could loan both gold and receipts evidencing ownership of gold to borrowing clientele as long as the goldsmiths were able to predict when withdrawals would be made and to ensure that they maintained gold stocks on hand adequate to satisfy withdrawal demands. Such forecasting of withdrawals relative to deposits and maintenance of reserves were important developments leading to the development of modern fractional reserve banking.

Goldsmith banking was the primary forerunner to most modern English banks. For example, Abraham Fowler, an early 18th century goldsmith-banker in London founded the goldsmith shop "Ye Three Squirrels," from which sprang the well-known London private bank of Goslings & Co. In turn, Goslings ultimately became one of the 20 banks that combined in 1896 to form Barclay & Co. Other London private banks founded by goldsmiths include Martins Bank and C. Hoare & Co., founded in 1672, and now is the second oldest bank in the U.K.

Country (provincial) banks began to form outside of London. These country banks

maintained operations with local landholders and industrial concerns, providing services not available from banks in London. For example, Smith's Bank was opened in Nottingham in the 1650s as the first English provincial bank, initially focusing on the safekeeping of assets.

### The Glorious Revolution of 1688 and the Aftermath

The Glorious Revolution of 1688 led to the overthrow the Catholic James II in favor of the Protestant William of Orange on the English throne, who arrived in the U.K. with troops from the Netherlands. This revolution/invasion played an essential role in the financial development of the United Kingdom, as the English were mindful of the successful roles of the *Amsterdamsche Wisselbank* and the Amsterdam Stock Exchange in the economic growth in the Netherlands.

As we discuss shortly, the Bank of England was established in 1694, along with the Bank of Scotland in the following year. These two institutions were ultimately to play essential roles contributing to the growth and stability of Britain's economies, and in the case of the Bank of England, financing to the growth of England's its navy and army. London stock markets experienced explosive growth in joint stock IPOs and stock trading during the 1690s. The stock markets ultimately crashed in 1696, and more spectacularly in 1720, ending the South Sea Bubble; nevertheless, London was emerging towards becoming the financial capital of the world, corresponding with the expansion of the Scientific Revolution.

In 1795, Dutch bankers emigrated en-masse to London when French troops occupied Amsterdam in the Batavian Revolution, cementing London's ascendancy as the world's financial capital. As private bankers were prohibited from obtaining charters and were limited to 6 partners by the Bank of England Act of 1708, private bankers were unable to compete effectively with the monopoly charter granted to the much larger Bank of England. Nevertheless, many provincial private banks were able to survive and prosper outside London in smaller towns and cities and, as we will discuss later, banks were able to provide financial services through securities markets and exchanges.

### Merchant Banks in England

Among the oldest of the major UK merchant banks was Barings, was founded in 1762. Francis Baring, a German wool and commodity merchant with large import and export operations, charged fees for bills of exchange and acceptances to finance other merchants' activities, and expanded further into making loans to governments, the international slave trade, underwriting, and advising on mergers and acquisitions. In 1796, the bank helped the U.S. purchase much of the land that would become its state of Maine, and, along with the Dutch bank, Hope & Co. financed the \$15 million Louisiana Territories purchase in 1803 by the United States from France. Technically, the land was transferred from Barings and Hope to the U.S., which had recently moved from the Netherlands to London when the French invaded the Netherlands. As of 1803, the Louisiana purchase was the largest real estate transaction in history based on monetary value, and the banks' ability to issue shares in London stock markets was essential to their ability to fund the purchase. Barings continued to finance the American government, including in its prosecution of the War of 1812 against Britain. In addition, Barings was actively involved in financing the slave trade, both in the U.S. and elsewhere. Nevertheless, Barings would ultimately be eclipsed in size and power by the Rothschild dynasty.

Mayer Amschel Rothschild (1744-1812) was born in the Judengasse, the Jewish ghetto of Frankfurt, the son of a German Jewish silk cloth trader and money-changer of fairly modest

means. After 40 years building his huge banking empire, Rothschild set up his 5 sons in the major European banking centers, making it easy to move funds and gold around the continent even during wartime. Brothers placed in different major banking centers enabled them to exploit arbitrage opportunities that arose.

Mayer's son Nathan Mayer Rothschild (1777-1836), was sent to England, and by the early part of the 19th century had accumulated immense wealth in the textile and international banking industries. From financing the Bank of England, lending to various countries to finance wars against Napoleon, the Japanese in the Russo-Japanese War, railway systems around the world and the Suez Canal, the many generations of the Rothschild family had maintained the most important banking dynasty in global history through the first World War. By the time of his death in 1836, Rothschild's personal net worth totaled roughly .62% of U.K. national income (Ferguson [2008], p.88).

Banking crises (1825, 1836-7, 1847, 1857 and 1866), regulatory and deregulatory activity dominated the story of commercial English bank activity during much of the 19th century, substantial topics addressed in latter chapters of this book. By the latter third of the century, England enjoyed a growing and quite stable banking system. Nevertheless, by 1928, there were 5 major banks in the U.K., Barclays Bank, Lloyds Bank, Midland Bank, National Provincial Bank and Westminster Bank, which by 1998, had consolidated further into the Big Four when National Provincial Bank and Westminster Bank consolidated to become National Westminster Bank.

### Scottish Banking Through the Industrial Revolution

In many respects, the Scottish banking system developed in a manner rather parallel to that of its English counterpart. The Bank of Scotland (The Old Bank) was established in 1695 by private shareholders, issuing gold-backed convertible notes. Unlike the Bank of England, the Bank of Scotland was founded as a purely commercial institution, not to serve as the government's banker. The early Bank of Scotland was even prohibited from lending to the government without parliamentary approval. Even though the early English prohibition on joint stock ownership did not apply to Scottish banks, the Bank of Scotland enjoyed a monopoly until the Royal Bank of Scotland (The New Bank) was established in 1727, and was joined by the British Linen Company in 1746 that had started as a promotional organization for the Scottish linen industry. The Scottish banking and monetary systems were quite stable despite there being no central bank through 1844, during which this period coincided with significant industrial development.

Scottish banks developed a number of practices that contributed to their success. Scottish banks, led by the British Linen Company developed branch systems throughout the country, enabling country-wide recognition and acceptance of their notes. Scottish banks guaranteed each others' notes, further enhancing confidence in the banking system. Scottish banks stood by ready to lend to one another, enabling the Scottish banking system to avoid many of the crises that impaired the English banking system through the late-19th century. In addition, Scottish bankers innovated cash credit accounts (forerunner of the modern overdraft or credit line), which was to become a key source of short-term credit to a variety of types of institutions. Scottish banks attracted depositors by regularly offering interest on its accounts, well before such accounts were available in England. Finally, the first savings bank, focused on the individual consumer, was founded in 1810 in Ruthwell, Scotland by the Rev. Henry Duncan before such institutions spread throughout the U.K. and the rest of the world.<sup>1</sup> The developments of interest-bearing accounts

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<sup>1</sup> Straus [1920] suggests that the idea of a savings bank organized for the public good originated with Daniel Defoe

and savings banks democratized Scottish banking, bringing the banking system's services to the general public.

The Industrial Revolution, particularly the iron and railway industries played a major role in the growth of the Scottish banking industry. Joint stock companies such as the Union Bank of Scotland (founded in 1830) and the Clydesdale Bank (founded in 1838) played key roles in facilitating industrial development. Whereas mid-18th century Scotland was backwards, with subsistence agriculture pursued by the majority of its citizens, mid-19th century Scotland was economically on par with England.

## **E. Banking in the North American Colonies and the Early U.S.**

### **Colonial Money and Banking**

The English colonists in North America used a variety of types of money prior to the Revolution, including commodity money such as tobacco, nails and wampum (shells prized by Native American tribes in Massachusetts during the mid-1600s), commodity-backed paper receipts (e.g., for tobacco), fiat money issued by colonial governments and coins from England and Spain. Coins (specie) were difficult to obtain as the colonies were not permitted to mint their own due to efforts by the British to maintain the Colonies' dependence on Britain. Paper money issued by colonial governments varied in value even when assigned values in pounds and shillings across the 13 colonies and was easy to counterfeit. Beginning in 1775, the Continental Congress authorized the issue of paper currency to finance the Revolutionary War, which, as we discussed earlier, quickly was subjected to inflationary pressure, ultimately resulting in the phrase "Not worth a Continental."

