CHAPTER 1

A Brief Look at Central Banking History

Learning Objectives

1. Describe historical roles and functions of central banks.
2. Explain how various central banking roles and functions came about.
3. Define money and its relation to central banking.
4. Describe key commonalities and differences of modern central banks.

Historically, central banking is a relatively new phenomenon, tracing its origin to about 400 years ago. In that relatively short period of time, however, central banks have evolved to become among the most important public institutions, which profoundly affect everyone's daily life. This chapter briefly reviews the evolution of central banking in various stages, so the reader will understand the background of how central banks rose to become what they are today.

The chapter starts with the context in which the central bank was first created. Earlier roles of central banks—such as coin sorting, banknote issuance, banker to the government, and banker to banks—will first be discussed. Later, the chapter looks at newer roles of central banks, such as the lender of last resort, bank supervisor, and the conductor of monetary policy. Lastly, the chapter looks at the current stage of central banking, especially in the wake of the 2007–2010 global financial crisis that led to extensive reexamination of the role of central banks around the world.

1.1 PRIOR TO CENTRAL BANKING

Prior to the creation of central banks, societies often used precious metals such as gold or silver as the means of transaction for goods and services. In economic terms, precious metals were deemed suitable for being *money*, as they possessed three inherent characteristics. First, these metals were widely accepted as a *medium of exchange*. People were willing to trade their goods and services for precious metals, since they believed that they could use the metals to trade for other goods and services that they wanted to consume. Second, these metals were a good *store of value*. People who received these metals could keep them for future trading for what they might

want to consume. Unlike grains or livestock, precious metals were not perishable, nor would they easily lose their luster. Third, they could be used as *units of account*, for they could be divided into uniform pieces according to the assigned value.

1.2 COIN SORTING AND STORING

When a society developed to a certain degree, the use of precious metals as money became more formalized and standardized. The metals were made into coins, which made them easier to transport. They were also stamped with seals or signs certifying their weight and value, which made it easier to recognize and classify them.

In Europe, by the seventeenth century, the use of coins in commerce became more cumbersome and required more effort for merchants. Different sovereigns introduced different makes of coins that were of different values and different metal content but circulated quite freely across borders. Different vintages of coins of the same nominal value from the same sovereign could also have different metal content, as sovereigns sometimes sought extra revenue by introducing coins of the same value with lighter and lighter metal content—that is, coin debasement.[1]

Furthermore, there were also risks that the coins might be worn out because of usage, such that the precious metal content became diminished, or they might be intentionally *clipped*, as people chipped out metal content from the coins.[2]

To ease the problems related to coin usage, in 1609 merchants and the city of Amsterdam, a premier global trading hub of that time, decided to set up the Bank of Amsterdam to do the tasks of sorting, classifying, and storing the coins. The success of the Bank of Amsterdam prompted other European cities and sovereigns to set up banks along the lines of the Bank of Amsterdam.[3]

1.3 BANKNOTE ISSUANCE

In 1656, the Bank of Stockholm was established in Sweden, in the fashion of the Bank of Amsterdam. At first, the bank simply took in copper coins and lent out against tangible assets such as real estate.[4] Five years later, however, as the Swedish parliament decided to reduce the amount of copper in newly minted coins, older coins of the same nominal face value became more valuable owing to their greater copper content. The public rushed to get their hands on the older coins, and the bank run threatened the Bank of Stockholm's survival.

The solution by the Bank of Stockholm to prevent the threat that it might run out of coins was to issue notes of credit (called *kreditivsedlar*) to those depositors who wanted to withdraw their copper coins. With their features of having fixed face values in round denominations, no paid interest, and being freely transferable from one holder to another, these kreditivsedlar were considered the first banknotes in the modern sense.[5] This solution was a success for about two years until the Bank of Stockholm could not redeem the notes at their face values and the government had to intervene.

