

President's Letter



The Federal Reserve is an adapting, evolving, and learning organization. In the Federal Reserve Bank of Cleveland's 2012 Annual Report, we take a close look at how it has changed since its creation 100 years ago.

Our essay describes some of the seminal episodes that have influenced the Federal Reserve as we know it today. Times have changed, economic theories have developed, and the Federal Reserve has adapted to meet new demands. In fact, over the course of its 100 years, the Federal Reserve has proved not only a willingness to change, but also an appetite for embracing and initiating change when necessary to carry out our mission.

The Federal Reserve was founded in 1913 in response to a severe banking crisis in 1907. Policymakers of the era believed that a central bank should be created to calm financial panics, supervise banks, and provide a stable currency. Those responsibilities largely endure, but many details have been refined and others added to reflect the growing complexity of the financial system in which the Federal Reserve operates. The evolution has occurred within the framework of evolving public expectations of what a central bank can and should do.

From a focus on financial stability to an explicit objective for inflation—the Federal Reserve’s recent actions are rooted in history. We cannot hope to understand modern-day Federal Reserve policies without this context.

The principles that guide current policies originated in lessons from the Great Depression, from stagflation in the 1970s, and from the savings and loan crisis of the 1980s, among others. I think it is safe to say we are still absorbing many lessons from the financial crisis of 2008, even as we incorporate wisdom gained in previous crises into our immediate response to this most recent episode.

I have participated in this evolution at the Federal Reserve Bank of Cleveland for the past 30 years, and I can attest to the significant change in our approach to almost everything we do. I would also emphasize that working at the Federal Reserve during the recent challenging economic times has been a humbling experience. History clearly shows the Federal Reserve has not been perfect. The last century is marked by misjudgments and no shortage of critics to point them out, but we have always strived to learn and incorporate lessons from the past into policies of the present.



The Federal Reserve Bank of Cleveland is a place of learning and adapting as well. In the operations section of this report beginning on page 33, First Vice President and Chief Operating Officer Greg Stefani describes how we as a Bank have transformed the way we do business. From paper to electronic, from manual to automated, we continue to evolve from an operations-based to a knowledge-based organization.

Much of how the Federal Reserve Bank of Cleveland has adapted and applied lessons learned throughout its history is owed to the guidance of the Bank’s boards of directors, in addition to our advisory councils across the District. We have a history and tradition of strong and sustaining leadership on our boards, and I’d like to offer an expression of gratitude to all of our directors, especially the four who completed their terms in office at the end of 2012:

- Alfred M. Rankin Jr., chairman, president, and CEO of NACCO Industries, Inc., who has served on the Cleveland board since 2006

- C. Daniel DeLawder, chairman and CEO of Park National Bank in Newark, Ohio, who has served on the Cleveland board since 2007
- Daniel B. Cunningham, president and CEO of the Long–Stanton Group, who has served on our Cincinnati Branch board since 2007
- Robert A. Paul, chairman and CEO of Ampco–Pittsburgh Corporation, who has served on the Pittsburgh Branch board since 2007

Al Rankin deserves a special thank you. He has provided strong leadership and support in numerous capacities since joining the Cleveland board and in serving as its chairman for the last three years. Al also enthusiastically stepped beyond those posts to lead the Conference of Chairs (a group of all the Federal Reserve Bank Board chairs and vice chairs) this past year. The business insight and expertise he brought to our board deliberations, and his active and genuine interest in the Fourth District and the Federal Reserve System, have been invaluable to me and our efforts.

I will miss all of our outgoing directors. All of them have been, and I’m sure will continue to be, tremendous advocates for the Federal Reserve.



One more thank you is in order—to our valued employees. From housing research, to the supervision of regional financial institutions, to helping evolve the payments industry to better meet the needs of our stakeholders, employees’ hard work, dedication, and contributions made 2012 a successful year for the Federal Reserve Bank of Cleveland.

Sandra Pianalto
President and Chief Executive Officer

THE FEDERAL RESERVE:

Adapting, Evolving, Learning



The Federal Reserve has adapted to new information and experience over its first 100 years, always with the public interest at heart.

The Federal Reserve System is the nation's central bank, but what does that mean? Central banks are public institutions that are responsible for ensuring that a nation's financial system supports its commercial needs. Today, central banks typically structure their monetary policy in pursuit of specific goals, such as low inflation, full employment, financial stability, and acting as the government's bank.

The mission, goals, and specific practices of the Federal Reserve have been contentious, in varying degrees, from its creation. And parts of the Federal Reserve's mission, goals, and specific practices have changed since then as well. Americans have an understandably hazy notion of what the Federal Reserve is responsible for, how it goes about its business, and to whom it is accountable for its actions. This essay does not address all of these important matters, but it does seek to explain how today's Federal Reserve is addressing the same basic issues it was designed to address at its founding in 1913, even as its mission and policy tools have evolved in response to experience and the country's needs and economic goals.

Broadly speaking, the Federal Reserve's purpose has always been the same—to support the economy. But as the United States expanded, diversified, innovated, and globalized, so too did its economic and financial system. To fulfill its goals, the Federal Reserve has adapted. Sometimes, these changes have come about through Congressional directives. At other times, ongoing developments in economic theory and practical experience have led the Federal Reserve to alter the way it defines its objectives and implements its policies.

Today, the Federal Reserve is engaged in a range of unprecedented actions as it continues to address fallout from the 2008 financial crisis. Critics claim that the Federal Reserve now wields too much power and is trying to do too many things, but to a large extent, these discussions are not new. The Federal Reserve has been changing how and what it does since its creation 100 years ago. In each era, the changes have depended on what was considered appropriate and sensible. In each case, the Federal Reserve has shown its willingness to learn from experience and its resolve to act in the public interest.

Understanding the evolution of Federal Reserve policy requires that we understand the evolution in economic thinking about what central banks can do and how they can do it, as well as understanding changes in the economic and financial environment in which it operates. In this essay, we describe four episodes in the Federal Reserve's evolution to illustrate how we got here and where we are going:

1. Leaving the gold standard
2. Adding countercyclical stabilization policy to our objectives, eventually as directed by the dual mandate
3. Introducing systematic behavior and communications policy tools
4. Establishing bank regulation and enhanced financial stability objectives

These episodes did not unfold exactly in chronological order, and they overlapped considerably, so it is best to think of them thematically rather than sequentially.

The **Gold Standard** Loses Luster

KEY POINTS



The gold standard eliminated the need for a discretionary central bank to control the money supply.

Even so, central banks were known to work around the “rules” of the gold standard according to their needs, and in the process undermined the standard’s credibility.

The gold standard proved too inflexible during the crisis conditions that prevailed during World War I and the Great Depression. It was abandoned in stages around the globe thereafter, setting the stage for a new era in central banking.

When Congress established the Federal Reserve System in 1913, the concept of monetary policy as we understand it today did not exist.

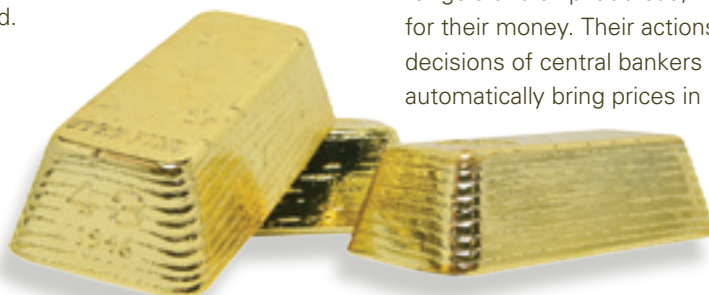
Instead of central bankers actively influencing the level of bank reserves in pursuit of low inflation and full employment, the job of keeping the money supply in balance was left to the gold standard, a time-tested system. Money backed by commodities, including gold, had been the norm for millennia. Between 1870 and 1914, in fact, most of the world, including the United States, was on a gold standard.

It is easy to understand why. Under certain conditions, the gold standard has much to recommend it. Most alluring is its potential for preventing central banks and governments from generating inflation for purely political ends. The gold standard by itself keeps the money supply in check, so no modern-day monetary policy is necessary. Unless—as events eventually showed—the global financial system outgrows the constraints of the relatively inflexible gold standard.

Gold’s Heyday

Here is how the gold standard is supposed to work: Governments define their currencies in terms of gold, agree to freely exchange their currencies for gold at that official price, and allow the unfettered import and export of gold. Countries’ official gold prices then establish fixed exchange-rate parities among national currencies. When, for example, Britain set an ounce of gold equal to £4.24, and the United States fixed it equal to \$20.67, they automatically established an exchange-rate parity of \$4.88 per pound between their currencies. (The exchange rate, \$4.88 per pound, results from dividing \$20.67 per ounce by £4.24 per ounce.)

Actual exchange rates might fluctuate around these parities, but they should more or less even out over time. For example, if a nation’s currency should depreciate sufficiently because of high prices, low interest rates, or trade imbalances, people would have a strong financial incentive to exchange that nation’s currency for gold and ship it abroad, where they could earn more for their money. Their actions—not the discretionary decisions of central bankers or Treasury officials—would automatically bring prices in line with the world levels, re-establish parity among national currencies, and



restore the balance of payments (the record of a country's international transactions).

Under normal circumstances, using gold to fix exchange rates would be no problem for central banks. However, any economic development that generated public uncertainty about the adequacy of gold reserves could trigger a rapid shift from notes and deposits into gold and an outflow of gold. In this way, the gold standard sometimes proved relatively unstable.

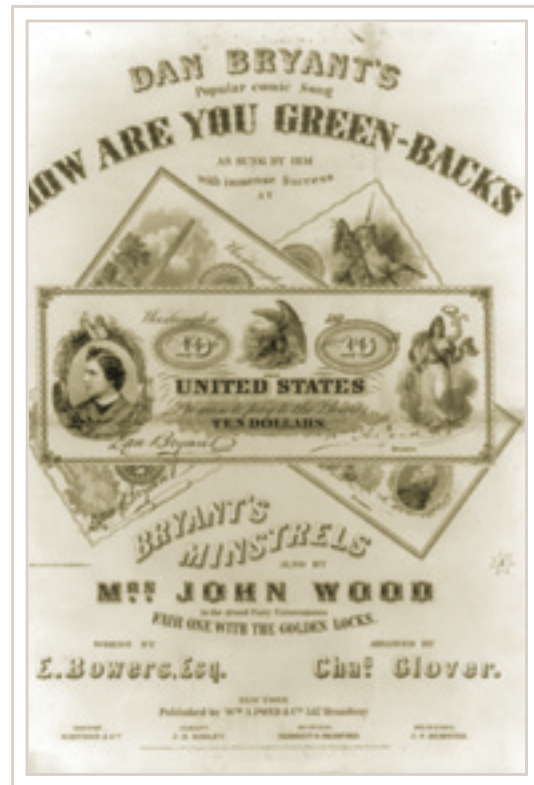
Because nations' money stocks were multiples of their gold reserves, a given loss of gold could contract countries' money supply by substantially more. Consequently, central banks and governments often managed gold flows actively. Ideally, central banks were to adjust the rates at which they lent to commercial banks and, if necessary, undertake open-market-style operations to reinforce the impact of gold flows on their money stocks. For example, a gold outflow would lower the money supply. By taking actions to reinforce the gold loss, a central bank could achieve the same money supply with a smaller gold loss.

Sometimes, compliance with the rules had a depressing effect on the domestic economy. For that reason, when gold outflows did not immediately threaten convertibility, many central banks flouted the rules. A leading researcher on the topic concluded that between 1880 and 1914, central banks followed the rules only about one-third of the time.

An Unsustainable System

Still, policymakers of the era generally considered the economic costs and political consequences of maintaining convertibility small relative to potential gains from a gold-standard commitment to price and exchange-rate stability. As it happened, the period witnessed a substantial expansion of international commerce, which fueled strong economic growth. Whereas 15 percent of the world operated under the gold standard in 1870, 70 percent did so by 1913.

The United States adopted the gold standard in two steps: In 1873, Congress defined the dollar in terms of gold, excluding silver; in 1879, Congress agreed to redeem "greenbacks"—fiat money issued during the Civil War, but still in circulation—for gold.



Publishers of nineteenth-century sheet music like this song, circa 1863, used illustrated covers to promote sales.

But the commitment proved shaky, especially in times of crisis. World War I abruptly reversed the benefits and costs of compliance with the gold standard. World trade fell substantially and remained depressed long afterward, as countries imposed restrictions on trade flows. With the postwar extension of suffrage to more citizens and the rise of the labor movement, prices and wages became less flexible. This raised the costs of maintaining convertibility, while the people who bore these costs most directly gained a stronger political voice.