The British government also prohibited the establishment of banks in the 13 colonies. Colonial governments occasionally attempted to get around banking restrictions by circulating Spanish coins, issuing paper bills of credit and backing the establishment of land banks that issued paper backed by mortgages. Nevertheless, the colonies were at the mercy of the British for banking services.

### **Late 18th Century Money and Banking**

With a large fraction of colonists either seeking to remain loyal to their overseas country, or ambivalent to the war for independence, raising money through taxes was not possible to fund the war's conduct. Congress did print money as did the 13 individual colonies, but much of this currency ended up being worthless or nearly so. The colonies' independence from Britain was, in large part, financed by wealthy colonists such as Robert Morris from personal funds, their personal credit and their ability to use their contacts in Europe to borrow. Financial brokers such as Haym Solomon, a Polish-born Jewish immigrant, sold bills of exchange to fund the war, but much of the colonies' war conduct was financed through loans negotiated by Benjamin Franklin from the French government and by John Adams from Dutch bankers. All of these loans left the fledgling confederation of states heavily indebted.

With no then limited direct power to tax domestically, Congress and the heavily indebted U.S. relied on payments from the 13 original states, whose support was, at best, meager. However, the end of the Revolutionary War allowed for the establishment of banks in what is

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(c.1660-1731 - the English novelist who penned *Robinson Crusoe* and *Moll Flanders*), and first implemented in Brunswick, Germany in 1765. There are also claims that other Scottish, English and French savings banks may have predated Duncan's Ruthwell Savings Bank. More discussion of the history of thrift institutions will be offered in Chapter 4.

now the United States. The Bank of North America was founded by Robert Morris in 1781 to serve certain central bank functions and to help with war financing. The oldest currently operating bank in the U.S. is the Bank of New York (now, Bank of New York Mellon), which dates from 1784. Its shares, along with the shares of the Bank of North America and the First Bank of the United States (founded in 1791 at the urging of Alexander Hamilton to serve as the first U.S. central bank; discussed in more detail in Chapter 1 and in the next section) were the first shares to be traded on the New York Stock and Exchange Board, predecessor to the NYSE.

Nevertheless, there were only three U.S. banks prior to the administration of George Washington beginning in 1789. Thanks in large part to his Treasury Secretary Alexander Hamilton, by 1795, the fledgling country had transformed itself from a bankrupt loose confederation of states to a federal republic on solid financial footing with a central bank, issuing its own convertible currency, with 20 banks along with 5 additional branches of the Bank of the United States. Furthermore, there were three stock exchanges located in New York, Philadelphia and Boston that traded stocks and U.S. Treasury securities issued to refinance a variety of state debts (See Sylla [2005] and Rousseau and Sylla [2003]).

In addition to the three national banks, state governments retained the right conferred by the U.S. Constitution to charter their own banks. License fees from these state-chartered banks became important sources of funding for state governments and their infrastructure projects. By granting state banks charters of only limited durations, state governments were able to extract substantial fees when the banks applied for charter renewals. State governments maintained the monopoly values associated with these charters by restricting access to these banking markets, by prohibiting outside banks from entering the state banking market and by restricting the number of bank charters that they issued. Perhaps, more important than the charter fees were the requirements that state-chartered banks fully back their bank notes with state government bonds. Clearly, states and state banks had good reason to fear the First Bank of the United States and other federally-chartered banks as potential competitors, an important issue that we discuss in the next section.

### Early 19th Century Banks

New England banks during the early 19th century tended to be run by families with strong ties to merchant businesses; most banking activity was business-related. Personal loans were typically granted by wealthier individuals with money to lend. The region was cash-poor, as the U.S. government minted coins rather than print currency. As a result, much of the economy was operated on credit, with individuals maintaining paper account ledgers and farm commodities being essential to resolving debts. Bank notes began to circulate in the 1820s and were used as money, but technically, were not legal tender since they were backed only by the credit of their issuers.

Banks in the antebellum south of the U.S. tended to be larger than their New England counterparts, and tended to engage in more branching. New Orleans was a major financial center, for a short period, larger than that in New York. Both northern and southern banks, along with banks in the U.K. and Europe benefited from southern slave labor and the slave trade. Slaves were arguably the single largest source of wealth in the U.S. prior to the Civil War. As mortgage collateral to banks, slave assets had a number of advantages over land assets. Slave markets were quite liquid and slaves had reasonably discernible market values, though individual slave values did fluctuate over time. As slave demand shifted from Virginia and its tobacco plantations to new regions with cash crop opportunities available in the mid- and deep-south and

then from westward expansion, slave assets were quite mobile and readily transported to regions they were more highly valued. This value was necessary to the funding of day-to-day operations of plantations.

The 1808 embargo on the transatlantic slave trade diminished the supply of slaves from Africa, further increasing the value of the extant supply. Female slaves of child-bearing age were particularly highly valued for their reproductive ability, particularly as mortgage collateral. Martin [2010] found that 41% of mortgages included slave collateral, and accounted for 63% mortgage capital. Two Louisiana banks particularly active in the business of mortgaging of slaves, Citizens Bank and Canal Bank continue to function, having long been merged into JPMorgan Chase. Many other still-operating U.S. financial institutions have slave legacies.

Slave prices were strongly correlated with the commodities that slaves produced, and were related to U.S. boom-bust cycles in the first half of the 19th century. Bank activity and health were strongly tied to slave markets. For example, slave prices, along with those of cotton and other commodities that slaves produced rose substantially in the 1830s, corresponding with feverish speculation in them, helping to set off the banking Panic of 1837 (discussed further in Chapter 8).

The period between the expiration of the Second Bank of the United States in 1836 and the 1864 enactment of the National Banking Act is often called the *Free Banking Era*, characterized by the lack of a central bank, free or low-barrier entry into the banking industry, and the existence of thousands of lightly-regulated state banks, most of which having issued their own currencies. As many as 9,000 different types of banknotes and denominations, issued by different banks were in circulation over the Free Banking Era, which facilitated counterfeiting to the extent that some engravers devoted their businesses to the practice. Banknotes were made uniform by the National Banking Act in 1864, which also led to a significant decrease in counterfeiting.

In the next section and in subsequent chapters on crises and regulation, we will continue to discuss the U.S. banking system during the mid- and late-1800s, which included the Free Banking Era from 1837-1863, the National Banking Era between 1864 and 1913 and the many banking panics that occurred until the early 1930s. The post-Depression period from 1934 to 2007 is often referred to as “The Great Moderation,” based on the observation that economic activity volatility and banking crises had fallen dramatically in the U.S. and Western Europe. Many economists believe that banking regulation and central bank supervision along with deposit insurance played vital roles in this apparent moderation of risk. However, later on, a shadow banking system would emerge that would be to a large extent free from much banking regulation and supervision, and, for the most part, was not covered by deposit insurance. Hence, the shadow banking industry, by participating in many of the same markets and interconnected with fully regulated and covered banks was able to threaten the stability of the banking system and the economy as a whole. These and other issues of banking history will be detailed further in this and in later chapters when we discuss banking crises and regulation.

## **F. Origins of Central Banking**

In Chapter 1, we defined a central bank to be an institution responsible for setting and implementing money and credit policies. Historically, central banks have also sought to maintain low inflation rates, high-quality coinage, promote the health of banking systems, and maintain an effective and efficient payments system. Here, we discuss the historical development of such institutions.