In 1668, the Swedish parliament approved a new bank to replace the Bank of Stockholm. Ultimately, that new bank became the present-day Swedish central bank, the Sveriges Riksbank, currently the world's oldest central bank. (The Bank of

Amsterdam collapsed in 1819, suffering losses from their investments in the Dutch East India Company, which financed wars with England.[6])

Despite the demise of the Bank of Stockholm, the use of banknotes as a medium of exchange survived and gradually became embedded in our modern economies. As merchants who had coins deposited at the bank traded goods and services among themselves, it was clearly easier for them to transfer their coin ownerships at the bank without withdrawing those coins to settle their trades. Therefore, it was also easier for the bank to just issue notes for those who owned coins held at the bank so that they could use the notes to trade with those without accounts at the bank. In the few centuries after the pioneer banknote issuance by the Bank of Stockholm, banknote issuance became popular in many countries, but was not confined only to banks established by governments or sovereigns. In many countries, privately owned banks were also granted the right to issue their own banknotes.

1.4 BANKER TO THE GOVERNMENT

The Swedish Riksbank was chartered to not only act as a clearinghouse for merchants but also to lend funds to the government. Later on, many other central banks were also created to help finance government spending, particularly to finance wars. These included (1) the *Bank of England*, which was founded in 1694 as a joint stock company to finance the war with France and was later also given the privilege of handling the government's accounts;[7] (2) the *Bank of France*, which was created in 1800 both to help with government finances and to issue banknotes in Paris (for which it was given a monopoly), partly to help stabilize the economy after the French Revolution brought hyperinflation of paper money;[8] and (3) the *Bank of Spain*, which could trace its roots to 1782 when its predecessor was founded to finance the country's participation in the American War of Independence, although it was not until 1856 that the predecessor bank was merged with another bank to form the Bank of Spain.[9]

By helping to finance government spending and manage government finances, these early central banks enjoyed close relationships with their governments, along with good profits. As lenders to their governments, notes issued by these early central banks gained wide acceptance, since they were implicitly backed by the promise of repayment by their sovereigns. In the case of the early Bank of England, it could simply issue notes to match the sum lent to the government. In such a case, the notes (dissimilar to modern banknotes, since their face values were variable, as the amounts were handwritten by the cashier) were not backed by precious metals, but by the implicit promise of the government to pay.[10]

1.5 BANKER TO BANKS

By the nineteenth century, central banks' close ties to their governments and the wide acceptance of their banknotes (or in many cases, their monopoly on note issuance) helped induce commercial banks to also open accounts and place their deposits with the central banks, effectively becoming their clients. Consequently, the central banks became banker to the commercial banks, in addition to being banker to the

government. The banker-to-banks role became more and more pronounced as the foundations of modern banking started taking shape.

In the case of nineteenth-century England, small banks proliferated in small towns doing business such as discounting merchants' bills. These small-town banks often sought out larger London commercial banks as their correspondent banks, to deposit and invest their funds and conduct other transactions. The London commercial banks, in turn, often found it easier to settle claims among themselves using Bank of England notes, as the Bank of England had a monopoly on note issuance within a 65-mile radius of London.[11]

Even more conveniently, the commercial banks could open deposit accounts at the Bank of England and use these accounts to settle claims among themselves or to keep reserves. By being the key repository and clearinghouse for commercial banks whose own networks of correspondent banks could be far-reaching, the Bank of England's function as a banker to banks became notable and helped in defining the bank as a *central* bank. The Bank of England's banker-to-banks role would become a model for many central banks to later emulate.

1.6 PROTECTOR OF THE FINANCIAL SYSTEM: LENDER OF LAST RESORT

Early banking systems were very prone to panics and bank failures. By nature, banks and other financial institutions *borrowed* funds from depositors for short maturity, and lent out those funds as loans for longer maturity. Diverse events such as bad harvests, defaults, and wars could cause bank depositors to panic and rush to withdraw their funds, putting debilitating pressures on the banks, since they might not be able to call in loans fast enough to repay the depositors.