To be sure, after the war, policymakers maintained their commitment to a gold standard, but not one for which they would long sacrifice domestic policy objectives. To maintain economic growth and employment, they were more willing to offset gold flows, devalue their currencies, impose trade restraints and capital controls, or abandon the gold standard—in other words, they increasingly violated the rules of the game. The gold standard of the late 1920s lacked the credibility of its predecessor, and events sparked fears that exchange-rate parities might not hold. Speculators moved funds out of gold-standard countries—often with self-fulfilling results.



The \$100,000 gold certificate shown here, the highest denomination ever issued by the United States, was not intended for general circulation and could not legally be held by private individuals. It was used instead as an accounting device between branches of the Federal Reserve.

“The way I see it is the politicians took us off the gold standard prematurely before we economists understood how to work what we call an inconvertible paper standard. And even though the gold standard was abandoned formally in the early 1970s, for all intents and purposes, the Federal Reserve’s activities decades before that operated without much attention to the gold-standard restraint. The politicians said, we’ve got to be able to do better than the gold standard, but the economists in the early part of the century were not ready to manage the standard. Essentially, without the gold standard, what we have is an economist standard—a standard that depends entirely on the understanding of a monetary system that economists alone have been producing and that economists alone have some hope of understanding. It was premature in the twentieth century to let it loose on the world.” ►

Marvin Goodfriend, Carnegie Mellon University



Franklin D. Roosevelt, seated, was the first president to visit the Federal Reserve Board of Governors in 1937. In his remarks, he described as the Fed's purpose "to gain for all of our people the greatest attainable measure of economic well-being, the largest degree of economic security and stability."

The Great Depression dealt a major blow to the gold standard. Countries that tightly adhered to gold and failed to ease their monetary policies saw unemployment levels mount as they slipped into depression. Overall, these countries fared worse than those that abandoned gold and eased their monetary policies.

The dominoes began to fall. Britain abandoned the gold standard in September 1933, and the pound quickly depreciated. Many other countries followed. In the face of domestic bank runs and outflows of gold, President Franklin Delano Roosevelt suspended convertibility, nationalized private holdings of gold, repealed gold clauses, and prohibited private transactions in gold.

The Great Depression dealt a major blow to the gold standard.

The Bretton Woods system—the international gold standard that emerged after World War II—sought to fix exchange rates. Policymakers viewed the exchange-rate movements of the 1930s as detrimental to trade, international cooperation, and global prosperity. The system that they established contained an inherent flaw. Countries needed gold reserves to manage their exchange-rate parities, but the official gold price was too low to encourage a sufficient supply of the metal. Countries began holding US dollars—now linked to

gold—and used them instead of gold in official transactions to manage their exchange rates. To supply these needed dollar reserves, the United States ran persistent balance-of-payments deficits.

By 1960, however, outstanding dollar liabilities exceeded the US gold stock, creating a strong incentive for central banks to convert their dollar liabilities into gold with the Treasury. Resolving the situation would have required the United States to tighten monetary policy and other countries to ease monetary policy; but by the 1960s, no nation was willing to subordinate their domestic objectives for price stability or growth and employment to the rigors of fixed exchange rates. In August 1971, the United States refused to convert official dollar reserves into gold, and the major developed countries abandoned fixed exchange rates by early 1973.

Into Uncharted Terrain

The world had completed the long transition from money backed by gold to money backed by public confidence. But the Federal Reserve's transition to this new operating environment was still in progress.



► Watch the video at www.clevelandfed.org/annualreport.

The Federal Reserve Takes an Active Hand in **Fostering Jobs** and **Stable Prices**



KEYPOINTS

After the gold standard was abandoned, it took some time for economists and policymakers to settle on the Federal Reserve's official objectives and the best way to accomplish them.

Keynesian and monetarist schools offered competing visions of what economic policy could achieve.

Learning from advancements in economic theory, the Federal Reserve has grown more practiced in conducting countercyclical monetary policy—smoothing out business-cycle fluctuations—to achieve its dual mandate of price stability and maximum employment.

The demise of the gold standard as the “North Star” for monetary policy created a vacuum: If the Federal Reserve no longer aimed to maintain a fixed exchange rate between the US dollar and gold, what should guide its monetary policy decisions?

The ideas behind the eventually formalized objectives of the Federal Reserve took shape in the 30 years after World War II. At the time, policymakers were rightly concerned that millions of soldiers were returning home with no job prospects, especially given that military production was set to decline sharply. In response, Congress passed the Employment Act of 1946, which called for all parts of the government—including the Federal Reserve—to pursue “maximum employment, production, and purchasing power.”

Keynesians vs. Monetarists

Despite these marching orders, it is fair to say that the Federal Reserve officials of that era did not visualize how they could contribute to maximum employment and production by any means other than promoting a stable currency. Soon, however, the budding Keynesian school of economics provided a vision that quickly gained adherents and influence.

Keynesian economics' impact was swift and profound. It taught that governments' monetary and fiscal policies could be designed to smooth out business-cycle fluctuations and promote full employment—without causing excessive inflation. Moreover, Keynesians de-emphasized the role of monetary policy in the inflation process.

Keynesian policies' newfound influence was evident in the 1960s. The government cut taxes and simultaneously stepped up spending on programs to address poverty and outfit the military. As a result, unemployment stayed low, while inflation gradually crept higher.

It is probably no coincidence that this period's relatively higher inflation coincided with the rise of an opposing school of thought: monetarism.

In monetarist economics, the Federal Reserve can control the money supply. In fact, growth in the money supply over time is the chief determinant of inflation. Monetarists warned that the unemployment rate consistent with maximum employment over time cannot be controlled through monetary policy, and that the Federal Reserve should be careful not to pursue an objective that was unattainable at best and counterproductive at worst.



In January 2012, the Federal Open Market Committee established an objective for stable prices of 2 percent inflation over the longer term. Inflation is one of the concepts explained and traced at the Federal Reserve Bank of Cleveland's Learning Center and Money Museum, shown above.

While neither theory as expressed in the 1960s is unconditionally embraced today, significant pieces of each endure. The insights provided by Keynesians and monetarists got policymakers asking the right questions and set the stage for some eventful decades of putting theory into practice.

The Dual Mandate

In the 1970s, the economy was hit by a sequence of energy and food supply shocks that weakened economic performance. The unemployment rate rose, and inflation accelerated dramatically. Congress grew more concerned that the Federal Reserve was not doing enough to manage economic performance. In 1978, the Full Employment and Balanced Growth Act, often called

the Humphrey-Hawkins Act in honor of its sponsors, specifically directed the Federal Reserve to “promote full employment . . . and reasonable price stability.”

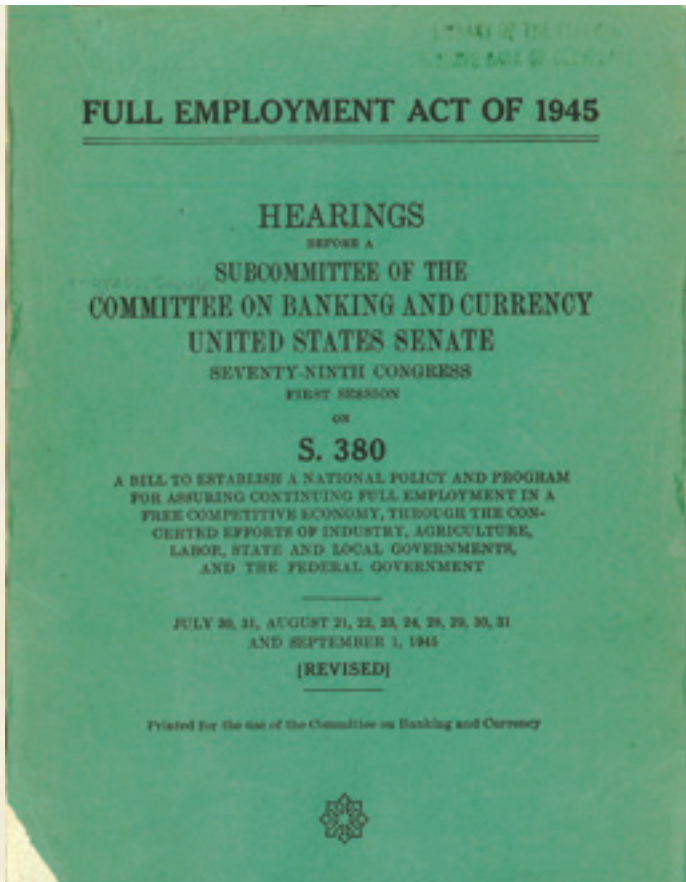
Although the Humphrey-Hawkins Act passed the House and Senate with considerable support, it was enacted amid an active debate among economists—not least the Keynesians and monetarists—and politicians about the relative importance and achievability of the employment and inflation objectives. Ever since, the Federal Reserve has been criticized at various times for paying either too much, or not enough, attention to one objective or the other.

During the 1980s, the Federal Reserve was understandably concerned with getting high and variable inflation under control. Chairman Paul Volcker argued in 1981 that the only viable path to achieving full employment was the path that first brought inflation down and convinced the public that it would stay down. In other words, the circumstances of the day required that inflation be dealt with as a precondition for achieving the dual mandate over the longer run.

As the 1980s progressed, theoretical developments in the design of monetary policy (discussed more fully in the next section of this essay) reinforced the idea that stabilizing inflation expectations is crucial to keeping the economy on its maximum-employment trajectory.

“Two ingredients seem to have been essential precursors of the Employment Act. The first was a deep concern that the problem of peacetime unemployment had not been solved. Although employment roared back during the war, the memory of the Great Depression was quite fresh, and considerable uncertainty attended the economic outlook. Put simply, many feared that the economy would slip back into depression. The second element was the economic thinking of John Maynard Keynes.”

Former Chairman Alan Greenspan, October 26, 2005



Early drafts of the Employment Act—such as this one from 1945—contained policy prescriptions that worked backward from estimates of full employment to specific numerical targets for investment and fiscal policy. In the end, the numerical targets were struck from the Act, and “full employment” became “maximum employment, production, and purchasing power.” It wasn’t until the 1987 Full Employment and Balanced Growth Act that the Federal Reserve was specifically directed to “promote full employment ... and reasonable price stability.”

“My view on the history of the Fed and the history of central banking is that there’s a lot of learning that takes place—institutional learning. You have certain preconceived notions which you inherited from the past, the Fed did, about what they were supposed to do. They were faced with a new reality. The Fed was set up in 1914—World War I came along ... The financial markets changed a lot from those of the nineteenth century. And again the Fed had to adjust to that. So there’s learning that takes place. The learning is never simple. It’s never linear. There’s always nonlinearities, there are mistakes that are made.” ►

Michael Bordo, Rutgers University

In 2012, the Federal Open Market Committee indicated it would continue its asset purchases until the outlook for labor market conditions has improved substantially in a context of price stability.

Economic performance improved in the 1980s and 1990s, in terms of both inflation and unemployment. During this period, operating under the formal guidance of the dual mandate, inflation gradually declined and became low and stable. The Federal Reserve became more practiced in conducting countercyclical monetary policy, or, put another way, smoothing out business-cycle fluctuations while keeping inflation in check.

2012 may well be judged one of the most action-packed, meaningful years in Federal Reserve history. But it was decades in the making.

Despite this solid record, the 2008 financial crisis renewed debate about the suitability of the Federal Reserve's dual mandate. Some ask whether the Federal Reserve has recently placed so much emphasis on its employment mandate that it has expanded its balance sheet to the point where high inflation is inevitable.

Federal Reserve officials are well aware of the risks and have moved to mitigate them. Encouraged both by the evolving academic results on the value of inflation targets and the experience of other central banks, the Federal

Open Market Committee (FOMC) took a historic step in January 2012: It formally pegged its long-run inflation objective at 2 percent. In the FOMC's own words, "Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society."

Note that the statement reflected the long-standing academic and policy debate on the role of monetary policy and made explicit the shared understanding of the FOMC on these issues. In particular, the FOMC acknowledged that "the inflation rate over the longer run is primarily determined by monetary policy" but that "[t]he maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market."

Decisions Rooted in History

In this way, the Federal Reserve has synthesized insights from a long-running academic debate into a workable policy path. The FOMC's current estimate of the natural rate of unemployment is between 5.2 percent and 6 percent. Although the numerical estimate for full employment may be adjusted from time to time, the FOMC is just as committed to achieving it over the medium term as it is to satisfying its inflation objective. Experience in the United States and other countries strongly suggests that a full-employment objective need not compromise a central bank's ability to achieve price stability. In fact, as long as a nation's central bank can keep inflation expectations anchored, its citizens can benefit if monetary policy does what it can to keep the economy on its full-employment path.

By committing itself to achieving a set of numerical objectives for maximum employment and price stability, the FOMC has more clearly communicated to the public what it is trying to achieve. At the same time, by being so explicit, the FOMC has implicitly stepped up its accountability for achieving its objectives.