### The Banco della Piazza di Rialto and Other Precursors

Bank transfers reduced the dependence on physical coinage transfer and transport from early 14th century Venice and were a characterizing feature of the city's sophisticated payment structure. However, Venetian banks were still highly leveraged, and numerous bank failures occurred, disrupting the book-entry-based payments and clearing systems. By 1455, banks were required to maintain a minimum of 10 guarantors with backing totaling 20,000 ducats. Nevertheless, bank failures continued, with the last private bank at the time failing in 1584. The ducal council determined that the state should initiate an institution to ensure continuity of the vibrant payments system.

Venice's *Banco della Piazza di Rialto* was established by the council of Venice as a public concession (a public bank with management delegated to a private concessioner) in 1587 (See Ugolino [2018]). This bank might be considered as a precursor for European central banking. The bank held funds on safe deposit, maintained 100% reserves and served as a central clearance role, enabling transactions to be executed without the physical transfer of coins. The Banco di Rialto had a solvency guarantee from its governor, an administrator appointed by the state for a three-year term. The bank enhanced the security of the Venetian payments system, enabling Venice to position itself as a premier deposit and payments center in Europe until the bank closed in 1637 after the *Banco del Giro* had opened in 1619 to manage Venice's floating debt and perform certain other functions. The Banco del Giro loaned to government at short maturities and was permitted to treat its deposit liabilities as legal tender (Day [1987]).

Founded in 1401, nearly 200 years earlier than the Banco di Rialto, the *Taula de Canvi* (Catalan for exchange table) was founded as a Barcelona city agency to provide the city with alternate means of funding. This municipal public bank accepted deposits, maintained fractional reserves and made loans only to the city, which appointed its management. Other early precursors to central banks were founded in Hamburg, Naples and Genoa.

As we discussed earlier, the *Amsterdamsche Wisselbank*, following on the design of the Banco di Rialto, also performed a few central banking functions. The *Amsterdamsche Wisselbank* was founded by Amsterdam municipal authorities in 1609 in large part to limit the city's coinage debasement problem, facilitate trade and payments and promote financial stability. The bank allowed for the transfer of deposits among accounts to settle transactions and the city guaranteed deposits. The bank was to serve and facilitate the premier European financial center for much of the 17th and 18th centuries.

### The Bank of Sweden

The *Sveriges Riksbank*, arguably, was the first European central bank, earlier known as a "bank of issue," converting from private status after its failure in 1668 as a joint stock bank previously named Stockholms Banco (or Riksens Ständers Bank). The Swedish Crown retained power to appoint its board and the right to receive half of the bank's profits. The bank was re-chartered to make loans to the Swedish government and to act as a clearing house for commerce. The Swedish coinage was copper-based, reflecting the abundance of copper in Sweden, but, as a less valuable metal, creating problems for large transactions and coinage transport. In 1661, as discussed earlier, the bank's precursor had been the first European bank to issue currency. The bank continued as a private intermediary until 1946 before becoming an independent monetary authority under the Riksdag (Swedish national legislature).

## The Bank of England

In 1690, the British lost the naval Battle of Beachy Head to the French and Dutch, thereby losing control of the English Channel, causing panic in England. The British endeavored to build the world's foremost naval power, but the government was already chronically underfinanced having engaged in numerous wars. In 1694, during the midst of the Nine Years' War, the *Bank of England* was chartered as a joint stock company with initial stock subscriptions totaling £1.2 million for King William III's (William of Orange) government, though most of this stock had been purchased on margin. At this time, and until 1825, all other English banks were required to be private partnerships limited to 6 partners to discourage excess growth. Notice that the charter for the Bank of England, combined with the fund-raising restrictions of any potentially competing banks gave the Bank of England significant monopoly power, making its charter quite valuable to its shareholders.

This central bank had been proposed earlier by the Scot-born entrepreneur William Paterson in 1691 as an institution to serve the public good in perpetuity, and to serve as the banker to the government. The bank was approved by the U.K. Parliament at the urging of Charles Montagu, 1st Earl of Halifax to provide funding to the government, initially to rebuild the country's navy and to fund war with France, to establish a permanent national debt and to provide for a national currency, printing Bank of England notes. The new bank garnered substantial confidence with the public, largely because its formation was a joint effort by the Crown, Parliament and the financial community.

Subsequent charter renewals for the next 50 years were accompanied by no- or low-interest loans to the government, much welcomed as nearly continuous wars were fought against France until 1815. These interest rate concessions significantly reduced the cost of capital to the Crown, but, due to close connections and overlapping memberships between the Bank's board and the British Parliament, credit risk was very much mitigated. The Bank of England was granted a monopoly for issuing bank notes by the Peel Act of 1844. The Bank otherwise acted as a private bank through 1946, generally conducting typical banking operations (See Calomiris and Haber [2014], p.94):

1. issuing debt certificates convertible into coin and serving as paper money
2. accepting deposits from and issuing loans to wealthy individuals and businesses
3. purchasing government debt
4. purchasing bills of exchange from merchants

The bank's monopoly on issuing currency until the 1946 Act and Charter Amendment gave it a number of competitive advantages over other private banks. In addition, as we discuss shortly, the Bank of England served as a lender of last resort to English banks during the last third of the 19th century.

## Early Central Banking in the United States

The American Revolutionary War left the new nation with considerable debt, much of which had been issued by individual states. As we discussed earlier, the Bank of North America was founded by Robert Morris in 1781 to serve certain central bank functions, including the issue of paper currency, and to help with war financing. A 1787 re-chartering prevented the bank from engaging in most central bank activities. While most states printed their own currencies, the pre-Constitution Continental Congress of the nation issued *continentals*. Actually, the currency



was overprinted, leading to inflation, leading to the derogatory expression "not worth a continental."

Since the U.S. Constitution prohibited state government issue of currency, the Bank of the United States was founded in 1791 as a largely-private institution in the image of the Bank of England. The primary functions of the Bank of the U.S. were to manage war debt, issue currency, solidify federal government finances and supply liquidity to state banks in need. Shares of the new Bank were among the first to trade on the New York Stock and Exchange Board (predecessor to the NYSE), and the bank continued operations until its charter expired in 1811.

The Bank of the United States played a number of important roles for the young U.S. government, serving as an agent to the federal government and being a reliable source of short-term credit and a depository for the collection of federal revenues. The bank was able to use its branches to allocate government funds where they were needed. But, it still was a central bank engaged in commercial banking activities, thus was an unpopular institution due to its perceived unfair competitive advantages relative to fully private banks. It was also a threat to state's rights and was considered by many to be potentially unconstitutional. Many farmers (including Thomas Jefferson) were opposed to the Bank because they feared it would favor commercial and industrial interests over those of the agrarian communities, and that it would promote the use of paper currency rather than gold and silver. Others, including James Madison argued that the charter was unconstitutional. During the Bank of the United States 20 years of operation, the U.S. had experienced 20 years of steady credit expansion and a stable currency. Nevertheless, the Bank's charter was not renewed in 1811, in part, due to former President Jefferson's opposition.

Not having a central bank impaired the ability of the U.S. to finance the War of 1812, so Congress launched the Second Bank of the United States with a 20-year charter in 1816, largely to fill the void left by the expiration of the First Bank. Its primary functions were to serve as the depository for U.S. revenues, to act as a clearinghouse for private banks and to prevent private banks from issuing too much currency by threatening to redeem their currencies for gold. The Second Bank was embroiled in many of the same controversies as the first. The Second Bank was badly mismanaged early on, experienced massive fraud and speculative frenzies and made enemies, in particular Andrew Jackson. While management of the bank improved considerably under Nicholas Biddle who took over as its president in 1823, Jackson was able to significantly weaken its competitive advantages by 1832 when he was U.S. president. Jackson had his Secretary of Treasury, Roger B. Taney direct federal government business to state banks and was able to force the expiry of its charter in 1836. Allowing the charter of the Second Bank to expire led the U.S. into the Free Banking Era (era with no central bank) between 1837 and the National Currency Act of 1863 (revised as the National Banking Act of 1864), during which period the banking system was largely free of nationally chartered banks and federal government restriction on banking activities.