By the early nineteenth century, it was well recognized that financial panics and resulting bank failures could be very disruptive and costly to commerce and the society at large, and not just financially ruinous to those directly involved. Successfully calming panics and rescuing banks, however, required many factors, including deep pools of financial resources, extensive networks in the financial system, operations know-how, and public confidence. This put central banks in a unique position to assume the role of protector to the financial system, owing to their close ties to their governments, large reserves, extensive networks with correspondent banks, and (in many cases) monopoly over note issuance.[12]

At first the central banks were very reluctant to lend to distressed correspondent banks, preferring to devote their efforts to the protection of their own gold reserves. Central banks still regarded themselves primarily as banks, not public institutions. Any rescue of distressed banks could thus be regarded as a rescue of competitors.[13]

With major financial panics proving detrimental to everyone, however, in the latter half of the nineteenth century the Bank of England responded to growing criticism by taking on the responsibility of *lender of last resort* to distressed banks. To protect itself from losses, and to prevent abuses by commercial banks, however, the bank would lend to troubled banks only if sound collateral was posted and would charge interest above market rates for such lending.[14]

Notably, it was also this need to have a central bank to respond to financial panics that led a revival of central banking in the United States. Prior to 1913, the United States had two central banks, which were modeled after the Bank of England—that is, the *Bank of the United States* (1791–1811) and the *Second Bank of the United States* (1816–1836)—but their charters were not renewed owing to the public's distrust of concentrated financial power. During the 80 years that the United States did not have a central bank, bank panics and bank failures were frequent. A severe banking crisis in 1907 highlighted the need for a central bank in the United States and led to the creation of the *Federal Reserve System* in 1913.[15]

1.7 BANK SUPERVISOR

By adopting the lender-of-last-resort function, central banks were taking on risks that could damage their own capital, since they might be unable to recover all the money they had put into the rescue of troubled banks. This was particularly true in cases where troubled commercial banks were facing *solvency* problems (their debts exceeded their assets and capital combined), as opposed to mere *liquidity* problems (their debts did not exceed their assets and capital combined, but they could incur losses as they tried to liquidate their assets to meet their liabilities). In practice, the fact that it was not easy for the central banks to distinguish between solvency and liquidity problems without knowing details of the troubled banks' books also made it very risky for the central banks to take on a bank rescue mission.

To guard against possible losses on their own balance sheets, it was natural that central banks would seek to assess the creditworthiness of banks they were attempting to rescue. This required *prior* familiarity with the commercial banks' operations and balance sheets. Naturally, it was also in the central banks' interests to ensure *beforehand* that all commercial banks were operated in a safe and sound manner, so that they would not easily fall into trouble.

To ensure the safety and soundness of commercial banks' operations *ex ante*, many central banks found it beneficial to have a formal authority to inspect commercial banks' operations, examine commercial banks' books, and possibly give regulatory orders to the banks when deemed fit. In other words, following the assumption of the lender-of-last-resort role, central banks started to assume formal bank regulatory and supervisory functions.

In practice, however, the bank supervisory role only became possible when the central bank came to be regarded primarily as a public institution acting in the public interest, rather than as another competitor bank acting to gain more profits. The notion that central banks were public institutions acting in the public interest only became widely accepted after 1914 in the wake of World War I, as many governments resorted to using the central banks for their wartime financial management.[16]

Even by then, however, not all central banks had embraced the bank supervisory role. In countries where bank rescues were funded primarily by taxpayer money (as opposed to the central banks' own capital), the bank supervisory role had traditionally been put under the jurisdiction of public authorities that had injected the most money; for example, the Ministry of Finance. In such countries, notably Germany,

bank supervision was traditionally conducted primarily by institutions other than the central bank.[17]

CASE STUDY: The Debate on the Function of the Central Bank as a Bank Supervisor

By the late 1990s a number of central banks, including the Bank of England, the Bank of Japan, and the Reserve Bank of Australia, started to relinquish their bank supervisory role to outside agencies. Key reasons for the separation between the central bank and the role of bank supervisor included (1) changes in the financial system, partly through the liberalization process that had begun in the late 1970s, which were blurring the lines between banks and other nonbank financial institutions, and (2) the fear that the bank supervisory function would be in conflict with the central banks' other growing function, that is, that of a conductor of monetary policy.[18]