Add it all up, and 2012 may well be judged one of the most action-packed, meaningful years in Federal Reserve history. But it was decades in the making.

Toward a More **Methodical, Transparent,** and **Effective** Federal Reserve



KEY POINTS

High inflation and unemployment in the 1970s coincided with the development of new theories for maintaining economic stability.

The “rational expectations” revolution showed the importance of setting clear and understandable policies.

Policy rules gave Federal Reserve officials guideposts for becoming much more systematic and predictable about their actions in order to make policy more effective.

During the 1970s and early 1980s, America saw inflation and unemployment soar and public confidence in the economy plummet. Much of the blame for this performance was pinned on the Federal Reserve, which most certainly was not fulfilling its new mandates for price stability and maximum employment. Prompted in part by this episode, a sense of urgency grew to develop theories based on better ways for achieving macroeconomic stability. Two strains of work took the lead: one on “rational expectations” and the other on policy rules. What happened next was a reshaping of how central banks around the globe conducted monetary policy.

Rational Expectations

Hard as it may be to imagine, there was a time not that long ago when economic policymakers cared little about what the public expected. Then came the “rational expectations” revolution. While many economists were crucial to this revolution, Nobel Prize winner Robert Lucas was at the fore.

Before the rational expectations revolution, typical models of how the economy was thought to work either ignored expectations about the future or treated them as backward-looking. At the time, the conventional wisdom

was that being secretive made monetary policy more effective. Although the pre-rational-expectations models did not necessarily justify this conventional wisdom, they did not do much to counteract it, either. In these models, the simplistic treatment of expectations meant that the public might be routinely surprised by monetary policy, which was part of the reason secrecy was considered an asset for the Federal Reserve.

By contrast, the idea behind rational expectations is that firms and consumers fully understand the economy’s structure and the behavior of monetary policy and form their expectations of the future accordingly. While people can still make errors in their forecasts, they do not make systematic errors.

This concept was revolutionary because it helped policymakers appreciate the importance of the public’s expectations in determining the effectiveness of monetary policy. Because of rational expectations, modern macroeconomic models assume that firms and consumers base their economic decisions on both today’s federal funds rate and expectations of future federal funds rates. And when people’s behavior is based partly on their expectations, policymakers must pay close attention to what they themselves say because it influences peoples’ expectations and, in turn, their behavior.



Federal Reserve Bank of Cleveland President Sandra Pianalto with then-Federal Reserve Chairman Alan Greenspan in 1997 and with current Chairman Ben Bernanke in 2006.

A football analogy: Glancing at past statistics, an innovative but inexperienced coach might decide to call more passing plays on offense, because those plays historically gain more yards. But if the coach did implement that plan, the opposition's defenses would invariably adjust and the pass-heavy offense would be less effective than the old statistics led the coach to believe. A seasoned coach anticipates that defenses will respond that way, and his game plan takes that into account.

It is far from a perfect analogy, as the central bank and the public are not adversaries. But in general, the same holds with policymaking—the public will modify its behavior, raise wages, for example, if it thinks the Federal Reserve is trying to increase inflation; it will not just stand pat and be surprised. In that case, the Federal Reserve's efforts to stimulate the economy probably would not result in more economic activity but only in higher prices. Monetary policy that does not take people's expectations into account is doomed to fail.

Understanding rational expectations, policymakers realized that if the Federal Reserve is to meet its goals of price stability and maximum employment, the public must view policy as highly credible and must have a clear understanding of the goals of policy and the economic and financial factors to which policy systematically responds. So the Federal Reserve embarked on a decades-long communications effort that continues to this day. A small sampling of changes includes these:

- Up until the mid-1960s, policy decisions were announced with a one-year delay. In the mid-1970s, responding to requests from Congress, the Federal Reserve began to provide semi-annual reports on monetary policy and to publish economic forecasts.

- In the early to mid-1990s, the Federal Reserve began to publish statements after FOMC meetings to briefly explain policy changes and to immediately disclose its target for the federal funds rate.
- Recently, the Federal Reserve has increased the frequency of its public forecasts, added some information on the expected path of monetary policy, and launched quarterly press conferences to explain policy decisions. Clear communications about future policy actions have also become an essential tool for the Federal Reserve in providing accommodation while the federal funds rate is at the zero lower bound.
- In 2012, as noted earlier in this essay, the Federal Reserve established a numerical objective for price stability to formalize a long-run inflation goal of 2 percent that some people viewed as implicit in previous Federal Reserve policy actions and statements.

Policy Rules

Of equal impact on the practice of monetary policy was the development of policy rules. Until recent decades, the Federal Reserve's approach to adjusting monetary policy could hardly be called systematic; policy actions were not guided by a consistent, overarching method. Some might say the Federal Reserve was following a "discretionary" approach to monetary policy. Federal Reserve officials felt free to set policy as they saw fit at each point in time, based on all available information and on their judgment. By comparison, under a strictly "rule-based" approach, policy would be set according to a simple, publicly announced formula, with no deviation.



Created in 1907, this political cartoon depicts the disastrous panic of the same year. In response to the panic, Congress created the Federal Reserve System.

“The first 100 years, as Mao said about the French revolution, it’s too early to tell. I think we’re reminded that the Fed is a work in progress. There’s a lot of debate and controversy around the measures that the System is taking at the moment in response to the financial crisis and slow recovery. But history reminds us that it’s not the first time the Federal Reserve System has repeatedly evolved in response to events and in response to crises. That will continue.” ►

Barry Eichengreen, University of California, Berkeley



The Federal Open Market Committee (FOMC) did not announce its decisions at all until then-Chairman Alan Greenspan issued the first post-FOMC statement in 1994. Now, a statement is released immediately after each meeting, and Chairman Bernanke holds quarterly press conferences in which the FOMC releases the Summary of Economic Projections.

By the 1980s, a convincing case was being made that policy based on rules could deliver better macroeconomic outcomes—with lower inflation and more economic stability—than could be achieved under an entirely discretionary approach.

Stanford University economist John Taylor became the standard-bearer for the rule-based line of research. In the 1990s, he famously observed that Federal Reserve monetary policy under then-Chairman Alan Greenspan could be captured very well by an equation relating the federal funds rate to three terms: a constant reflecting the average or normal real rate of interest, inflation relative to a target of 2 percent, and real GDP relative to the economy's potential. For example, when inflation moved up and/or GDP was running above potential, the federal funds rate tended to move up. This suggested that Greenspan's Federal Reserve was, in practice, following a systematic "lean against the wind" approach to monetary policy. As it turned out, this approach was good for the economy. Later research showed that policy based on rules similar to what became known as the Taylor rule fared well in stabilizing economic activity and inflation.

Over time, many Federal Reserve policymakers came to view the prescriptions of various policy rules as useful guideposts. Nonetheless, policymakers recognized that the economy was far more complex than the macroeconomic models in which Taylor-like rules performed well. For example, a strict Taylor rule might not pick up on the need for very accommodative monetary policy during a credit crisis because it takes its cues only from inflation and output.

Still, the recognition of policy rules' value as guideposts probably helped monetary policy become more

systematic in responding to fluctuations in economic activity and inflation. Arguably, the result was indeed greater stability—in the form of the decades-long period of low inflation and relatively steady growth known as the Great Moderation. Even today, with policy rules less helpful because they would prescribe negative interest rates, which are impossible, the Federal Reserve has adopted a systematic approach to using its unconventional policy tools. At present, the Federal Reserve is buying Treasury bonds and mortgage-backed securities to achieve a monthly target, under the proviso that the target will be systematically adjusted in response to changes in the economic outlook and financial conditions.

Lessons Applied

Forty years ago, the words "systematic" and "clear" would not have been associated with Federal Reserve policy. Quibblers might argue that the Federal Reserve has not quite achieved that level of association even today, although some progress has been made. The Federal Reserve of the twenty-first century is leaps and bounds ahead of its twentieth-century self in terms of its systematic behavior and transparent communications.

It took the confluence of unwelcome economic events and welcome economic theories to produce this new approach. Policy rules help to guide public expectations, and consistently adhering to policy rules reinforces those expectations. Who knows what events or theories will shape the future? Depending on the times or the thinking, there may be many ways for the central bank to fulfill its objectives. The methods and approaches have changed, but the goal of economic growth and price stability has not.

An Enhanced Objective—**Financial Stability**



KEY POINTS

The financial system has grown much more sophisticated over the past century, as has the Federal Reserve's approach to keeping it safe.

Financial stability became a more prominent objective of the Federal Reserve in the aftermath of the financial crisis.

The decisions and rules being hammered out today will determine whether the new systemic view will be enough to prevent future crises.

Before the Civil War, bank panics were an all-too-common occurrence across young America. In response, the National Banking Acts of 1863 and 1864 introduced two new safeguards: a directive that US government bonds backstop banknotes and the creation of the Office of the Comptroller of the Currency to supervise the banks.

Both reforms had their merits but quickly proved lacking as first conceived. Market developments soon enough outpaced market regulators—an age-old pattern that prevailed right up to the financial crisis of 2008.

Bank regulation has always been the Federal Reserve's responsibility, and recently the Federal Reserve has been given additional authority to safeguard the stability of the entire financial system. A look back at 150 years of bank panics and full-blown financial crises helps explain how America's central bank grew into its new role.

Crisis, Response, Repeat

The Panic of 1873, which destroyed some 18,000 businesses and pushed unemployment above 14 percent, showed that the Banking Acts were not adequate solutions, partly because deposits, rather than banknotes, had become the dominant form of money. A series of severe panics, culminating in the disastrous Panic of 1907, drove

this point home, and a new solution emerged: a currency that could expand to meet the demands of depositors throughout the year, whenever they needed it—that is, an "elastic currency." The Federal Reserve Act of 1913 intended to provide just that, along with "a more effective supervision of banking in the United States."

Problem solved? Not quite. The Great Depression opened with a series of too-familiar banking crises. It took the nationwide bank shutdown in March 1933 to restore calm and set the stage for a new round of regulatory response.

The resulting New Deal reforms—including federal deposit insurance, separation of commercial from investment banking, and interest rate caps on deposit accounts—ushered in nearly three-quarters of a century without a major banking panic. Deposit insurance helped solve the problem of bank runs by giving depositors confidence that their money would be protected, even if their bank got into trouble. And separating commercial from investment banking seemingly prevented banks from engaging in risky high-finance activities. But just as before, the economy was changing, and the old solutions became less effective.

High inflation during the early 1980s made interest rate ceilings, designed in part to keep banks from trying to outdo each other in a risky pursuit of depositors,



The Great Financial Panic of 1873, as depicted in Frank Leslie's illustrated newspaper, October 4, 1873; the collapse of stock market values following the global economic crisis from the front page of the Financial Times, September 30, 2008.

particularly painful. Depositors began looking for other, “safe” investment vehicles to earn money, and markets delivered with the invention of money market funds. A domino effect ensued: Commercial banks lost market share to investment banks. At the same time, a series of regulatory changes, culminating in the Graham–Leach–Bliley Act, allowed commercial banks to take on investment banking activities. A shadow banking system arose beyond the control of existing regulators. By 2008, the world was in the grip of a full-blown financial crisis.

The Financial Stability Mandate

In the aftermath of the most recent episode, the crisis-response script played out as usual, with one exception; unlike previous crises, which resulted in the formation of major new financial regulators—the Comptroller of the Currency, the Federal Reserve, the Federal Deposit Insurance Corporation, and the Securities and Exchange Commission—the financial crisis of 2008 mostly brought a reorientation and redefinition of responsibilities.

These principles were laid out in the Dodd–Frank Wall Street Reform and Consumer Protection Act of 2009, which gave the Federal Reserve and other financial market regulators more explicit responsibility for

promoting financial stability. It did not stipulate most of the details necessary for accomplishing this target. Instead, it provided a goal and established systemic risk as a major consideration in the formation of policy.

The remaining open question is whether elevating “financial stability” as a regulatory ambition will be enough to prevent crises like that of 2008. The Dodd–Frank Act did spell out some clear instructions, including stronger capital buffers for the largest financial firms and new regulatory oversight of the shadow banking system. But much of the “how” was not specified. For all its 800-plus pages, the most important directive in Dodd–Frank may be the establishment of “systemic risk” as a standard of practice. The crisis reinforced the lesson that a bank’s failure affects not only its depositors and investors but other banks and businesses as well. That is why the shift is sometimes described as a change from “microprudential” regulation, concentrating on the safety of individual banks, to “macroprudential” supervision, focused on the safety of the financial system.