### Other Central Banks

In Europe, nearly a century after the short-lived Banque Royale failed along with the Mississippi Company, the Banque de France was established by Napoleon in 1800. The bank was founded to stabilize French currency after the hyperinflation of paper money during the French Revolution, to provide an efficient payment infrastructure to France and its territories and to ease the capital procurement process for the government. The Bank of Spain, National Bank of Austria and numerous other European central banks were founded in the early 19th century for similar purposes, as were the Bank of Japan and Banca d'Italia in the late 19th century. Thus,

most of the European central banks were initiated by governments.

Capie [1997] notes that there were only 18 central banks by the end of the 19th century. Their activities were limited, serving as their government's fiscal agent, funding wars and government infrastructure projects and printing currency. Many central bank institutions eventually evolved to serve as lenders of last resort, providing for liquidity in times of poor harvests or war, but mostly only after the start of the 20th century. Government deposit insurance programs were rare until the mid- to late 20th century (Gorton and Huang [2001]), but some did exist on regional levels.

### Early Banking Coalitions

On the other hand, banks and banking coalitions have served many of the roles played by modern central banks. We discussed earlier lending to distressed banks by coalitions of Scottish banks, along with their willingness to accept one another's currency. Similarly, the Suffolk Bank of Boston initiated operations in 1819 and the Suffolk System of six New England banks in 1824 created the first U.S. regulated banking system, functioning in New England until 1858. In effect, the Suffolk Bank of Boston and the consortium assumed for themselves regulatory, supervisory and examination functions that might be maintained by a central bank-led system. Banks in this system honored each others' currency, which might otherwise have been discounted to be accepted and served as a central clearinghouse. In addition, the Suffolk System served as a clearinghouse (see Chapter 1 on clearinghouses) for its member banks and acted as a lender of last resort during the Banking Panic of 1837.

In New York, the Safety Fund system created in 1829 provided for bank regulators who regularly inspected member banks and established a deposit and banknote insurance fund. While the insurance fund was unable to fully and promptly cover its members during the Panic of 1837, it continued to insure members afterwards. Clearinghouses would emerge in the 1850s to manage the transfer of notes and deposits, and which issued clearinghouse certificates (notes) on behalf of member banks to provide liquidity and back liabilities of distressed clearinghouse members. This clearinghouse lending system also provided for regulation of its members (See Calomiris and Haber [2014]).

The New York Clearing House Association (now CHIPS; See Chapter 1) was established in 1853 by 52 New York banks as a clearinghouse settlement bank. It was intended to aid in the clearing of its coalition bank members' checks. Over time, its activities grew in scope so that it functioned as a sort of quasi-central bank operated by its bank-owners, devising monetary policy, engaging in stabilizing activities during banking panics (e.g., the 1907 banking panic discussed later), issuing variations of currency (e.g., Clearing House Loan Certificates, as we will discuss in a later chapter) and storing gold in its own vaults.

### Central Banks and 19th Century Bank Crises

As we will discuss in later chapters, the United Kingdom and the United States fell victim to a large number of banking crises during the 19th century. Banking crises are often characterized by banks experiencing liquidity shortages, with individual and institutional depositors protecting themselves by seeking to withdraw funds and hoarding cash, ultimately leading to widespread bank failures. After repeated U.K. banking crises in 1825, 1836-7, 1847, 1856 and 1866, British journalist and businessman Walter Bagehot (1873) argued for a plan of action for a central bank to avert a bank panic: "lend early and freely, to solvent firms, against good collateral, and at high rates." This statement, condensed from what Bagehot actually wrote,

is known as Bagehot's dictum. Essentially, Bagehot's argument is used to justify the Fed's discount window and the free lending by central banks to prevent panics. Essentially, the principal task of the central bank in a panic is to end the panic.

Following the advice of Walter Bagehot, the Bank of England adopted a policy of readily lending to its solvent but illiquid correspondent banks on the basis of sound collateral and penalty interest rates (acting as a lender of last resort). This role as lender of last resort was key in enabling the U.K. to remain free of banking crises from 1866 until 2007.

After two early attempts at chartering and maintaining central banks, with the Bank of the United States (1791-1811) and the Second Bank of the United States (1816-1836), the U.S. Federal Reserve System was established in 1913, largely in response to the severe U.S. Banking Panic of 1907, which followed numerous banking crises during the National Banking era from 1863-1913. Thus, the interims between the three U.S. central banks were characterized by significant numbers of banking crises as we will discuss in a later chapter.

Goodhart [1985] asserts that most 20th century central banks evolved to enable banking systems to respond to banking panics, though other academics attribute the rise of 20th central banking to a variety of other causes. Gorton and Huang [2001] note that prior to the establishment of the U.S. Federal Reserve System, banks formed co-insurance coalitions that issued "clearinghouse loan certificates" during banking panics. These certificates served as a sort of private currency for which all coalition members were jointly responsible, in an effort to convince bank customers that healthy banks would co-insure troubled banks.<sup>2</sup> This system of co-insurance was the precursor to the modern discount window, whereby a troubled bank could deliver illiquid assets to the clearinghouse to serve as collateral for a cash loan. This system also led to banks monitoring their fellow coalition members, promoting safety in their affiliates' operations, and setting the stage for central bank monitoring. During the panics of 1893 and 1907, these certificates were issued directly to bank depositors, again, as a sort of interbank private currency for settling bank balances.

As we discussed in Chapter 1, the Federal Reserve System in the U.S. was founded after the Banking Panic of 1907. In the words of one of its founding Act's authors, Robert Latham Owen ([1919], p. 24; See also Bernanke [2013]) to "provide a means by which periodic panics which shake the American Republic and do it enormous injury shall be stopped." We will return to the Federal Reserve System, bank crises and related regulation in later chapters, particularly Chapter 8.

## **G. A Brief History of Investment Banking**

Investment banking, which in a manner similar to commercial banking, gradually evolved from European merchant and financial markets, but did not bear much resemblance to its current state until the late 1800s. The distinction of investment banking from merchant banking owes largely to the British restriction on chartering private banks that might compete with the Bank of England and the limitation on the number of partners (6) allowed in British banks. These restrictions prevented most private British banks from raising large amounts of capital for major banking operations, and limited their practices to small geographic areas and to low capital-intensive activities.

Nevertheless, smaller institutions were able to find niches in the financial industry. For example, development of securities exchanges in London and the United States provided opportunities for governments and other institutional borrowers to raise money by selling

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<sup>2</sup> These 19th century U.S. coalitions or clearinghouses originated as interbank payments systems.

securities directly to the general public, reducing the dependence of financial institutions on accepting deposits. Investment banks, which did not depend on deposits for capital were able to raise money through private deals and public securities and thrive alongside of deposit banks.

After the stock market crash of 1929 and subsequent U.S. bank crises, the Glass-Steagall Act of 1933 separated the investment banking industry from commercial banking in the U.S. Exchange and other public capital markets provided substantial opportunities for private banks to advise industrial corporations, trade their securities and bring their securities to the general public via initial public offerings (IPO's), exchanges and over-the-counter markets.

### Investment Banking in the 19th and Early 20th Centuries

Modern English investment banking grew out of merchant banking and coincided with the onset of the Industrial Revolution. Infrastructure development, including public utilities, canal and railroad construction, tool manufacture, textiles, communications and mining all required significant long-term capital. Merchant banks, including Baring, Rothschild, Morgan Grenfell played large roles in many early security flotations to the general public. In addition, specialized "company promoters," such as Adamson, Collier & Chadwick and Henry Osborne O'Hagan that provided many of the same services (including underwriting, legal, accounting and promoting) provided by investment banks today were essential to many 19th century British company security flotations (See Fohlin [2014]). Unfortunately, many such promoters were unscrupulous, with many investors losing substantial sums of money to fraud, ultimately leading to the field's dominance by larger, highly reputable banking organizations.