First, changes in the financial system that blurred the lines between different types of financial services—for example, banking, insurance, and fund management—suggested that bank supervision should probably be organized by the *purpose* of supervision—that is, *systemic stability* (prudential supervision) and *consumer protection*—rather than by types of market services. Therefore, bank supervision should be housed in a separate regulator that also supervised other nonbank financial institutions.[19]

Second, as a conductor of monetary policy, the central banks would have to adjust money conditions in the economy to ensure stability of the economy. With the bank supervisory function remaining at the central banks, however, it was feared that the central banks might be reluctant to adjust money conditions as required if the adjustments had the potential to jeopardize profitability and balance sheets of commercial banks under their supervision.[20]

In contrast, reasons for keeping the banking supervisory function within the central bank included (1) information sharing for the conduct of monetary policy, where microlevel information from bank supervisors could help the conductor of monetary policy understand the state of the economy better, thus making for better monetary policy decisions, and (2) information sharing with regard to payment systems and market activities, since a separate bank supervisor might find it difficult to access real-time information on the banks' payment traffic, positions with the central bank, and their standing in financial markets.[21]

The 2007–2010 global financial crisis, however, added another twist to the debate on whether the central banks should take on a bank supervisory role. In the United Kingdom, *coordination failure* among the three key regulators (the central bank, the financial supervisory agency, and the government) was cited as one reason contributing to the emergence of bank runs in the United Kingdom, as well as ineffectiveness in management of the runs. By 2011, the U.K. government decided to put supervisory function (prudential regulation) of various types of financial institutions back into the Bank of England, and create a new, separate entity responsible for consumer protection and the promotion of healthy competition among financial institutions.

1.8 CONDUCTOR OF MONETARY POLICY

Given that the early central banks already had a stronger financial status than other banks, their banknotes were very much trusted by the public. To sustain such trust, many of them embarked on the gold standard, whereby they would fix the value of their money to gold, and only issue an extra amount of money if they had gold reserves to match that extra amount of money. Afterward, however, disruptions—such as wars and the fact that the global gold supply was (and is) limited—helped force central banks off gold as a standard. By the mid-twentieth century, central banks had started to gradually learn that, in the short run, monetary policy could be used actively to affect output, inflation, and employment.

The Gold Standard and Passive Monetary Policy

Following the lead by England, by the late nineteenth century the trend among existing and emerging central banks was to adopt the *gold standard*, which meant that the central banks could issue money only according to the value of gold they held. At the time, central banks were less concerned about how the amount of money being introduced into the system might affect economic activities. The central banks *passively* varied the amount of money they printed according to the amount of gold they had, rather than *actively* printing money to stimulate economic activities. The key concern of most central banks was to keep the value of money fixed to gold at the announced level.[22]

During World War I the gold standard was practically discarded, as countries abandoned the gold peg so they could print money to finance their war efforts more freely. After World War I ended, realizing that there was not enough gold for every central bank to hold to back their domestic currencies, the international community embarked on the *gold exchange standard*. Under this system the major countries pegged the values of their currencies to gold, and smaller countries used the currencies of major countries, in addition to gold, as reserves to back their own domestic currency.

The focus on pegging the value of currency to gold remained even during the Great Depression in the 1930s. Even though by the end of World War I in 1919 central banks were already starting to be more concerned about employment, economic activity, and price levels, they still put greater focus on gold reserves.[23] At the time, understanding of the nature of the relationships between the amount of money introduced, economic activity, employment, and price levels was still relatively vague.*

Bretton Woods and the Move toward Activist Monetary Policy

By the 1950s, through the influence of John Maynard Keynes, governments and central banks became aware of the possibility of affecting economic activities through the use of *activist* fiscal and monetary policy. At that time the international community had already adopted a new international monetary framework, which came to be known as the Bretton Woods system, to replace the gold standard. Under the Bretton Woods system the United States would peg the value of its currency, the U.S. dollar, to gold at 35 U.S. dollars per ounce, and other countries would fix the value of their currencies to U.S. dollars. Effectively the Bretton Woods system was a global fixed exchange rate system, under which countries would fix their exchange rates to the U.S. dollar, whose own value was fixed to gold.