Systemic risk is a sort of pollution: A risky bank can upset the financial system, just as a coal plant can dirty a neighborhood. So from now on, in considering measures such as adequate capital buffers, regulators are thinking not only about how to keep a bank safe, but also about how to minimize the impact of its possible failure on the



The Federal Reserve System is a decentralized central bank. It consists of 12 Federal Reserve Bank districts around the country, each with its own president, plus a seven-member Board of Governors in Washington, DC. Here, the Marriner S. Eccles Federal Reserve Board Building, named after a former Chairman of the Federal Reserve, under construction in 1937.

“[The Federal Reserve] is one of the finest research institutions, both at Washington and at the Reserve Banks, of any institution in the United States. It managed over 100 years to never have a corruption scandal, which is quite an achievement. It has a real esprit de corps; as an institution, it’s really a very good institution.

My complaints are not on the subject of how it operates but what it does, and I think it’s made major mistakes along the way. The Great Depression. The Great Inflation, a lot of business cycles, and I think its policy now is heading us toward disaster.” ►

Allan Meltzer, Carnegie Mellon University

“In the decades prior to the financial crisis, financial stability policy tended to be overshadowed by monetary policy, which had come to be viewed as the principle function of central banks. In the aftermath of the crisis, however, financial stability policy has taken on greater prominence and is now generally considered to stand on an equal footing with monetary policy as a critical responsibility of central banks.”

Chairman Ben Bernanke, April 9, 2012

rest of the system. For example, a bank merger that would give the public more branches but would create a dangerously large, risky bank now faces more scrutiny. That is, Dodd–Frank represents a shift in perspective as much as a collection of new rules.

Taking a systemic view of financial stability also means greater coordination of regulatory policy. To a large extent, the worst financial crises are best described as exits from bank debt. People try to move to a “safer” form of money. In the 1800s, people caused a run on the bank by exchanging their banknotes for gold; in the Great Depression, they caused a run on the bank by exchanging their deposits for cash; and in 2008, some caused a run on their money market fund by exchanging their shares for bank deposits.

Resolving, and ultimately preventing, these crises involve both banking and monetary policy. This supports a role for the central bank, which controls the money supply, to wield extensive supervisory authority. With such authority, the central bank, as lender of last resort, has direct access to the best and most up-to-date information about the banks and non-bank financial institutions it lends to.

A Durable Solution?

But the most important question is whether an enhanced mandate for financial stability will translate into significantly less economic damage from the next crisis, if it does not prevent it entirely. Not to dodge the question, but it is too early to say. Although many of the rules that Dodd–Frank requires have been completed, some new rules are either in development or still under debate. As of March 2013, no non-bank financial institutions had been designated as systemically important. Even the nation’s largest banks, which are automatically designated by Dodd–Frank as being systemically important, have yet to learn of the enhanced supervisory standards they may be subject to.

Exactly what other restrictions such institutions might eventually be subject to had not yet been established, either. For example, it’s unclear how much effect higher capital requirements will have or in what cases mergers will be cancelled or activities banned. Moreover, regulators may also have to weigh the benefits of limiting the actions of systemically important firms against the possible loss of economic growth.

Those are just a few of the question marks. The idea of the Federal Reserve playing a prominent role in financial stability is not new. Nevertheless, some might say that providing the Federal Reserve with additional tools to achieve that goal is long overdue. In any case, we are in the thick of it today. Historians of the future will be looking closely at the actions now being taken to explain why we failed or succeeded.



► Watch the video at www.clevelandfed.org/annualreport.



The Cleveland Federal Reserve Bank building has been restored to its original beauty, while its spaces have evolved to meet the needs of the future. See this report's "Operations Evolution" on page 33 for a closer look at how the Federal Reserve Bank of Cleveland is evolving.

“... the Federal Reserve System that we know today has changed a lot over the last 100 years. Some of those changes came from the lessons of experience learned inside the organization; some came from changes in economic thought; and some changes resulted from Congressional legislation. There is no such thing as ‘the Fed for all time.’ The institution has evolved and will continue to evolve, shaped by the same forces that have changed it in the past.” ►

Mark Sniderman, Federal Reserve Bank of Cleveland

LESSONS



The ability of the Federal Reserve to accomplish its objectives in an increasingly complex environment will depend on its continued efforts to adapt, evolve, and learn.

Over the past century, the Federal Reserve's responsibilities have expanded and its policy tools have become more sophisticated. Its evolution mapped a progression in economic thinking, lessons from practical experience, and shifts in national economic goals. Some of the changes occurred gradually; others came with the sudden punch of crisis.

In its first years, the Federal Reserve's monetary and financial stability objectives and policy instruments were far more limited than today's.

The gold standard offered several advantages: It produced price stability over the very long run, and it minimized manipulation of the money supply if the government played by the "rules." However, during the lead-up to the Great Depression, some governments decided that staying on the gold standard required them to accept economic conditions they found intolerable. The Federal Reserve became responsible for ensuring stable purchasing power in a system tethered only to its own credibility. Needless to say, it took some time to figure out how to accomplish this goal.

Following World War II, the nation sought to do a better job at keeping the economy at full employment and smoothing the volatility inherent in business cycles; the Federal Reserve was expected to do its part. Using large-scale computer models of the economy, the Federal Reserve generated forecasts based on alternative policy choices, all with the goal of choosing the option most likely to produce both full employment and price stability.

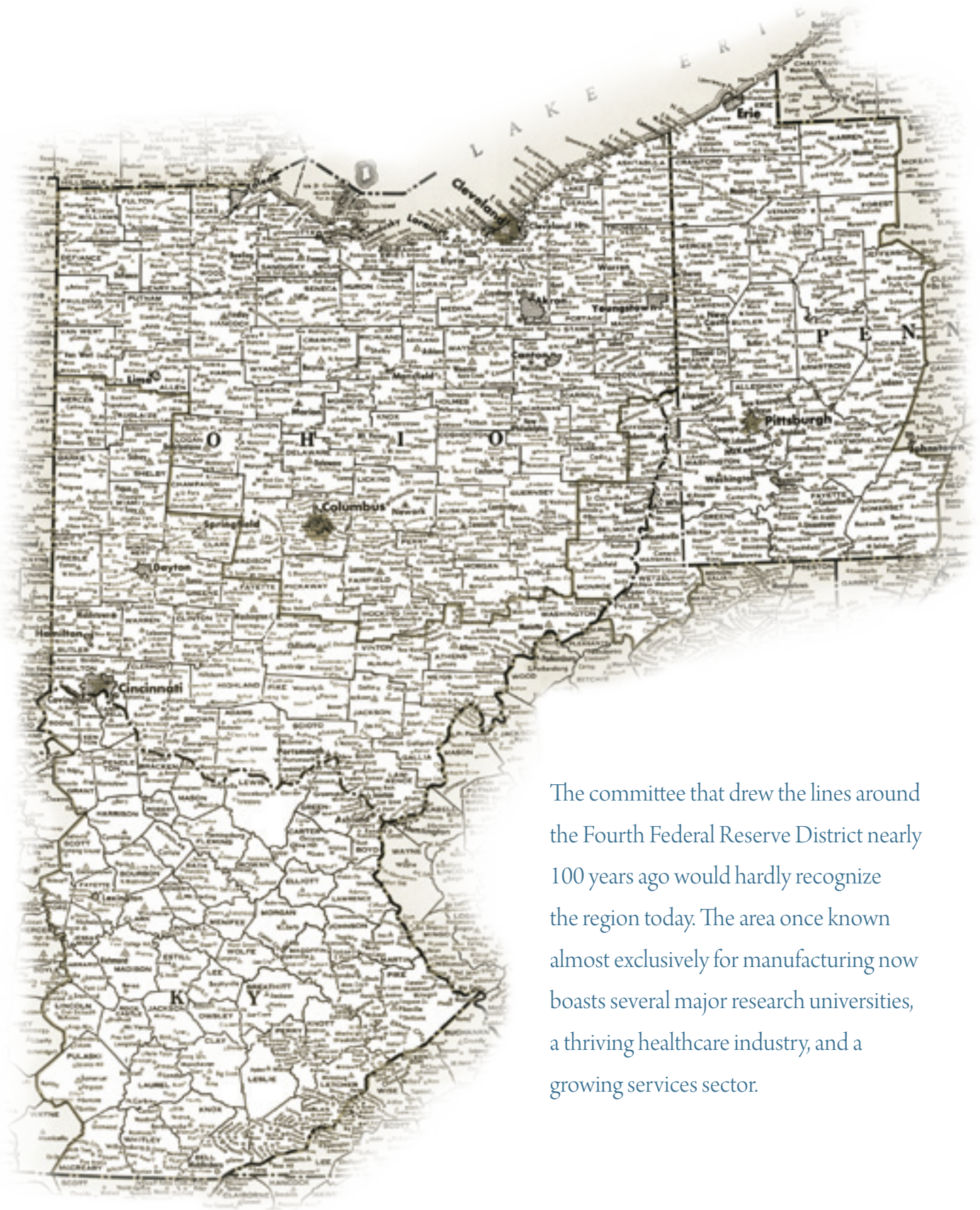
The irony of the era was that the Federal Reserve's legal mandate was changed in 1978 to specify a "maximum employment" objective—just as inflation was spiraling out of control. Although some economic historians attribute that failure to the broadening of the legal mandate, an equally or more likely explanation is that the policymakers of the day simply—but disastrously—underestimated the degree of policy restraint required to keep inflation in check.

From this experience, the Federal Reserve learned the importance of designing policies that would keep inflation expectations anchored while it acted to counter business-cycle fluctuations. The rational expectations era was born. Many Federal Reserve officials recognized that monetary policy should no longer be considered a series of "point in time" decisions made under a cloak of secrecy, but rather an entire sequence of actions designed to accomplish objectives that were openly communicated to the public. More recently, the FOMC assigned numerical values to its long-run goal for price stability and its estimate for maximum employment in an effort to increase transparency and reduce uncertainty.

The roots of the Federal Reserve's involvement with banking supervision and regulation can be traced back to its founding. And, as with monetary policy, there has been significant evolution in the theory and practice of banking regulation. The financial crisis and deep recession of 2007–09 prompted Congress to significantly change the Federal Reserve's responsibilities and legal authority, including enhancing the goal of financial stability in the Federal Reserve's mission. One could argue that with the financial landscape quite changed since the 1910s, Congress was merely attempting to restore the Federal Reserve's ability to promote financial stability, as it did 100 years ago.

The arc of history suggests that it is far too soon to know how successful the Federal Reserve will be in meeting the nation's expectations for full employment, price stability, and financial stability. We still have a lot to learn about how to operate in this new environment, and unforeseen challenges will undoubtedly arise. As we have done from our founding, we are working with academics, industry professionals, and other central banks to learn from experience and stay abreast of the new theories and tools we will need to accomplish our objectives.

In the meantime, a healthy debate about the merits of Federal Reserve policy action continues, as is proper and necessary. We might also note that a little historical distance can produce insights not obvious in real time. So let's agree to check back in a decade or two; with the benefit of perspective, we can have an even better-informed discussion about how central banks can best contribute to economic prosperity. ■



The committee that drew the lines around the Fourth Federal Reserve District nearly 100 years ago would hardly recognize the region today. The area once known almost exclusively for manufacturing now boasts several major research universities, a thriving healthcare industry, and a growing services sector.

State of the **Fourth District**



KEY POINTS

The Fourth District's economy has tracked national trends fairly closely.

Some of the region's labor markets are doing well—especially in Pittsburgh and Columbus.

Most of the region's sectors should see continued growth in 2013.

The US economy expanded at a very modest pace in 2012. Output grew by 2.2 percent, unemployment declined by 0.7 percentage points to 7.8 percent, and inflation held slightly below 2 percent on a year-over-year basis. This was an uneven performance. In short, 2012 continued the stop-and-go progress of the country's economy since the Great Recession ended in 2009.

The Fourth District's post-recession progress looks a lot like the broader national recovery, with declines in unemployment, modest jobs growth, and an increase in real per capita income. Employment reports suggest that economic growth in the Fourth District slowed in the second half of the year, but some sectors did show strength. In fact, some Fourth District metropolitan areas outperformed the nation.

Our overall outlook as we head further into 2013 remains cautious. The Fourth District's economy continues to have the same stop-and-go feel as the nation's.