Late 18th and early 19th century U.S. investment bank development, growing out of the merchant bank tradition, was in large part related to military and other government actions, including the North American French and Indian Wars, the U.S. Revolutionary War, the Napoleonic Wars, the U.S. War with Mexico and the U.S. Civil War. For example, Jay Cooke & Company was instrumental in selling over \$830 million in debt instruments to diverse types of investors in order to finance the Union effort in the U.S. Civil War (Oberholtzer [1907]). His investment bank was among the first in the U.S. to arise as a dedicated investment bank as opposed to arising from merchant banking, deposit banking or other non-investment banking activities. The company failed during the Banking Panic of 1873, but Cooke's nephew Charles D. Barney reorganized the firm under his own name, a predecessor to the securities firm Smith Barney.

In addition, British colonialism and U.S. territorial and industrial expansion, particularly related to infrastructure development such as water provision, canal and railroad construction, and later, mining, steel, industrialization, communication (e.g., the telegraph and telephone) and electricity provision provided other impetus for investment banking development. Early in the 19th century, in addition to banks, a variety of non-financial firms provided investment banking services, including the Manhattan Company founded by Aaron Burr ostensibly to supply water to Manhattan (predecessor to Chase-Manhattan and JP MorganChase), Manufacturers Hanover Trust Company, a cotton processing equipment manufacturer taken over by Chemical Bank (manufacturer of dyes, medicines, and paints), which in turn, was taken over by Chase Manhattan before its merger with J.P. Morgan. Such non-financial institutions and nascent investment banks were able to raise large sums of capital in markets to fund huge infrastructure needs when state-chartered deposit banks were unable.

The earliest dedicated investment bank in the U.S. was founded by Alexander Brown, an Irish linen merchant who immigrated to Baltimore in the early 19th century. It conducted the IPO

(arguably the nation's first, though the Bank of North America began sales of its stock in 1781) of Baltimore Water Company in 1808. Alexander Brown took his sons into his Baltimore-based firm, and through subsequent spin-offs by his sons and later mergers, the New York-based firm Brown Brothers Harriman became a Wall Street powerhouse, while Alex. Brown was taken over by Bankers Trust before it was acquired by Deutschebank.

Despite the founding and operation of Alex. Brown & Sons as a dedicated investment bank, it remained common for investment bank operations to arise from deposit banking or securities brokerage activities. Merchant banking had diminished somewhat as institutional predecessors for investment banking institutions. Developments in investment banks generally corresponded with the developments of secondary markets for securities trading, including the New York Stock Exchange.

German-Jewish families, including the Rothschilds (Mayer and his son Nathan, starting in Frankfurt) and Warburg (Moses, Marcus, and Gerson, starting in Hamburg) were among the innovators of 19th century U.K. investment banks, perhaps because of difficulties in Jews entering into more established commercial banking firms and business (Knee [2007]). Mayer Rothschild's five sons spread across Europe, enabling the Rothschild family to create the first international investment bank.

Jews in the U.S. faced similar barriers in commercial banking, but were able to initiate investment banks. Among 19th century German-Jewish immigrant founded U.S. investment banks were Goldman Sachs (Marcus Goldman and Samuel Sachs) and Kuhn Loeb (Solomon Loeb and Jacob H. Schiff). Lehman Brothers (Henry, Meyer and Emanuel Lehman) started by peddling dry goods and working as cotton traders in Montgomery, Alabama and Salomon Brothers (Percy Salomon) and Bache & Co. (Jules Bache) were also founded by German-Jewish immigrants. American investment banks differed from commercial banks and their European counterparts in that most acted primarily or entirely as securities brokers and intermediaries because they were not chartered as deposit banks or licensed to issue their own notes.

Not all U.S. investment banks were founded by German-Jewish immigrants. Other banks, often known as "Yankee Houses," included J.S. Morgan & Company, named for Junius Spencer Morgan. J.S. Morgan was originally named George Peabody & Co., and renamed when its London-based founder Peabody retired in 1864. Morgan's son, John Pierpont Morgan (also nephew of James L. Pierpont, who wrote "Jingle Bells"), founded Drexel, Morgan & Co. with Anthony Joseph Drexel and reorganized as J.P. Morgan & Co. in 1895. J.P. Morgan was the dominant investment banker until his death in 1913, and his firm remained dominant in U.S. banking until the Great Depression.

In the years after the founding of the Federal Reserve System, U.S. investment banking underwent significant change. We will continue to discuss our chronology of the U.S. investment banking industry in Chapter 10.

## **H. Summary**

Twentieth century deposit banking history has largely been a story of new technologies, crises, politics and regulation, which we will discuss in later chapters of this book. Nonetheless, as discussed this chapter, the development of money and banking corresponds closely with the rise and fall of economic activity over time. Figures 2.2.a and 2.2.b briefly summarize the history of money and banking, omitting most panics and regulatory developments since the advent of civilization.

Commodity money has existed for at least 6,000 years, and lending activities for much longer, though not necessarily as a banking activity. Ancient Babylonian records from the 18th century B.C.E. cite interest charges. Because of their durable construction and the respect that they tended to command, temples were an early depository for wealth storage. Depository institutions were used in ancient Greece and Rome for deposit and lending activities as well as for changing money.

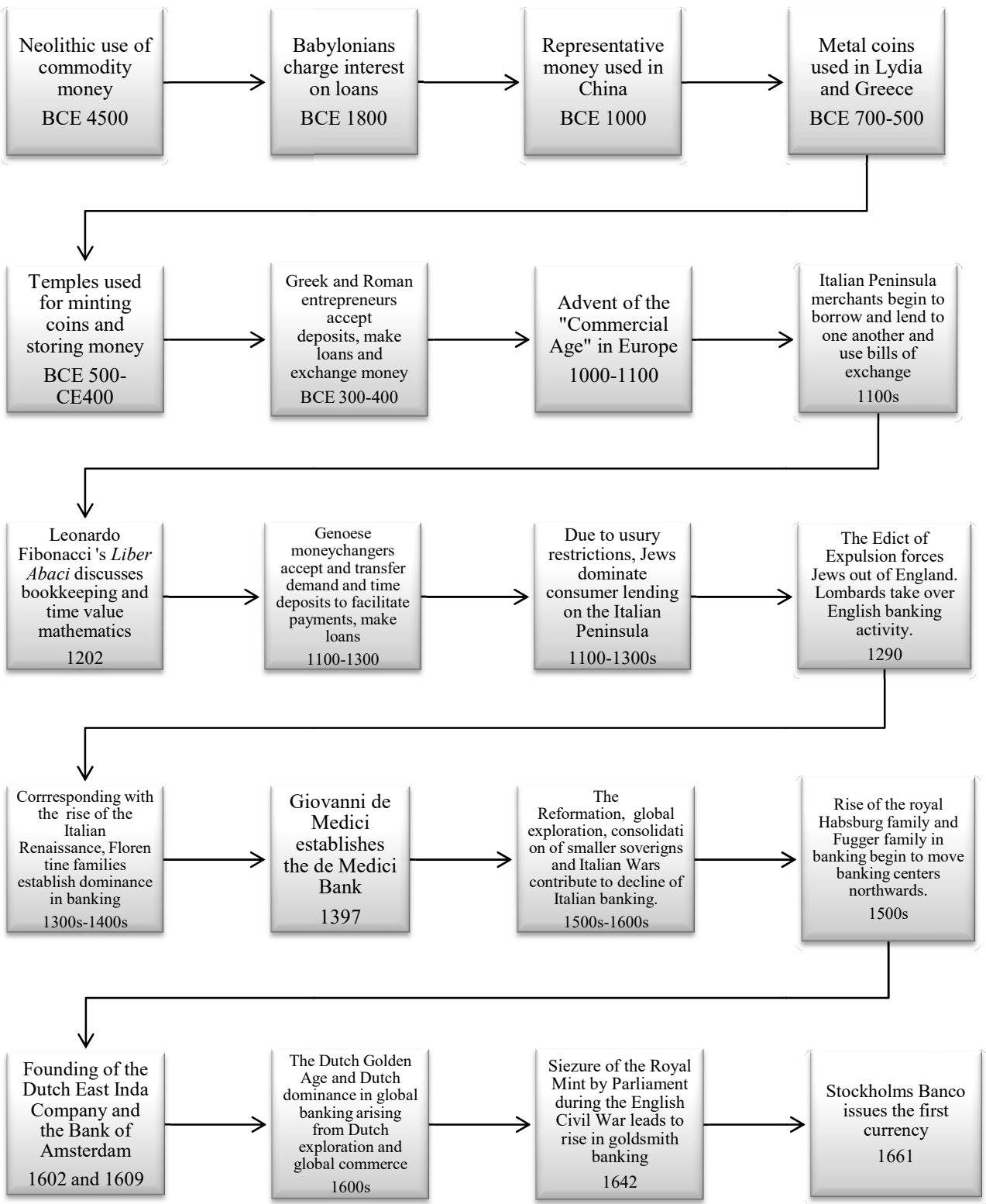
The European Commercial Age led to Italian merchants lending amongst one another, facilitated by mathematical and record-keeping developments. However, Christian usury restrictions forced much banking activity into the hands of Jews. Nevertheless, merchant banking families acquired massive amounts of wealth on the Italian Peninsula, funding much of the Italian Renaissance.