By the 1960s the use of activist monetary policy in the United States, especially to stimulate economic activity and reduce unemployment, became dominant. The

*Although at its start in 1913 the U.S. Federal Reserve had been given the mandate of providing a "uniform and elastic currency" (i.e., currency that could expand or contract in volume according to the demands of business)—which meant that the Fed could increase the money supply when there was an extra need for money, such as during banking panics, and reduce the money supply when conditions warranted—the Fed, for various reasons, did not seriously attempt to influence economic conditions using the money supply until at least the 1950s (Bordo 2007).

activist monetary policy, together with rising fiscal spending by the U.S. government, however, also led to accelerating inflation in the United States. Investors as well as governments of countries that pegged the value of their currency to the U.S. dollar became concerned that inflation was fast eating away the purchasing power of the U.S. dollar in terms of goods and services.

The tie between the U.S. dollar and gold also came to be questioned as the United States kept issuing more and more money, despite its fixed supply of gold. At that time, international trade and capital flow were starting to resume, as many countries completed their rebuilding efforts after World War II and started liberalizing their economies. Greater international capital movements put pressure on the currency of those countries that persistently imported more than they exported and led to speculative attacks on many of those currencies.

Taming Inflation: Money Supply Growth Targeting

By the early 1970s the Bretton Woods system became untenable. Faced with inflation pressure and attempts by many countries to exchange their U.S. dollar holdings into gold from its vault, the United States decided to delink the U.S. dollar from gold. Frequent speculative attacks also forced many countries to abandon pegging their currencies to the U.S. dollar, instead allowing their currencies to float.[24]

By the late 1970s it became increasingly recognized that the use of activist monetary policy to persistently stimulate the economy did more harm than good in the long run. Theoretical developments and experience suggested that in the conduct of monetary policy, central banks might need to follow an *explicit rule*, rather than using *pure discretion*. It was also suggested that central banks be made *operationally* independent from their governments, since elected politicians had the tendency to stimulate the economy for short-term gains rather than seeking the longer-term benefit of economic stability.[25] In being operationally independent, the central bank would still have to follow the mandates set by publicly elected officials (e.g., a country's parliament or the U.S. Congress), but once those mandates (e.g., monetary stability) were set the central bank would have the operational independence to perform operations to fulfill the mandates.

To rein in inflation expectations that had been spiraling upward since the mid-1970s, in the late 1970s and early 1980s central banks in the United States and the United Kingdom decided to sharply tighten money supplies and expressed determined commitment to follow an explicit money supply target rule. By adopting explicit money supply targets the central banks committed themselves not to *overprint* money, such that money lost its value too fast (i.e., inflation rises excessively). Despite the initial success in bringing down inflation, however, less than half a decade later money supply targeting was abandoned in both the United States and the United Kingdom, when the relationship between the money supply and real economic activity was found to be unstable.[26]

During the latter half of the 1980s it could be said that central banks were effectively in search of a nominal anchor for the conduct of monetary policy. At that time, while many small countries still chose to fix their exchange rates to the U.S. dollar and benefited from easy international trade facilitation as well as relatively low U.S. dollar inflation (which also brought about low inflation for their own currencies),

macroeconomic mismanagement often later led to successive devaluations of their currencies as well as persistently high inflation.[27]

Maintaining Monetary Stability: Inflation Targeting

In New Zealand, the search for a new nominal anchor for monetary policy led to the formal adoption of inflation targeting as the monetary policy regime for the Reserve Bank of New Zealand (RBNZ) in 1989. The regime, which has since been adopted and modified by many other central banks worldwide, has three key elements: (1) an announced numerical inflation target over a time horizon, (2) an implementation of monetary policy that aims to keep inflation forecasts within the target over the time horizon, and (3) a high degree of transparency and accountability.[28]