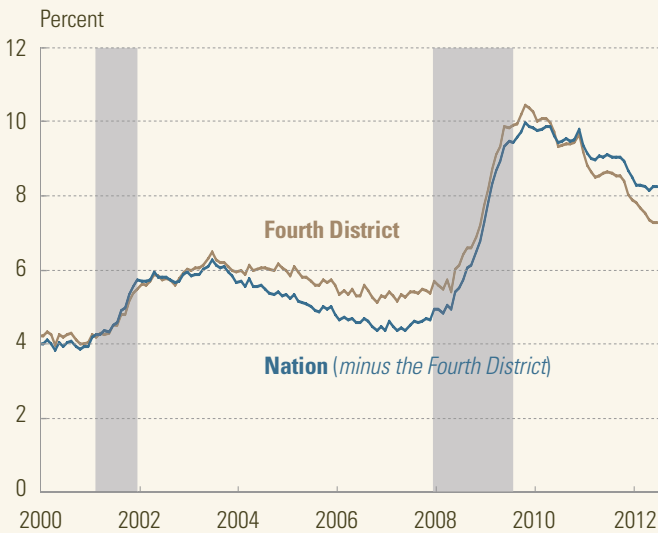
Employment

The Fourth District's labor markets continued to make slow but steady progress during the recovery and in

2012. The unemployment rate was 7.2 percent at the end of 2012, a decline of 3 percentage points from its peak just after the end of the Great Recession. Notably, the region's unemployment rate declined more sharply than the nation's (see figure 1). At the same time, the region's employment growth throughout the recovery is slightly below that of the nation as a whole.

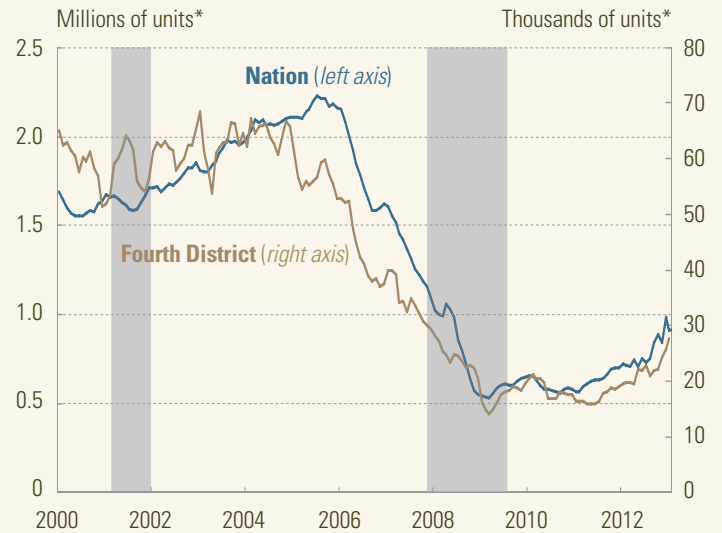
One place where the region's jobs market has especially underperformed the nation's is labor force growth. Among the 12 Federal Reserve districts, the Fourth District posted the second-weakest labor force growth in the recovery. In fact, the region's labor force has actually contracted since 2009, a trend especially evident in Ohio. The anemic labor force growth partly explains why the Fourth District's unemployment rates fell faster than the nation's, although the District's overall employment growth was modest. The District just hasn't needed to generate a high number of jobs in order to lower its unemployment rate because the flow of new workers and re-entrants into the labor force has not put significant upward pressure on the unemployment pool. The decline in the labor force is not present across all areas of the District; Pennsylvania and Kentucky have reported increases.

Figure 1. **The region's unemployment rate declined more sharply than the nation's...**



Source: Bureau of Labor Statistics.
Shaded bars in figures 1 and 2 indicate recessions.

Figure 2. **...and private-building permits saw an uptick on a year-over-year basis.**



*Seasonally adjusted annual rate.
Source: Census Bureau.

Over all, labor market performance varies widely across the District. The metropolitan areas of Columbus, Lexington, and Pittsburgh have outpaced the US as a whole in employment growth. Columbus and Pittsburgh rank in the top half of the 50 largest metropolitan areas in the country for employment growth since 2007. This pattern is not new—Columbus and Pittsburgh, university towns with strong service sectors and ample supplies of highly skilled labor, had seen relatively strong growth before the recession, and these trends appear to have been re-established during the recovery.

At the same time, the northeast Ohio metro areas of Akron, Cleveland, and Youngstown have reported slower-than-average employment growth. Their employment numbers remain between 3 percent and 6 percent below their pre-recession peaks. In part, this reflects the slower recovery of manufacturing employment in these manufacturing-heavy cities, which also affects nonmanufacturing-sector firms that provide services to manufacturers and their employees.

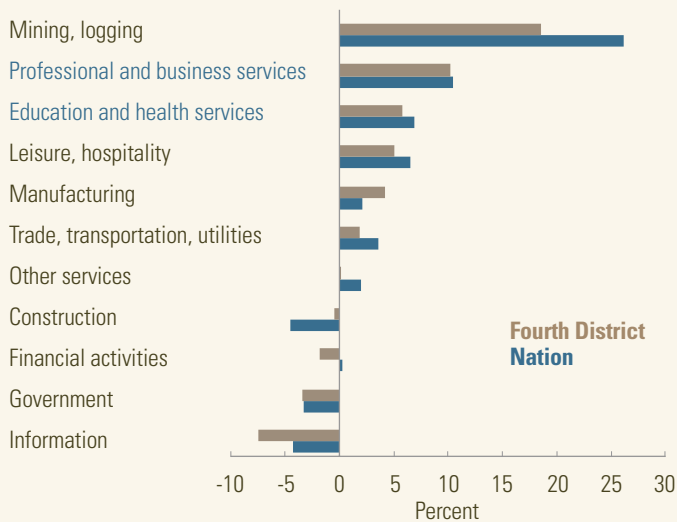
Housing

The Fourth District's housing market began moving in a positive direction toward the latter half of 2012. Prices firmed, and many cities saw increased construction activity. Building permits finally saw an uptick on a year-over-year basis, the first in several years for many locales in the District, although the pace of improvement trails that of the nation overall (see figure 2).

Still, context is important. Building activity had been trading water at very low levels since 2009, nationally and in the Fourth District. The gains we are beginning to see remain modest, and hiring in the sector is sluggish.

Certainly, the short-term trends are moving in the right direction, buoyed by low interest rates. Household formation picked up, after declining sharply during the Great Recession, and income growth has been solid. That said, many Ohio locales are working through significant foreclosure backlogs, which are likely to dampen new construction activity in these markets.

Figure 3. **The region's services industries have grown markedly since the recovery...**



Note: Aggregate of Fourth District states' payrolls; growth from June 2009 to December 2012.
Source: Bureau of Labor Statistics.

Figure 4. **...and its educational attainment rate for 25- to 34-year-olds ranks seventh of 12 Fed districts.**



Source: American Community Survey (five year).

Industry Developments

The Fourth District remains strong in manufacturing, even though manufacturing jobs grew only modestly in 2012. Pennsylvania showed slight employment expansions, while Ohio and especially Kentucky had stronger growth due primarily to gains in transportation equipment industries.

Today, the services industries make up the largest share of employment. Professional and business services, along with education and health services, have been key contributors to strength in local labor markets (see figure 3). In Columbus, for example, education and health care services have grown by almost 20 percent—or nearly 20,000 jobs—since the end of the recession, accounting for 40 percent of Columbus' employment growth over the recovery period. We also saw solid growth in education and health services in Pittsburgh, Lexington, and Cleveland.

Regional energy production has risen sharply higher in recent years, boosted by exploration and development of the Marcellus and Utica shale gas resources. Western

Pennsylvania posted strong growth in natural resource employment. Ohio, whose shale gas activity is in an earlier stage than Pennsylvania's, has felt a less direct impact so far, but exploration and development are rising. The open question is how much more employment growth we can expect from shale gas developments. Analysts remain quite divided on the future economic impacts; the size of the employment spillovers will depend critically on whether oil- and gas-related industries will locate in the Fourth District and how much of the income created remains in local economies.

The State of Human Capital

Growth prospects for any region depend heavily on workforce quality. On that front, the Fourth District faces some short-term challenges. Its human capital, as measured by the bachelor's degree attainment rate of its adult population, is relatively low; it ranks second-to-last of the 12 Reserve Bank Districts. Not surprisingly, the First (Boston) and Second (New York) Districts have the highest share of adults with four-year college degrees.

However, it's important to note that the differences across Districts reflect a range of factors that may not tell the whole story.

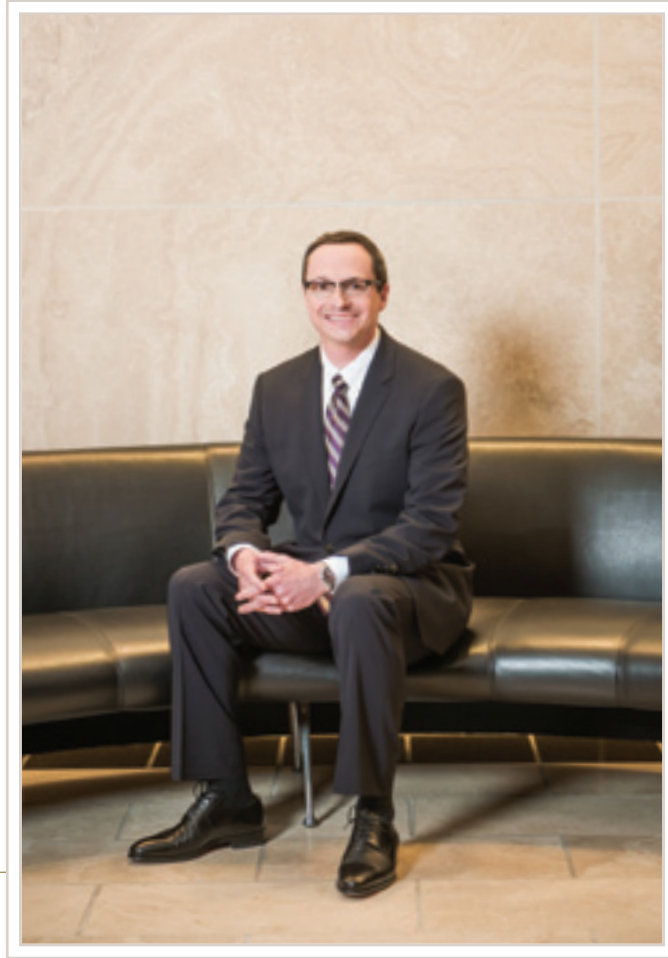
For example, the Fourth District fares a bit better in the educational attainment rate for younger working adults, those aged 25–34 (see figure 4). If a region's human capital is improving, we would expect to see larger impacts on its younger working cohort. In the Fourth District, we see highly skilled, younger workforces in metropolitan areas like Columbus and Pittsburgh. Indeed, the educational attainment of Pittsburgh's young working cohort ranks twelfth among the 100 largest US metropolitan areas. Such improvements in human capital bode well for longer-term growth in these areas—assuming they can retain their skilled workforces.

The Year Ahead

The Fourth District's economy, like the nation's, is not yet hitting on all cylinders. The specter of uncertainty continues to threaten as we move through 2013. The Federal Reserve Bank of Cleveland's business contacts cite uncertainty over the US fiscal situation and global economic conditions as reasons for their diminished optimism about hiring plans compared with this time last year.

That said, the majority of our contacts still plan to expand their payrolls, or at least maintain their current employment levels, in 2013. In addition, improvements in local housing markets, the continued repair of Fourth District households' balanced sheets, and solid growth in real per capita income should support continued expansion of the Fourth District's economy in 2013.

Operations **Evolution**



Gregory L. Stefani
First Vice President and Chief Operating Officer

The Federal Reserve Bank of Cleveland's many duties as a central bank include providing payment services, supervising banks, and setting monetary policy. Over the past century, our Bank has continued to adapt, evolve, and learn, resulting in changes in how we do our work. While these changes are evident across all areas of our organization, they are most striking in the area of payments.

From paper to electronic, from manual to automated—in many ways, the evolution of payments processing represents the evolution of all of our operating and support roles.

In what seems to be a blink of the eye, paper-based services like check processing became electronic. But what now seems so natural—we check our bank account balances online, we use our debit card instead of a checkbook—was decades in the making. Until fairly recently, check processing, clearing, and settlement were predominantly manual tasks performed by throngs of workers. At its peak, hundreds of workers at the Federal Reserve Bank of Cleveland processed literally 10 million checks per night.

Cleveland Fed Operations: **Then** and Now



In 1943, check collection employees worked five shifts around the clock to meet the rising tempo of the war.



Currency sorting at mid-century was much as it had been in the 1920s, when the task was first mechanized by introducing the federal bill counter.

While still much of a manual process, using rotary perforators in the mechanical cancellation of securities, shown here in this photo from 1951, was much safer.



But the work of processing checks is costly and labor intensive. For that reason, the Federal Reserve sought ways to improve the efficiency of its check operations—to modernize its factory, so to speak. In 2003, the Federal Reserve completed its four-year Check Modernization initiative, which overhauled the systems and infrastructure for processing checks. A leader in reducing the Federal Reserve’s check footprint, the Federal Reserve Bank of Cleveland, working in partnership with the Federal Reserve Bank of Atlanta, led the development and implementation of this ambitious project. It standardized check processing at all Reserve Bank offices, adopted a common software for processing and researching check-adjustment cases, created a national check-image archive and retrieval system, and delivered check services to customers on a web-based platform.