The Reformation and decline in usury restrictions led to the expansion of banking activities to Northern Europe, with major banking centers moving to Bruges, then to Amsterdam and London. Sovereign consolidation and massive merchant and exploration activities necessitated changes in bank ownership structure and substantial growth in lending and other financing activities. These changes, and the development of exchange markets in Bruges, Antwerp, Amsterdam and London facilitated the era of European Exploration, particularly in countries with Atlantic ports.

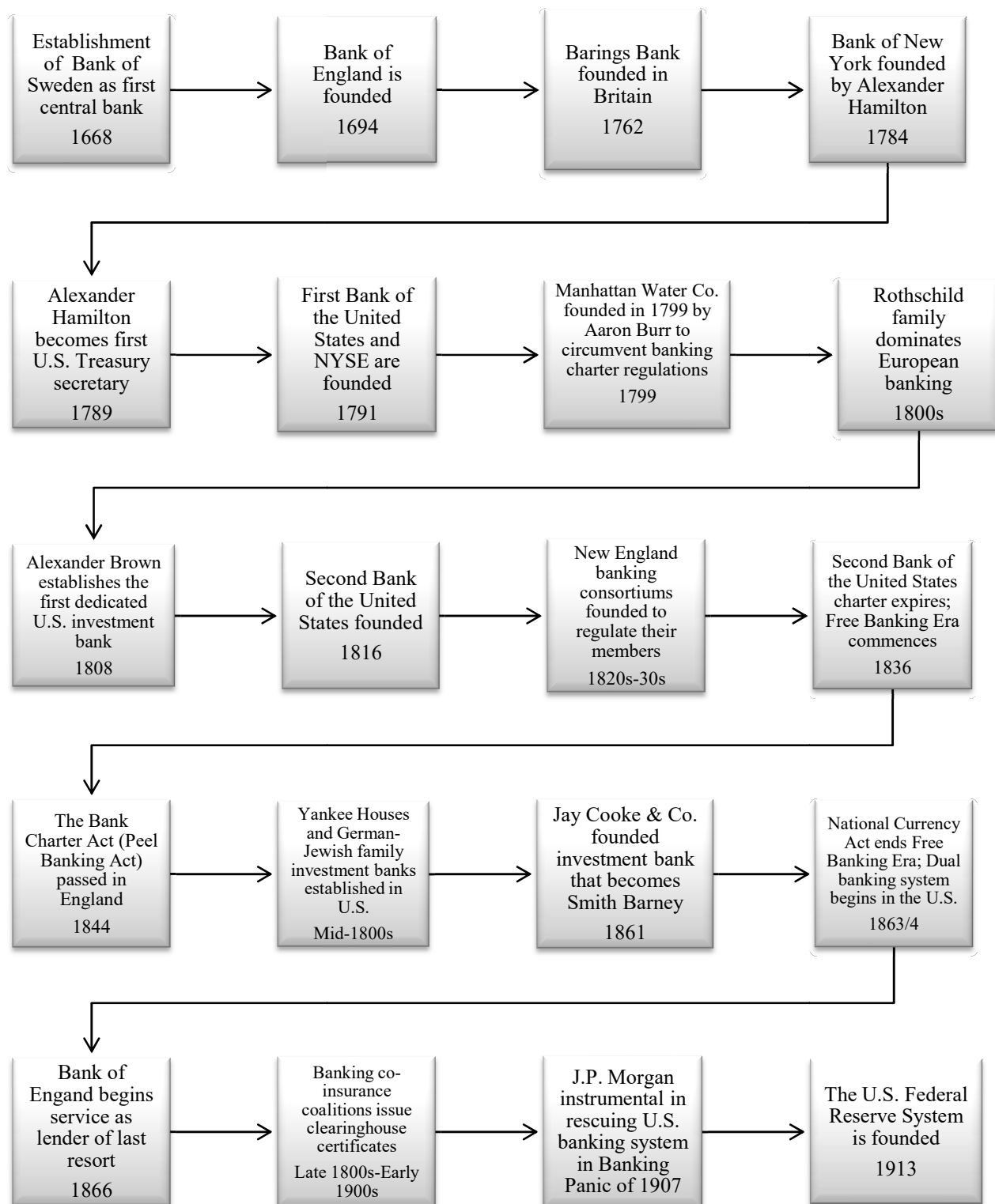
Parliament's seizure of the Royal mint led to the rise of goldsmith banking, which in turn, expanded, consolidated and led to the establishment of many of Britain's great banks. European nations began to develop central banks such as the Bank of Sweden and of England in the latter half of the 17th century. In America, successful commercial banks were established during the office of Treasury Secretary Alexander Hamilton, then other financial institutions such as America's first central bank, The First Bank of the United States and stock exchanges. Within 20-70 years, American investment banks were being established that would later grow into finance powerhouses. The establishment of the Federal Reserve System in 1913 marked what might have been the most important American development of 20th century money and banking.

Investment banking evolved from English merchant banking, largely due to the British restriction limiting to six the number of partners allowed in British banks so as to protect the Bank of England's monopoly. Since private British banks were unable to raising large amounts of capital for large scale deposit banking, they limited their practices to small geographic areas and to niche investment banking activities, which generally included marketing IPOs and other offerings, transaction advice and trading.

U.S. investment bank development, financed military, infrastructure and other government actions. Early U.S. investment banks sold large quantities of debt instruments to diverse types of investors and Goldman Sachs got its start selling commercial paper and other debt instruments. The bulge bracket investment banks shifted much of their business towards IPOs in the 1950s, then along with trading activities beginning in the 1980s. The collapse of Glass-Steagall in the 1990s and other deregulatory activity led to significant consolidation of the investment and commercial banking industries.



**Figure 2.2.a: Money and Banking Historical Timeline through the Mid-17th Century**



**Figure 2.2.b: Money and Banking Historical Timeline from the Mid-17th Century to 1913**  
Bank panics, crises and regulations are summarized in later chapters.



## Exercises

- 1.a. Suppose the cost of minting a €1 coin were €0.20 and its metallic or fall back value were €0.02. Calculate the seigniorage of this €1 coin.
  - b. The Philadelphia Mint reported that the 2014 cost of minting a nickel (\$.05 U.S. coin) was 8.09 cents, which includes the metallic value of the coin. What was the seigniorage associated with the nickel?
  
- 2.a. What can happen to a mint or to a coin-based monetary system if seigniorage is too high?
  - b. What can happen to a mint or to coins if seigniorage is too low or negative?
  - c. In the 1250s, under the reign of England's King Henry III, new coins were issued in silver, minted with lettering all around the perimeter of each coin, extending to its edge. Why would coins be stamped this way?
  