To keep inflation within the announced target in an inflation-targeting regime, the central bank adjusts its policy interest rate over time, with the aim of influencing the cost of borrowing in the economy and thus economic activity and inflation. Inflation targeting has become popular partly because it emphasizes transparency and accountability in the conduct of monetary policy.[29] The central bank under inflation targeting will report its reasons for its decisions in the adjustments of the policy interest rate. The public can also see for itself if the central bank is able to keep inflation within the announced target or not. If the inflation target is not achieved, then the governor of the central bank might be required to explain the reason to the government or the parliament.

After RBNZ adopted inflation targeting in 1989, central banks of many advanced and emerging market countries around the world also adopted many variations of inflation targeting as their monetary policy regime. Central banks of advanced economies that have adopted inflation targeting include the Bank of England, the Reserve Bank of Australia, the Bank of Canada, and the Swedish Riksbank, among others. Among the numerous emerging-market economy central banks, such names as Czech National Bank, Bank of Brazil, Bank of Chile, Bank of Indonesia, Bank of Israel, Bank of Korea, Bank of Thailand, and South African Reserve Bank reflect a great diversity of inflation targeting countries.

After the 2007–2010 global financial crisis, the U.S. Federal Reserve and the Bank of Japan also adopted inflation targets as a guide for their monetary policies. At the moment, however, both of these central banks are still using *quantitative easing*—a nonorthodox form of monetary policy—to aid their economic recoveries. In the case of Japan, the inflation target can be seen as an *aspiration* of the country to get out of the recurring bouts of deflation that have afflicted the economy since the burst of its spectacular asset-price bubbles in the early 1990s.

Common Currency: The Creation of the Euro

In 2000, a notable development in central banks' conduct of monetary policy took place in the form of the formal introduction of a common currency, the euro, which replaced national currencies in the 11 founding-member countries of the European Union. In that year, the national central banks of the 11 founding-member countries relinquished their role as the conductor of monetary policy for their countries in favor of the European Central Bank (ECB). The ECB would now conduct monetary policy for the member countries of the euro area.[30]

1.9 THE CURRENT STAGE OF CENTRAL BANKING

Modern central banks have many commonalities, as well as differences, depending on their historical contexts and their guiding philosophies. Most modern central banks now focus on delivering low, stable inflation and financial stability, and are prohibited from directly financing government spending. To deliver low, stable inflation and financial stability, however, different central banks often take different operational approaches. Furthermore, the full-employment mandate reemphasized by the Federal Reserve in the wake of the 2007–2010 financial crisis still remains quite unique.

Commonalities in Modern Central Banking

Despite differences in the timing and circumstances of their origins, by the late 2000s it could be argued that modern central banks shared a number of underlying commonalities: (1) the focus on the maintenance of monetary stability, (2) the focus on the maintenance of financial stability, and (3) the prohibition on direct lending to the government.

First, on the *monetary stability* front, as will be discussed more in detail in later chapters, theoretical developments over the past four decades and various high-inflation experiences around the world suggest that to support *long-term* economic growth, the best thing a central bank can do is to deliver an environment of monetary stability; that is, an environment in which inflation is low and stable. In such an environment, households and firms are more likely to be able to optimize investment and consumption. This stands in contrast to the call for a central bank to always keep directly stimulating the economy. The continued stimulation of the economy is likely to result in an upward spiral of inflation, which prevents households and firms from making optimal decisions.

Second, on the *financial stability* front, experiences from various financial crises around the world (particularly the 2007–2010 global financial crisis) suggest that to ensure long-term economic growth, central banks should have a direct role in the maintenance of financial stability, and that this role should apply regardless of whether the central bank has a bank supervisory function. Central banks can help maintain financial stability, either as regulators who help to ensure that the system is resilient beforehand, or as lenders of last resort who help prevent the total collapse of the financial system. A smooth functioning financial system ensures that capital is distributed efficiently, and is thus vital to the long-term, sustainable growth of an economy.