The challenge of handling stacks of paper checks remained, however, until we adopted image technology, which helped transform payments from a paper-based, hand-delivered process into an electronic process. This helped establish the basis of what eventually became the Check Clearing for the 21st Century Act. Check 21, as the Act is commonly known, was designed to help banks handle more checks electronically by allowing a check’s image, rather than the physical check itself, to be moved between banks. The Cleveland Fed, working on behalf of the System’s Retail Payments Office, once again took a leadership role by preparing for the requirements of Check 21, designing a new suite of products and services, and overseeing the project’s implementation.

Since Pearl Harbor, every director, officer, and employee of the Federal Reserve Bank has been fingerprinted. This photo is from 1943.



The Treasury authorized Federal Reserve Banks to cancel and destroy silver certificates and US notes in 1953 and unfit Federal Reserve notes in 1966. Here, Federal Reserve Bank of Cleveland Cash Department employees throw bundles of unfit currency into the gas-fired incinerator.

The main vault, no longer used to store cash, is made of concrete and reinforced with an intricate, interlaced type of fabricated steel. The door is 5 feet thick and weighs 100 tons but is so precisely balanced that one person can swing it closed.



With the passage of Check 21, it became obvious that the Federal Reserve's infrastructure for processing checks was too big. As a consequence, the Federal Reserve has consolidated its check services, eliminated our extensive air- and ground-transportation network for paper check delivery, and built an infrastructure that moves billions of check images from collecting to paying banks. Check 21 reduced clearing time for consumers, businesses, and banks. It reduced costs for the banking industry. And it improved safety and security. The Federal Reserve Bank of Cleveland became the System's sole paper check processing site until the end of 2012, when the Federal Reserve Bank of Atlanta began processing the few remaining paper items.

Check processing is only one of the Federal Reserve services that the Cleveland Fed has had a hand in

moving from paper to electronic—our support for the US Treasury is also evolving. The Federal Reserve is the Treasury's fiscal agent, or, in other words, we work on behalf of the Treasury to make payments, collect funds owed to the government, and manage relationships with the government's creditors.

Historically, the Federal Reserve Bank of Cleveland has supported the Treasury primarily by issuing, redeeming, and servicing savings bonds and marketable securities. As with paper checks, hundreds of employees, in our Pittsburgh Branch in this instance, worked several shifts to process paper bonds. Over time, however, we have evolved into much more than bond processors.

As we moved into the twenty-first century, the Cleveland Fed saw an opportunity to fill a gap. In 2001,

Cleveland Fed Operations: Then and **Now**



Changes in the building have been based on productivity, efficiency, and sustainability. We undertook a major mechanical/electrical renovation in 1956, completed a full remodel and restoration in 1998, and achieved Leadership in Energy and Environment Design (LEED) certification in 2011.



Bank employees named the four robots that now transport the cash: TT's Little Squirt, BIP, Bumble Bee, and shown above, Farina.



In the wake of riots in Cleveland on May Day 1919, Bank leaders took precautions in anticipation of opening the Federal Reserve Bank of Cleveland's new building. The Bank hired, organized, and trained roughly 60 guards. Over time, security staff has become a federally commissioned police department, now known as the Bank's Law Enforcement Unit.

the Cleveland Fed took a lead role in developing two new electronic payments initiatives for the Treasury—Pay.gov and Paper Check Conversion. Pay.gov used then-state-of-the-art payments technology to authorize and settle government payments over the internet. Paper Check Conversion allowed the Treasury to move checks into the more efficient automated clearinghouse.

This was just the start. The Federal Reserve Bank of Cleveland's eGovernment Department (eGov) is now solely responsible for two key areas of the Treasury's revenue collection management. The visible side of collections is still Pay.gov, the Treasury's online platform for nontax payments to federal agencies, and a key component of the Treasury's all-electronic initiative. The other side is the Debit Gateway, the Treasury's system for settling all check and electronic payments to those agencies. eGov continues to adapt to significant volume

increases, expand its expertise, and deliver advanced software. What started out as a payments collection concept has now grown to processing over 250 million transactions valued at over \$550 billion annually. With a focus on scalability and quality improvements, eGovernment's operating platform is being designed to accommodate future growth and new or emerging payment technologies.

The Federal Reserve Bank of Cleveland has supported the evolution of financial services in many ways throughout our existence. Our President and CEO, Sandra Pianalto, in her role as chair of the Financial Services Policy Committee (FSPC), continues this tradition. The FSPC is responsible for the overall direction of financial services and related support functions for the Federal Reserve Banks, as well as for providing Federal Reserve leadership in dealing with the evolving US payments

The Bank's Learning Center and Money Museum underwent a refresh in 2012. A new animated, interactive game tracing the origins of the Federal Reserve is shown here.



Unfit, shredded notes that used to be burned are now composted at Rosby's Berry Farm in Brooklyn Heights, Ohio, as part of the Bank's waste management initiative.



Spaces that were once used for production are now open work spaces that allow for quick lines of communication and are designed for project teams to work collaboratively. eGovernment employees are shown above.



system. In October 2012, the FSPC unveiled its financial services strategic direction, a bold change in direction focused on improving the speed, safety, and efficiency of the payments system.

Historically, the Federal Reserve's focus when it came to financial services has been on the interbank market, but its strategy today is to place greater emphasis on the entire payments supply chain and end users. To put it simply, our strategy is to focus on payments from end-to-end in order to continue to support transformative payment innovations.

For almost a century, we have adapted to changes in our environment and have learned to take the initiative in responding to them and planning for the future. So while our role in processing traditional payments has declined, our role in helping shape the future of payments continues. We remain actively engaged

in adjusting our planning, product development, and resources to capitalize on innovation in the marketplace. And as a greater percentage of our workforce moves from manual operations-focused work into more knowledge-based roles supporting departments like eGov, Research, and Supervision and Regulation, we, as always, continue to adapt, evolve, and learn.

► Watch a 16 mm motion picture from 1950 depicting operations during a fictional day at the Federal Reserve Bank of Cleveland at www.clevelandfed.org/annualreport.

Boards of Directors, Advisory Councils, and Officers and Consultants

Boards of Directors

Federal Reserve Banks each have a main office board of nine directors. Directors help set the Bank's strategic direction, supervise the Bank's budget and operations, and make recommendations on the discount rate on primary credit. Those directors who are not commercial bankers appoint the Bank's president and first vice president, subject to the Board of Governors' approval.

In addition, directors provide the Federal Reserve System with a wealth of information on economic conditions. This information is used by the Federal Open Market Committee in reaching decisions about monetary policy.

Class A directors are elected by and represent Fourth District member banks. Class B directors are also elected by Fourth District member banks and represent diverse industries within the District. Class C directors are appointed by the Board of Governors and also represent the wide range of businesses and industries in the Fourth District. Two Class C directors are designated as chairman and deputy chairman of the board.

The Cincinnati and Pittsburgh branch offices each have a board of seven directors who are appointed by the Board of Governors and the Board of Directors of the Federal Reserve Bank of Cleveland.

Terms for all directors are generally limited to two three-year terms to ensure that the individuals who serve the Federal Reserve System represent a diversity of backgrounds and experience.

Cleveland Board of Directors

As of December 31, 2012



Back Row: Todd Mason, C. Daniel DeLawder, Christopher M. Connor, Paul G. Greig, Tilmon F. Brown, Harold Keller

Front Row: Richard K. Smucker, Alfred M. Rankin Jr., Susan Tomasky

Alfred M. Rankin Jr.
Board Chairman
Chairman, President, and Chief Executive Officer
NACCO Industries, Inc.
Cleveland, Ohio

Richard K. Smucker
Board Deputy Chairman
Chief Executive Officer
The J.M. Smucker Company
Orrville, Ohio

Tilmon F. Brown
President and Chief Executive Officer
New Horizons Baking Company
Norwalk, Ohio

Christopher M. Connor
Chairman and Chief Executive Officer
The Sherwin-Williams Company
Cleveland, Ohio

C. Daniel DeLawder
Chairman and Chief Executive Officer
Park National Bank
Newark, Ohio

Paul G. Greig
Chairman, President, and Chief Executive Officer
FirstMerit Corporation
Akron, Ohio

Harold Keller
President
Ohio Capital Corporation for Housing
Columbus, Ohio

Todd Mason
President and Chief Executive Officer
First National Bank of Pandora
Pandora, Ohio

Susan Tomasky
Energy Consultant and Former President
AEP Transmission
Columbus, Ohio



James E. Rohr
Federal Advisory Council Representative
Chairman and Chief Executive Officer
The PNC Financial Services Group, Inc.
Pittsburgh, Pennsylvania

Cincinnati Board of Directors

As of December 31, 2012



Back Row: Austin W. Keyser, Amos L. Otis,
Gregory B. Kenny

Front Row: Donald E. Bloomer, Peter S. Strange,
Daniel B. Cunningham

Not Pictured: Susan Croushore

Peter S. Strange
Board Chairman
Chairman
Messer, Inc.
Cincinnati, Ohio

Donald E. Bloomer
President and Chief Executive Officer
Citizens National Bank
Somerset, Kentucky

Susan Croushore
President and Chief Executive Officer
The Christ Hospital
Cincinnati, Ohio

Daniel B. Cunningham
President and Chief Executive Officer
The Long-Stanton Group
Cincinnati, Ohio

Gregory B. Kenny
President and Chief Executive Officer
General Cable Corporation
Highland Heights, Kentucky

Austin W. Keyser
Midwest Senior Field Representative
AFL-CIO
McDermott, Ohio

Amos L. Otis
Founder, President, and Chief Executive Officer
SoBran, Inc.
Dayton, Ohio

Pittsburgh Board of Directors

As of December 31, 2012



Back Row: Petra Mitchell, Charles Hammell III,
Todd D. Brice, Grant Oliphant

Front Row: Robert A. Paul, Glenn R. Mahone,
Dawne S. Hickton

Glenn R. Mahone
Board Chairman
Partner and Attorney at Law
Reed Smith LLP
Pittsburgh, Pennsylvania

Todd D. Brice
President and Chief Executive Officer
S&T Bancorp, Inc.
Indiana, Pennsylvania

Charles Hammel III
President
PITT OHIO
Pittsburgh, Pennsylvania

Dawne S. Hickton
Vice Chair, President, and Chief Executive Officer
RTI International Metals, Inc.
Pittsburgh, Pennsylvania

Petra Mitchell
President
Catalyst Connection
Pittsburgh, Pennsylvania

Grant Oliphant
President and Chief Executive Officer
The Pittsburgh Foundation
Pittsburgh, Pennsylvania

Robert A. Paul
Chairman and Chief Executive Officer
Ampco-Pittsburgh Corporation
Pittsburgh, Pennsylvania

Business Advisory Councils

As of December 31, 2012

Business Advisory Council members are a diverse group of Fourth District businesspeople who advise the president and senior officers on current business conditions.

Each council—in Cincinnati, Cleveland, Columbus, Dayton, Erie, Lexington, Pittsburgh, and Wheeling—meets with senior Bank leaders at least twice yearly. These meetings provide anecdotal information that is useful in the consideration of monetary policy direction and economic research activities.