3. In many ancient and medieval societies, including ancient Greece and Rome, the Italian and Iberian Peninsulas and Flanders, it was commonplace for money changers to become bankers. That is, money changers undertook accepting deposits and making loans. Why was the undertaking of banking after money changing a natural progression of financial activities in these societies?
  
4. Suppose that a 12th century English sheep farmer needed to borrow money to expand his property holdings. He has found a lender willing to provide him an advance of money equal in value to 500 sheep for one year. However, interest payments are illegal, yet the lender will not provide money for a year without something of value. How might the borrower and lender have structured a deal so as to avoid the appearance of the payment of interest?
  
5. What was the important role played by Leonardo Fibonacci (also known as Leonardo Pisano) in the development of merchant banking on the Italian peninsula?
  
6. What were the two primary sources of risk to medieval merchant banks? What strategies did merchant banks employ to mitigate these risks?
  
- 7.a. What were the primary factors leading to Renaissance era Italy's dominance in banking?
  - b. What were the primary factors leading to the decline in relative importance of Italy's dominance in banking?
  
8. Aristotle [350 B.C.E.] argued that money was sterile, appropriate as a means of exchange, but not appropriate for "breeding." Money cannot breed as livestock breeds; money exists not by nature, but by law. Thus, he argues, lending at interest is an entirely unnatural act, and an abominable act to be prohibited. Prepare an argument that money is not sterile as Aristotle claims, and based on this argument, that lending money at interest is justifiable.
  
- 9.a. A few historians (e.g., Buch (2005)) have suggested that John Calvin might be the founder of modern finance. Why might this argument be justifiable?
  - b. Prepare an argument against the proposition that John Calvin was the father of modern finance.

10. Suppose that a Venetian merchant bank, constrained by usury restrictions, seeks to lend 1,000 florins for one year to a Florentine counterpart. To circumvent usury restrictions, the Venetian lender seeks repayment in ducats. At the time of loan origination, the ducat was trading at par (1 ducat for 1 florin) against the florin. However, the ducat was expected to appreciate 10% over the next year against the florin. Hence, the bill of exchange created by the loan expressed that 1,000 ducats would be paid when the bill was presented to the Florentine borrower. What is the interest rate implied by this bill of exchange, assuming that the expected 10% increase in the value of the ducat was actually realized?

11.a. Why might lenders to emperors, kings and other sovereigns be unwilling to lend long-term?

b. Why might borrowers such as emperors, kings and other sovereigns be hesitant to borrow short-term?

c. How might interest-bearing bonds, long-term annuities such as amortized mortgages, perpetuities and other income-producing instruments be used to overcome the difficulties of long- and short-term lending?

12. Prior to the 17th century, most merchant banks were family-owned enterprises. Beginning in 17th century Netherlands, there was a growing shift in ownership structure towards limited liability company (corporate) ownership structures, limiting shareholder liability in banks. Both family-owned banks and limited liability banks were able to encourage the risk-taking necessary to grow a bank.

a. How might banks structured around family ownership be a useful organizational structure for a growing bank?

b. How might the limited liability company also serve as a useful organizational structure for a growing bank?

c. Under what circumstances might the limited liability company be a more useful organizational structure than family ownership?

13. During the 16th and 17th Centuries, Spain and Portugal imported large quantities of gold and silver from the New World in the Americas. What would you expect to be the major economic impacts of this influx of precious metals?

14. The Bank of Sweden is generally regarded as the world's oldest true central bank. Some observers argue that the Bank of Amsterdam, while perhaps not an actual central bank, was certainly an essential precursor to the modern central bank, performing its essential roles.

a. Cite evidence for an argument to support this thesis.

b. Cite evidence for an argument to dispute this thesis.

15. Scotland, prior to the mid-19th century had considerably lagged behind England in terms of economic development and growth. However, after the creation of the Bank of Scotland at the end of the 17th century, Scottish banks innovated a number of practices that enabled the Scottish banking industry to thrive, and lead the Scottish economy to rival that of England by the mid-19th century. What were some of the innovations that characterized 18th century Scottish banking and led to the industry's success?

16. During the American Revolutionary War against the British, the individual 13 colonies borrowed extensively to finance their war efforts. After the U.S. Constitution was ratified, Treasury Secretary Alexander Hamilton argued that his proposal for the federal government assumption of state debts, incurred largely during the war effort, would actually benefit the government finances of the new country. Why might this be true?

17.a. What factors led to the development of investment banks from merchant/deposit banks in England and the U.K.?

b. Why did larger 19th century investment banks spring from deposit banks in the U.S.? Why were many 19th century U.S. investment banks never associated with deposit banks?

18. Why might the creation of central banks along with their roles as lender of last resort such as in the U.S. and U.K. facilitate long-term industrial production and growth?

## Exercise Responses

1.a.  $seigniorage = 100\% - \%cost\ of\ manufacture - \%fall-back\ value = 100\% - 20\% - 2\% = 78\% = \text{€}0.78$

b.  $seigniorage = 100\% - \%cost\ of\ manufacture - \%fall-back\ value = 100\% - 161.8\% = -61.8\% = \$0.0309$  where  $(.05-.0809) = 161.8\% \times .05$ . Note that seigniorage on the nickel is negative, meaning that the U.S. mints incur a loss on its production of coins.

2.a. If seigniorage is too high due to the low value of coin content, the coins might (though, not necessarily will - consider a successful fiat money system, for example) fail as a form of money as people refuse them as payment. As coins are devalued, seigniorage can lead to inflation even if the coins do not fail as money.

b. If seigniorage is too low or negative, the mint will lose money on the production of coins, might not be able to afford metal for the production of coins after losing money, and/or coins might be exported or melted down for their metallic content.

c. If coin edges were not milled, or if there were not letters visible to the edge of a coin, its edges could be clipped for its valuable metal and debased. This would not be a problem with later fiat paper money, which, unfortunately, could be debased (through inflation) with excess printing. Furthermore, when the coins were sufficiently debased, a counterfeiter could then earn a profit by replicating the debased coins.

3. First, money changers needed to maintain, store and maintain inventories of a variety of precious metals and coins. They required safe storage facilities. Their secure storage facilities were natural storage facilities for the precious metals and coins of their clients. Lending out client assets at interest was a reasonably safe way to generate additional revenues as long as there was never a run on deposits.

4. A sale and repurchase agreement could be arranged between the borrower and the lender, in which the seller of the sheep (the farmer) agrees to repurchase the sheep from the buyer (the lender) at an increased price reflecting the agreed interest. However, this arrangement might be too transparent, and the excess payment being construed as interest. Alternatively, instead of an agreement for the repurchase to be at a higher price, the agreement could call for the lender to keep and new sheep born during the one-year holding period or keep any wool that was shorn from the sheep during this period.

5. Simple calculations, especially calculations related to interest, discounting and financial operations were, at best, very difficult with the old Roman numerical system. Fibonacci (also known as Leonardo Pisano) discussed applications of the Arabic numerical system to interest calculations. Leonardo's early 13th century book *Liber Abaci* also detailed calculations of exchange rates and bookkeeping, and presented the mathematics needed for present value computations and comparisons.

6. The two primary sources of risk to medieval merchant banks were credit (default) risk in their lending operations and market risk (prices of commodities varying widely) in their exchange operations. Taking of collateral and loan syndication were significant credit risk mitigators while

diversification was a significant mitigator of exchange risk. Political and commercial intelligence operations and higher capitalization ratios tended to aid in the management of both types of risk.