Third, although many early central banks were originally founded to help finance their governments, *direct lending* by the central bank to the government is now often prohibited in most modern economies, as it was found to lead down the dangerous path of hyperinflation. Direct lending to the government is akin to printing money and giving it to the government so that the government can use it to finance its purchases of goods and services. Printing money and giving it directly to the government cheapens the value of money relative to other goods and services. Under the law of supply and demand, the more the central bank supplies money, the lower the price (or the value) of money will be. If done in massive amounts the purchasing power of money could fall very fast, since people will no longer trust that the money in their hands is a good store of value, which could easily result in hyperinflation.

It should also be noted that at this current time in history, *coin sorting* has largely been dissociated from modern central banking, owing to either impracticality or principles that later emerged. In most countries coins are now issued by the mint, which is a part of the treasury or the finance ministry, not the central bank. *Banknote issuance* monopoly, on the other hand, has become deeply ingrained in the psyche of the public and central banks, such that it has started to blend into the background of central banking.

Diversity in Modern Central Banking

Even after the turn of the millennium, however, as the consensus on the roles of central banks had started to coalesce around monetary and financial stability, noticeable key underlying differences remain, including (1) the actual operations in the maintenance of monetary stability, (2) the institutional setup with regard to the maintenance of financial stability, and (3) the explicit role of central banks in ensuring full employment.

First, with respect to the maintenance of monetary stability, the approaches taken by individual central banks to achieve this goal can be vastly different. As will be discussed in more detail in Chapters 6–9, central banks can choose among different monetary policy and exchange rate regimes in the maintenance of monetary stability, depending on their individual contexts and circumstances.

For example, although a growing number of central banks have begun to adopt inflation targeting as their monetary-policy framework, a number of influential central banks, including the Peoples' Bank of China (PBOC) and the ECB, remain steadfastly without an official inflation target.

Among inflation-targeting central banks, many nuances remain, including the nature of the target (e.g., the inflation target level and time horizon for achieving the target). Meanwhile, noninflation targeting central banks of small open economies, such as the Monetary Authority of Singapore and the Hong Kong Monetary Authority, could choose to rely quite heavily on the management of the exchange rate as a way to maintain monetary stability.

Second, on the financial stability front, there is a divergence with regard to bank supervisory function. In the 1990s a number of central banks, including the Bank of England, the Bank of Japan, and the Reserve Bank of Australia, delegated their bank supervisory function to an outside regulatory agency. As discussed earlier, however, the Bank of England, after the 2007–2010 global financial crisis, absorbed back its (enhanced) supervisory function, a function which more than a decade earlier had been delegated to an outside regulatory agency.

The ECB, on the other hand, did not have a supervisory function until 2014, since after the creation of the euro the national central banks of E.U. member countries had retained that function. Only in 2013, after the height of the euro area crisis in the early 2010s, did the push for the ECB to assume supervisory function responsibilities get passed.[31] A large number of central banks, including the Federal Reserve, meanwhile have always retained their bank supervisory function (although in case of the United States, bank supervisory function is also done by other regulatory agencies, including the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation).

Third, as will be discussed in Chapter 4 in more detail, the Federal Reserve has full employment as a legal mandate, which is quite a notable distinction among

modern central banks. Prior to the 2007–2010 global financial crisis, the Federal Reserve tended to tone down in its communications with regard to its role in ensuring full employment, possibly for fear that it might confuse the public, since in the short run there is a *tradeoff* between employment and inflation. To push unemployment down, the central bank might need to allow inflation to go up in the short run. However, if the central bank allows inflation to go up, it might appear that the central bank is willing to compromise on monetary stability.

To avoid such confusion, many central banks prefer to frame full employment as being a part of long-term sustainable economic growth, which can be provided by monetary stability. In the wake of 2007–2010 global financial crisis, however, as the U.S. unemployment rate went up and the economy faced the threat of deflation rather than inflation, the Federal Reserve again emphasized its full-employment mandate when it needed to employ an unconventional monetary policy by injecting massive amounts of money into the economy through quantitative-easing measures.