CINCINNATI

Charles Brown
Vice President and Secretary
Toyota Motor Engineering
& Manufacturing, NA, Inc.
Erlanger, Kentucky

Robert Buechner
Shareholder
Buechner Haffer Meyers
and Koenig Co., LPA
Cincinnati, Ohio

Calvin Buford
Partner, Corporate Development
Dinsmore & Shohl LLP
Cincinnati, Ohio

James Bushman
President and Chief Executive Officer
Cast-Fab Technologies, Inc.
Cincinnati, Ohio

Christopher Cole
Chief Executive Officer
Intelligrated
Mason, Ohio

Kay Geiger
*President, Greater Cincinnati/
Northern Kentucky*
The PNC Financial Services Group
Cincinnati, Ohio

Terry Grundy
Director, Community Impact
United Way of Greater Cincinnati
Cincinnati, Ohio

Jose Guerra
President
LS Source
Cincinnati, Ohio

Jim Huff
Chairman Emeritis of Huff Realty
HUFF Commercial Group
Ft. Mitchell, Kentucky

Vivian Llambi
President
Vivian Llambi & Associates, Inc.
Cincinnati, Ohio

Joseph Rippe
Principal
Rippe and Kingston
Cincinnati, Ohio

Carl Satterwhite
President
RCF Group
Hamilton, Ohio

CLEVELAND

Cedric Beckett
President and Chief Executive Officer
Optimum Supply, LLC
Cleveland, Ohio

Maryann Correnti
Chief Financial Officer
Heinen's
Warrensville Heights, Ohio

Jennifer Deckard
President
Fairmount Minerals
Chardon, Ohio

Jack Diamond
President
Bennan, Manna, and Diamond, LLC
Akron, Ohio

Gary Gajewski
Vice President, Finance
Moen, Inc.
North Olmsted, Ohio

Albert M. Green
Chief Executive Officer
Kent Displays, Inc.
Kent, Ohio

Christopher J. Hyland
*Executive Vice President and
Chief Financial Officer*
Hyland Software, Inc.
Westlake, Ohio

Michael Keresman
Chief Executive Officer
Cardinal Commerce Corporation
Mentor, Ohio

Andrew Logan
President and Chief Executive Officer
Logan Clutch Corporation
Cleveland, Ohio

Gena Lovett
Chief Diversity Officer
Alcoa Forging and Extrusions
Cleveland, Ohio

Kevin M. McMullen
Chairman and Chief Executive Officer
OMNOVA Solutions, Inc.
Fairlawn, Ohio

David Megenhardt
Executive Director
United Labor Agency
Cleveland, Ohio

Bob Patterson
*Executive Vice President and
Chief Operating Officer*
PolyOne Corporation
Avon Lake, Ohio

Rasesh Shah
President
The Andersons Rail Group
Maumee, Ohio

COLUMBUS

David W. Berson
*Senior Vice President and
Chief Economist*
Nationwide Insurance
Columbus, Ohio

Tim Burga
President
Ohio AFL-CIO
Columbus, Ohio

William Carter
*Chief Financial Officer and
Vice President of Investor Relations
and Public Affairs*
Momentive
Columbus, Ohio

Michael Dalby
President and Chief Executive Officer
Columbus Chamber of Commerce
Columbus, Ohio

Paul Desantis
Chief Financial Officer
Bob Evans Farms
Columbus, Ohio

Everett Gallagher
Senior Vice President and Treasurer
Abercrombie & Fitch
New Albany, Ohio

Mike Gonsiorowski
Regional President, Central Ohio
PNC
Columbus, Ohio

Jordan Miller
President and Chief Executive Officer
Fifth Third Bank, Central Ohio
Columbus, Ohio

Andy Rose
*Vice President and
Chief Financial Officer*
Worthington Industries
Columbus, Ohio

Mark Thresher
*Executive Vice President and
Chief Financial Officer*
Nationwide
Columbus, Ohio

DAYTON

Edward Blake
*Senior Partner
Chief Executive Officer, MV
Commercial Group; and CFO,
Miller-Valentine Group*
Miller-Valentine Group
Dayton, Ohio

Bryan Bucklew
President and Chief Executive Officer
Greater Dayton Area Hospital
Association
Dayton, Ohio

Christopher Che
President and Chief Executive Officer
Hoovan-Dayton Corp.
Dayton, Ohio

Bruce Feldman
President
Economy Linen & Towel Service
Dayton, Ohio

Larry Klaben
President and Chief Executive Officer
Morris Furniture Co., Inc.
Fairborn, Ohio

Phil Parker
President and Chief Executive Officer
Dayton Area Chamber of Commerce
Dayton, Ohio

Jenell Ross
President
Bob Ross Auto Group
Centerville, Ohio

Michael Shane
Chairman
Lastar, Inc.
Moraine, Ohio

Gregory Stout
Chief Financial Officer
Voss Auto Network
Centerville, Ohio

Christopher Wallace
*Senior Vice President,
Corporate Banking*
PNC Financial Services
Dayton, Ohio

Mark Walton
Vice President and CRA Manager
Fifth Third Bank
Dayton, Ohio

ERIE

Cle Austin

President
E. E. Austin & Son, Inc.
Erie, Pennsylvania

Matthew Baldwin

Vice President
Baldwin Brothers, Inc.
Erie, Pennsylvania

Jim Berlin

Chief Executive Officer
Logistics Plus
Erie, Pennsylvania

Terrence W. Cavanaugh

President and Chief Executive Officer
Erie Insurance
Erie, Pennsylvania

Gary L. Clark

Board Member
Reed Mfg. & Erie Bank
Erie, Pennsylvania

Martin J. Farrell

President
Infinity Resources, Inc.
Erie, Pennsylvania

William Hilbert Jr.

President
REDDOG Industries, Inc.
Erie, Pennsylvania

Marsha Marsh

Owner
Marsha Marsh Real Estate Services
Erie, Pennsylvania

Chris Scott

Vice President
Scott Enterprises
Erie, Pennsylvania

Tim Shuttleworth

President and Chief Executive Officer
Eriez Magnetics
Erie, Pennsylvania

Phil Tredway

President and Chief Executive Officer
Erie Molded Plastics, Inc.
Erie, Pennsylvania

LEXINGTON

William Farmer

President and Chief Executive Officer
United Way of the Bluegrass
Lexington, Kentucky

Paula Hanson

Director of Tax Services
Dean Dorton Allen Ford
Lexington, Kentucky

Ed Holmes

President
EHI Consultants
Lexington, Kentucky

Glenn Leveridge

Market President
Central Bank
Winchester, Kentucky

David Magner

Business Director - Manufacturing
Ingersoll Rand
Lexington, Kentucky

Wayne Masterman

Owner
Port Restaurants, LLC
Lexington, Kentucky

Ann McBrayer

President
Kentucky Eagle, Inc.
Lexington, Kentucky

Rebecca Mobley

Partner
Turf Town Properties, Inc.
Lexington, Kentucky

P.G. Peoples Sr.

President and Chief Executive Officer
Urban League of Lexington-
Fayette County
Lexington, Kentucky

Robert L. Quick

President and Chief Executive Officer
Commerce Lexington Inc.
Lexington, Kentucky

Kevin Smith

President and Chief Executive Officer
Community Ventures Corporation
Lexington, Kentucky

David Switzer

Executive Director
Kentucky Thoroughbred
Association, Inc.
Lexington, Kentucky

Kenneth Troske

Chair, Department of Economics
University of Kentucky
Lexington, Kentucky

Holly Wiedemann

President
AU Associates
Lexington, Kentucky

PITTSBURGH

James C. Cooper
President
Sterling Contracting LLC
Pittsburgh, Pennsylvania

John H. Dunn
President
J D Dunn Company
Sewickley, Pennsylvania

William Fink
President
Paragon Homes Inc.
McKees Rocks, Pennsylvania

Stephanie DiLeo
President
Homer City Automation
Homer City, Pennsylvania

Audrey Palombo Dunning
Chief Executive Officer
Summa
Pittsburgh, Pennsylvania

Robert Glimcher
President
Glimcher Group
Pittsburgh, Pennsylvania

Anthony M. Helfer
President
United Food & Commercial Workers
Local 23
Canonsburg, Pennsylvania

Kathryn Z. Klaber
President and Executive Director
Marcellus Shale Coalition
Canonsburg, Pennsylvania

Dennis Meteny
President and Chief Executive Officer
Cygnus Manufacturing Company
Saxonburg, Pennsylvania

Sean McDonald
President and Chief Executive Officer
Precision Therapeutics, Inc.
Pittsburgh, Pennsylvania

Stefani Pashman
Chief Executive Officer
Three Rivers Workforce
Investment Board
Pittsburgh, Pennsylvania

Gregory Spencer
President and Chief Executive Officer
Randall Industries
Pittsburgh, Pennsylvania

Doris Carson Williams
President and Chief Executive Officer
African American Chamber of
Commerce of Western Pennsylvania
Pittsburgh, Pennsylvania

WHEELING

Lisa Allen
President and Chief Executive Officer
Ziegenfelder Company
Wheeling, West Virginia

P. Michael Bizanovich
President
Technology Services Group, Inc.
Wheeling, West Virginia

John Clarke
Business Representative
IBEW Local #141
Wheeling, West Virginia

John L. Kalkreuth
President
Kalkreuth Roofing & Sheet Metal, Inc.
Wheeling, West Virginia

Robert Kubovicz
President
United Electric
Wheeling, West Virginia

Joel Mazur
President and Chief Executive Officer
Wheeling Corrugating Company
Wheeling, West Virginia

David H. McKinley
President and Managing Partner
McKinley Carter Wealth Services
Wheeling, West Virginia

Lee C. Paull IV
*Executive Vice President and
Associate Broker*
Paull Associates Insurance/Real Estate
Wheeling, West Virginia

Richard Riesbeck
President
Riesbeck Food Markets
St. Clairsville, Ohio

Jim Squibb
Chief Executive Officer
Beyond Marketing
Wheeling, West Virginia

Erikka Storch
Chief Financial Officer
Ohio Valley Steel Company
Wheeling, West Virginia

Ronald L. Violi
Managing Director
R & V Associates
Pittsburgh, Pennsylvania

Community Depository Institutions Advisory Council

As of December 31, 2012

The Community Depository Institutions Advisory Council is composed of representatives from commercial banks, thrift institutions, and credit unions in the Fourth Federal Reserve District.

Council members meet with the Bank president and senior officers at least twice yearly to provide information and insight from the perspective of community depository institutions. These meetings provide anecdotal information that is useful in the formulation of supervisory and monetary policy direction.

The chair of each District Bank's council also has the responsibility of reporting twice yearly to the Federal Reserve Board of Governors in Washington, DC.

Howard T. Boyle II

President and Chief Executive Officer
Hometown Bank
Kent, Ohio

Patrick Ferry

President
Members Heritage Federal Credit Union
Lexington, Kentucky

Paul M. Limbert

President and Chief Executive Officer
WesBanco Bank, Inc.
Wheeling, West Virginia

William C. Marsh

Chairman, President, and Chief Executive Officer
Farmers National Bank
Emlenton, Pennsylvania

James O. Miller

Chairman, President, and Chief Executive Officer
The Citizens Banking Company
Sandusky, Ohio

Robert Oeler

President and Chief Executive Officer
Dollar Bank
Pittsburgh, Pennsylvania

Gary Soukenik

President and Chief Executive Officer
Seven Seventeen Credit Union
Warren, Ohio

Eddie Steiner

President and Chief Executive Officer
CSB Bancorp, Inc.
Millersburg, Ohio

Bick Weissenrieder

Chairman and Chief Executive Officer
Hocking Valley Bank
Athens, Ohio

Charlotte Zuschlag

President and Chief Executive Officer
ESB Financial Corporation
Ellwood City, Pennsylvania

Officers and Consultants

As of December 31, 2012

Sandra Pianalto
President and Chief Executive Officer

Gregory L. Stefani
First Vice President and Chief Operating Officer

Mark S. Sniderman
Executive Vice President and Chief Policy Officer



William D. Fosnight
Senior Vice President and General Counsel

David W. Hollis
Senior Vice President

Stephen H. Jenkins
Senior Vice President

Mark S. Meder
Senior Vice President and General Auditor

Terrence J. Roth
Senior Vice President

Mark E. Schweitzer
Senior Vice President and Director of Research

Susan M. Steinbrick
Senior Vice President

Anthony Turcinov
Senior Vice President

Peggy A. Velimesis
Senior Vice President

Lisa M. Vidacs
Senior Vice President



Douglas A. Banks
Vice President

Kelly A. Banks
Vice President

John B. Carlson
Vice President

Todd E. Clark
Vice President

Iris E. Cumberbatch
Vice President and Public Information Officer

Cheryl L. Davis
Vice President and Corporate Secretary

Timothy Dunne
Vice President

Joseph G. Haubrich
Vice President

Suzanne M. Howe
Vice President

Paul E. Kaboth
Vice President and Community Affairs Officer

Susan M. Kenney
Vice President

Edward S. Knotek II
Vice President

Jerrold Newlon
Vice President

Stephen J. Ong
Vice President

Thomas S. Sohlberg
Vice President

James B. Thomson
Vice President

Henry P. Trolio
Vice President

Jeffrey R. Van Treese
Vice President

Nadine Wallman
Vice President

LaVaughn M. Henry
Vice President and Senior Regional Officer

Robert B. Schaub
Vice President and Senior Regional Officer



Maria A. Bowlin
Assistant Vice President

Tracy L. Conn
Assistant Vice President

Jeffrey G. Gacka
Assistant Vice President

Bryan S. Huddleston
Assistant Vice President

George E. Guentner
Assistant Vice President

Felix Harshman
Assistant Vice President

Matthew D. Hite
Assistant Vice President

Evelyn M. Magas
Assistant Vice President

Martha Maher
Assistant Vice President

Timothy M. Rachek
Assistant Vice President

Elizabeth J. Robinson
Assistant Vice President

Thomas E. Schaadt
Assistant Vice President

James P. Slivka
Assistant Vice President

Diana C. Starks
Assistant Vice President

Jason E. Tarnowski
Assistant Vice President

Michael Vangelos
Assistant Vice President

Carolyn M. Williams
Assistant Vice President



Dean A. Longo
Consultant

John P. Robins
Consultant

Financial Statements

Auditor Independence

The Board of Governors engaged Deloitte & Touche LLP (D&T) to audit the 2012 combined and individual financial statements of the Reserve Banks and those of the consolidated LLC entities.¹ In 2012, D&T also conducted audits of internal controls over financial reporting for each of the Reserve Banks, Maiden Lane LLC, Maiden Lane III LLC, and TALF LLC. Fees for D&T's services totaled \$7 million, of which \$1 million was for the audits of the consolidated LLC entities. To ensure auditor independence, the Board requires that D&T be independent in all matters relating to the audits. Specifically, D&T may not perform services for the Reserve Banks or others that would place it in a position of auditing its own work, making management decisions on behalf of the Reserve Banks, or in any other way impairing its audit independence. In 2012, the Bank did not engage D&T for any non-audit services.