7.a. The advent of the "Commercial Age" in Europe enhanced wealth and standards of living while significantly increasing trade. Italian access to the Mediterranean-centered trade routes between Northern Europe and the Middle East, Asian and African trade routes provided great opportunity and wealth to Italian merchants, who engaged in the practice of lending to one another. Italian merchants developed and adapted numerous business practices, including the bill of exchange (predecessor of the modern paper check), algebra, applying the Hindu-Arabic numerical system to arithmetic operations, time-value calculations and double-entry bookkeeping that later spread elsewhere through Europe.

b. Consolidation of smaller sovereigns into larger kingdoms and empires in Northern Europe led to increased military and naval strength, larger merchant marines and more profitable global trade routes. Technological developments in ship-building and navigation made global exploration and trade feasible and more cost effective. This world exploration and trade increased as direct access to the European Atlantic coast became more important relative to Mediterranean access, though Venice remained important to trade with the Middle East. The 16th century Italian Wars hastened the end of the Italian Renaissance as well as Italian dominance in banking, as evidenced by the de Medici family having to flee Florence from French invaders. Splintering of the Catholic Church and the Reformation further weakened Rome's influence in banking, weakening usury restrictions that ultimately freed European banks from many banking constraints. The Church lost much of its authority and its monopolistic ability to sell salvation and indulgences for prohibited usurious practices. Many Italian family bankers, particularly the de Medici family shifted their focus from banking and wealth-building to church and political arenas, leading to mismanagement in the bank. While not discussed in the text, the decline of fairs such as those in the region of Champagne, diminished the importance of then-existing banks, particularly as merchant bankers simply took up residence in new banking cities such as Bruges, Antwerp and Amsterdam.

8. Money is a tool used by businessman according to Conrad Summenhart. A businessman makes money with his money. Thus, money can breed money just as livestock. When a businessman lends, he charges for being unable to use his money. We might call this the time value of money; money today is worth more than money to be received in the future. Money is no more sterile than a house, for which we might be fully justified in charging rent.

9.a. John Calvin was a principal founder of Protestantism, a successor to the Roman Catholic Church as the principal religion in Northern and Central Europe. Usury, the time value of money and free lending are among the essential concepts and activities in modern finance. However, church doctrine prior to the Reformation clearly prohibited usury. Contrary to the prevailing religious views of European religion during the medieval period, Calvin did "not consider that usury is wholly forbidden among us, except it be repugnant to justice and charity." That is, as a founder of and key thinker for many Christian denominations, Calvin did see a legitimate role for usury in the economy. Key to his understanding, and to convincing other religious leaders of his time was that two distinct Hebrew words were used for usury, *neshekh* for "to bite" and *tarbit* for "legitimate increase" (See Buch (2005) for more discussion on this and related issues). This distinction, regardless of whether it was correct, was essential to the development of modern

finance in the post-Reformation era, enabling Calvin to perceive no condemnation of interest charges on commercial loans in the Bible except when excessive or hurtful to one's neighbor. He viewed freely agreed business loans, the backbone of modern finance, as being perfectly acceptable.

b. Despite Christian and other religious prohibitions on usury prior to the mid-16th century, there was substantial and wide-spread banking activity on the European continent. In addition, Le Goff [1990] argued that the late 12th century Church had long since developed the concept of Purgatory, long before Calvin's support for usury, which had long provided for an afterlife absolution for usurers. Furthermore, the Churches frequently provided deathbed absolutions for usurers, implying some tolerance for the practice. Other 16th century scholars such as Summenhart and Eck were also arguing forcefully for the abandonment of the usury prohibition.

10. 10%. The loan would be repaid with currency that had appreciated by 10%.

11.a. Sovereigns should have been expected to present significant credit risk. They were often powerful enough to avoid making payments on their obligations, or even to kill their creditors.

b. Short-term borrowing subjects borrowers to quick repayments, when liquidity or refinancing opportunities might be in short supply.

c. Long-term debt instruments provide lenders income and at least some level of debt repayment before obligations are due while allowing lenders the possibility of not having to refinance obligations in the short-term.

12.a. Family ownership structures facilitate risk-taking in that families might be expected to effectively arrange equitable sharing of profits and losses, and family members have intimate knowledge of their relatives' financial positions.

b. First, the limited liability company allows for a simple allocation of profits and losses, strictly proportional to share ownership. Second, limited liability companies allow its owners to conduct business without knowing each others' wealth levels; anonymous shareholders can do business with one another if shareholders personal wealth levels are irrelevant with respect to risk-sharing.

c. Family-owned business are by definition limited to a small number of owners to provide capital whereas limited liability firms can raise equity capital from an unlimited number of individuals who can remain anonymous. This allows for substantially greater investments and larger risk-taking ventures.

13. Increases in the monetary base might be expected to increase money supply, real goods and services output, imports and inflation. Since the two countries would have more gold than their European counterparts, one might expect that wealth levels in Spain and Portugal would increase relative to their counterparts. However, after the influx of gold and silver in the Iberian Peninsula from the Americas, both Spain and Portugal experienced an era of inflation, sometimes known as the Price Revolution, which spread throughout Europe as other countries increased silver production. In addition, both countries experienced significant trade deficits as the increased money increased their demand for imported goods.

14.a. The Bank of Amsterdam, founded by the city of Amsterdam over 50 years before the Bank of Sweden, was founded as a public institution to support Amsterdam's trade-oriented economy.

It held large reserves of gold that served to stabilize the Dutch economy and supply of money, as would a modern central bank. The Bank issued notes that were backed by gold and coinage, somewhat like currency, stabilizing its value and somewhat regulating its supply.

b. The Bank of Amsterdam did not issue actual legal tender currency or coins, did not directly control the money supply or interest rates, and did not lend money to or bail out troubled private banks. The bank was a private institution, not a branch of government.

15. Scottish banks developed a number of practices that contributed to their success. Scottish banks developed branch systems throughout the country, enabling country-wide recognition and acceptance of their notes. Scottish banks guaranteed each others' notes, enhancing confidence in the banking system. Scottish banks stood by ready to lend to one another, enabling the Scottish banking system to avoid many of the crises that impaired the English banking system through the late-19th century. Scottish bankers innovated cash credit accounts (forerunner of the modern overdraft or credit line), which was to become a key source of short-term credit to a variety of types of institutions. They attracted depositors by regularly offering interest on their accounts. The first savings bank, focused on the individual consumer, was founded in 1810. The developments of interest-bearing accounts and savings banks democratized Scottish banking, bringing the banking system's services to the general public.

16. While the federal government debt would increase in the short-term under the assumption of state government debts, state government burdens would be reduced. The total and per-capita debt burdens of the states (formerly colonies) would be vastly different among the states, so that federal assumption of the debt burden would more fairly distribute the obligations. With states obliged to pay the debt, the credit of the country would suffer even if only one of the states defaulted on its obligations. Furthermore, each of the states would end up competing amongst themselves and the federal government for additional loans and tax revenues to pay off these loans. Federal assumption of debts would establish a borrowing precedence that would ultimately increase the power and responsibilities of the federal government, which would and enhance the ability of the government to defend the country.

17.a. It was difficult for banks to raise large amounts of capital after the Bank of England was granted a monopoly on the limited liability charter in 1694 and to operate under the 6-partner restrictions imposed by the government. The Bank of England had other monopoly advantages, such as being able to receive deposits from and conduct much other business with the Crown. Hence, U.K. investment banks often developed as institutions requiring fairly low levels of capital, focusing in business such as bringing IPOs to the market, securities brokerage, trading and market-making, financial advisement, M&A and the like.

b. The Glass-Steagall Act forced large deposit banks to spin off their securities and investment banking operations in the 1930s. However, a number of 19th century German-Jewish immigrants founded U.S. investment banks, including Goldman Sachs, Lehman Brothers, Salomon Brothers and Bache & Co. Such immigrants of Jewish ethnicity were unable to find work in the U.S. commercial banking industry. These banks were not permitted to accept deposits or issue their own notes. So-called "Yankee Houses," including J.P. Morgan & Company, which was reorganized from Drexel, Morgan & Co.

18. Banks need to maintain liquidity in order to function. Banks will be more willing to extend

long-term loans if they have access to a lender of last resort in the event of a liquidity crisis.



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