Self-Reexamination after the 2007–2010 Global Financial Crisis

The global financial crisis that transpired from 2007–2010 came as a shock to most central banks. (The details of the 2007–2010 financial crisis will be reviewed briefly in Chapter 2.) The crisis jolted the central banks to again reexamine their roles and functions.

Many central banks whose countries were worst hit by the crisis, including the Federal Reserve, the Bank of England, and the ECB, had all resorted to unconventional monetary-policy measures, such as the purchase of government securities and massive liquidity injections. In the United States and the United Kingdom, unconventional monetary policy was used by the central banks to help prevent their economies from falling into a deflationary spiral. In the case of the ECB, unconventional monetary policy was used not only to help alleviate the economic plight of some of their member countries, but also to preserve the existence of the euro system itself.

With the global financial crisis, the central banks' roles with respect to financial stability are also being reexamined in depth by various stakeholders. A consensus has seemed to emerge that central banks need to take a more active role in dealing with financial stability. Relying on market forces to regulate themselves has already proved to be quite futile, as short-term incentives of market players might be misaligned with the society's long-term interests.

There are also issues of practicality with respect to the institutional setup of central banks. As will be discussed in later chapters in more detail, coordination difficulties during the crisis prompted the U.K. government to return the bank supervisory role to the Bank of England, after the role had earlier been carved out in the 1990s.

Even half a decade after the crisis first started, the global economy is still trying to find its footing. Reexaminations of central banking roles are still ongoing, and reforms are still being debated worldwide (see details in Chapter 14). In the next chapter, to provide a broad background on the context in which modern central banks are operating in, we will review the evolution of the international monetary system. Functions of modern central banks will then be discussed in Chapter 3.

SUMMARY

Central banking has evolved considerably since its start about 400 years ago. Starting with coin sorting and storing, and in certain cases war financing, central banks have taken on the functions of banknote issuers, banker to the government, banker to banks, protector of the financial system, bank supervisor, as well as conductor of monetary policy.

Currently, there are commonalities as well as diversity in modern central banking. Commonalities include (1) the focus on monetary stability, (2) the focus on financial stability, and (3) the prohibition on direct lending to the government. Differences include (1) operational differences in the pursuit of monetary stability, (2) the institutional setup with regard to the maintenance of financial stability, and (3) the explicit role of central bank in ensuring full employment.

KEY TERMS

activist monetary policy
bank supervisor
banker to banks
banker to the government
banknote issuance
financial stability
full employment
gold exchange standard
gold standard
inflation targeting
lender of last resort
medium of exchange
monetary stability
money supply growth targeting
operational independence
passive monetary policy
store of value
units of account

QUESTIONS

1. What are the key characteristics of money?
2. What were the problems with the use of coins as a means of payment in seventeenth-century Amsterdam?
3. How did banknote issuance first come about as a central banking role, particularly in the case of the Bank of Stockholm?
4. What are key characteristics of banknotes, as compared to other IOUs?
5. What might be key advantages for early central banks in acting as bankers to their governments?
6. Why might central banks be in a unique position to become protectors of the financial system?
7. Why might a central bank emerge as a banker to commercial banks?
8. Why should a central bank supervise commercial banks?
9. Why should a central bank not supervise commercial banks?
10. Why might we perceive central banks in the gold standard era as pursuing *passive* monetary policy?
11. What might *activist* monetary policy try to achieve?
12. What could be the reasons preventing modern central banks from directly financing government debt?

13. Why might we want central banks to be operationally independent from the government?
14. What are key characteristics of inflation-targeting central banks?
15. What are some commonalities of modern central banks?
16. What are some of the key differences among modern central banks?
17. Why might we not consider livestock as money, even if it could be used to trade for goods and services in agrarian economies?
18. The government is seeking to directly borrow money from the central bank in order to invest in a large infrastructure project that could help improve the livelihood of its citizens. Should the central bank agree to lend to the government? Why or why not?