¹ In addition, D&T audited the Office of Employee Benefits of the Federal Reserve System (OEB), the Retirement Plan for Employees of the Federal Reserve System (System Plan), and the Thrift Plan for Employees of the Federal Reserve System (Thrift Plan). The System Plan and the Thrift Plan provide retirement benefits to employees of the Board, the Federal Reserve Banks, and the OEB.

FEDERAL RESERVE BANK *of* CLEVELAND

Cleveland, Ohio 44101
216.579.2000

Management's Report on Internal Control Over Financial Reporting

March 14, 2013

To the Board of Directors of the Federal Reserve Bank of Cleveland:

The management of the Federal Reserve Bank of Cleveland (Bank) is responsible for the preparation and fair presentation of the Statements of Condition as of December 31, 2012 and 2011, and the Statements of Income and Comprehensive Income, and Statements of Changes in Capital for the years then ended (the financial statements). The financial statements have been prepared in conformity with the accounting principles, policies, and practices established by the Board of Governors of the Federal Reserve System as set forth in the *Financial Accounting Manual for Federal Reserve Banks* (FAM), and, as such, include some amounts that are based on management judgments and estimates. To our knowledge, the financial statements are, in all material respects, fairly presented in conformity with the accounting principles, policies and practices documented in the FAM and include all disclosures necessary for such fair presentation.

The management of the Bank is responsible for establishing and maintaining effective internal control over financial reporting as it relates to the financial statements. The Bank's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with the FAM. The Bank's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Bank's assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with FAM, and that the Bank's receipts and expenditures are being made only in accordance with authorizations of its management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Bank's assets that could have a material effect on its financial statements.

Even effective internal control, no matter how well designed, has inherent limitations, including the possibility of human error, and therefore can provide only reasonable assurance with respect to the preparation of reliable financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

The management of the Bank assessed its internal control over financial reporting based upon the criteria established in the *"Internal Control – Integrated Framework"* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, we believe that the Bank maintained effective internal control over financial reporting.

Federal Reserve Bank of Cleveland



Sandra Pianalto
President &
Chief Executive Officer



Gregory L. Stefani
First Vice President &
Chief Operating Officer



Susan M. Steinbrink
Senior Vice President &
Chief Financial Officer

INDEPENDENT AUDITORS' REPORT

To the Board of Governors of the Federal Reserve System
and the Board of Directors of the Federal Reserve Bank of Cleveland:

We have audited the accompanying financial statements of the Federal Reserve Bank of Cleveland ("FRB Cleveland"), which are comprised of the statements of condition as of December 31, 2012 and 2011, and the related statements of income and comprehensive income, and of changes in capital for the years then ended, and the related notes to the financial statements. We also have audited the FRB Cleveland's internal control over financial reporting as of December 31, 2012, based on criteria established in *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Management's Responsibility

The FRB Cleveland's management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles established by the Board of Governors of the Federal Reserve System (the "Board") as described in Note 3 to the financial statements. The Board has determined that this basis of accounting is an acceptable basis for the preparation of the FRB Cleveland's financial statements in the circumstances. The FRB Cleveland's management is also responsible for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error. The FRB Cleveland's management is also responsible for its assertion of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements and an opinion on the FRB Cleveland's internal control over financial reporting based on our audits. We conducted our audits of the financial statements in accordance with auditing standards generally accepted in the United States of America and in accordance with the auditing standards of the Public Company Accounting Oversight Board (United States) ("PCAOB") and we conducted our audit of internal control over financial reporting in accordance with attestation standards established by the American Institute of Certified Public Accountants and in accordance with the auditing standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement and whether effective internal control over financial reporting was maintained in all material respects.

An audit of the financial statements involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the FRB Cleveland's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances. An audit of the financial statements also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements. An audit of internal control over financial reporting involves obtaining an understanding

of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Definition of Internal Control Over Financial Reporting

The FRB Cleveland's internal control over financial reporting is a process designed by, or under the supervision of, the FRB Cleveland's principal executive and principal financial officers, or persons performing similar functions, and effected by the FRB Cleveland's board of directors, management, and other personnel to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with the accounting principles established by the Board. The FRB Cleveland's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the FRB Cleveland; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with the accounting principles established by the Board, and that receipts and expenditures of the FRB Cleveland are being made only in accordance with authorizations of management and directors of the FRB Cleveland; and (3) provide reasonable assurance regarding prevention or timely detection and correction of unauthorized acquisition, use, or disposition of the FRB Cleveland's assets that could have a material effect on the financial statements.

Inherent Limitations of Internal Control Over Financial Reporting

Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, material misstatements due to error or fraud may not be prevented or detected and corrected on a timely basis. Also, projections of any evaluation of the effectiveness of the internal control over financial reporting to future periods are subject to the risk that the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the FRB Cleveland as of December 31, 2012 and 2011, and the results of its operations for the years then ended in accordance with the basis of accounting described in Note 3 to the financial statements. Also, in our opinion, the FRB Cleveland maintained, in all material respects, effective internal control over financial reporting as of December 31, 2012, based on the criteria established in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis of Accounting

We draw attention to Note 3 to the financial statements, which describes the basis of accounting. The FRB Cleveland has prepared these financial statements in conformity with accounting principles established by the Board, as set forth in the *Financial Accounting Manual for Federal Reserve Banks*, which is a basis of accounting other than accounting principles generally accepted in the United States of America. The effects on such financial statements of the differences between the accounting principles established by the Board and accounting principles generally accepted in the United States of America are also described in Note 3 to the financial statements. Our opinion is not modified with respect to this matter.



March 14, 2013

STATEMENTS OF CONDITION

As of December 31, 2012 and December 31, 2011 (in millions)

| | 2012 | 2011 |
|--|------------------|------------------|
| ASSETS | | |
| Gold certificates | \$ 515 | \$ 450 |
| Special drawing rights certificates | 237 | 237 |
| Coin | 145 | 173 |
| System Open Market Account: | | |
| Treasury securities, net (of which \$232 and \$408 is lent as of December 31, 2012 and 2011, respectively) | 45,997 | 47,279 |
| Government-sponsored enterprise debt securities, net (of which \$18 and \$34 is lent as of December 31, 2012 and 2011, respectively) | 2,021 | 2,913 |
| Federal agency and government-sponsored enterprise mortgage-backed securities, net | 24,161 | 22,913 |
| Foreign currency denominated assets, net | 1,846 | 1,925 |
| Central bank liquidity swaps | 657 | 7,405 |
| Other investments | 1 | — |
| Accrued interest receivable | 482 | 534 |
| Bank premises and equipment, net | 128 | 137 |
| Items in process of collection | 8 | 59 |
| Interdistrict settlement account | 3,671 | — |
| Other assets | 33 | 28 |
| Total assets | <u>\$ 79,902</u> | <u>\$ 84,053</u> |
| LIABILITIES AND CAPITAL | | |
| Federal Reserve notes outstanding, net | \$ 52,504 | \$ 45,046 |
| System Open Market Account: | | |
| Securities sold under agreements to repurchase | 2,725 | 2,698 |
| Other liabilities | 81 | 37 |
| Deposits: | | |
| Depository institutions | 20,154 | 26,962 |
| Other deposits | 3 | 3 |
| Interest payable to depository institutions | 2 | 3 |
| Accrued benefit costs | 133 | 121 |
| Deferred credit items | 3 | 142 |
| Accrued interest on Federal Reserve notes | 17 | 82 |
| Interdistrict settlement account | — | 4,966 |
| Other liabilities | 12 | 15 |
| Total liabilities | <u>75,634</u> | <u>80,075</u> |
| Capital paid-in | 2,134 | 1,989 |
| Surplus (including accumulated other comprehensive loss of \$20 and \$11 at December 31, 2012 and 2011, respectively) | 2,134 | 1,989 |
| Total capital | <u>4,268</u> | <u>3,978</u> |
| Total liabilities and capital | <u>\$ 79,902</u> | <u>\$ 84,053</u> |

The accompanying notes are an integral part of these financial statements.*

STATEMENTS OF INCOME AND COMPREHENSIVE INCOME

For the years ended December 31, 2012 and December 31, 2011 (in millions)

| | 2012 | 2011 |
|--|----------|----------|
| INTEREST INCOME | | |
| System Open Market Account: | | |
| Treasury securities, net | \$ 1,201 | \$ 1,213 |
| Government-sponsored enterprise debt securities, net | 68 | 89 |
| Federal agency and government-sponsored enterprise mortgage-backed securities, net | 815 | 1,115 |
| Foreign currency denominated assets, net | 10 | 18 |
| Central bank liquidity swaps | 18 | 3 |
| Total interest income | 2,112 | 2,438 |
| INTEREST EXPENSE | | |
| System Open Market Account: | | |
| Securities sold under agreements to repurchase | 4 | 1 |
| Deposits: | | |
| Depository institutions | 44 | 55 |
| Total interest expense | 48 | 56 |
| Net interest income | 2,064 | 2,382 |
| NON-INTEREST INCOME | | |
| System Open Market Account: | | |
| Treasury securities gains, net | 342 | 61 |
| Federal agency and government-sponsored enterprise mortgage-backed securities gains, net | 6 | — |
| Foreign currency translation (losses) gains, net | (82) | 11 |
| Compensation received for service costs provided | 15 | 25 |
| Reimbursable services to government agencies | 25 | 52 |
| Other | 4 | 4 |
| Total non-interest income | 310 | 153 |
| OPERATING EXPENSES | | |
| Salaries and benefits | 111 | 142 |
| Occupancy | 14 | 16 |
| Equipment | 6 | 7 |
| Assessments: | | |
| Board of Governors operating expenses and currency costs | 77 | 70 |
| Bureau of Consumer Financial Protection | 30 | 18 |
| Office of Financial Research | — | 3 |
| Other | 25 | 33 |
| Total operating expenses | 263 | 289 |
| Net income before interest on Federal Reserve notes expense remitted to Treasury | 2,111 | 2,246 |
| Interest on Federal Reserve notes expense remitted to Treasury | 1,831 | 2,132 |
| Net income | 280 | 114 |
| Change in prior service costs related to benefit plans | (4) | 19 |
| Change in actuarial (losses) gains related to benefit plans | (5) | 7 |
| Total other comprehensive (loss) income | (9) | 26 |
| Comprehensive income | \$ 271 | \$ 140 |

The accompanying notes are an integral part of these financial statements.*

STATEMENTS OF CHANGES IN CAPITAL

For the years ended December 31, 2012 and December 31, 2011 (in millions, except share data)

| | Surplus | | | | |
|--|-----------------|---------------------|--------------------------------------|---------------|---------------|
| | Capital paid-in | Net income retained | Accumulated other comprehensive loss | Total surplus | Total capital |
| Balance at December 31, 2010 (39,350,384 shares) | \$ 1,967 | \$ 2,004 | \$ (37) | \$ 1,967 | \$ 3,934 |
| Net change in capital stock issued (422,697 shares) | 22 | — | — | — | 22 |
| Comprehensive income: | | | | | |
| Net income | — | 114 | — | 114 | 114 |
| Other comprehensive income | — | — | 26 | 26 | 26 |
| Dividends on capital stock | — | (118) | — | (118) | (118) |
| Net change in capital | 22 | (4) | 26 | 22 | 44 |
| Balance at December 31, 2011 (39,773,081 shares) | \$ 1,989 | \$ 2,000 | \$ (11) | \$ 1,989 | \$ 3,978 |
| Net change in capital stock issued (2,911,715 shares) | 145 | — | — | — | 145 |
| Comprehensive income: | | | | | |
| Net income | — | 280 | — | 280 | 280 |
| Other comprehensive loss | — | — | (9) | (9) | (9) |
| Dividends on capital stock | — | (126) | — | (126) | (126) |
| Net change in capital | 145 | 154 | (9) | 145 | 290 |
| Balance at December 31, 2012 (42,684,796 shares) | \$ 2,134 | \$ 2,154 | \$ (20) | \$ 2,134 | \$ 4,268 |

The accompanying notes are an integral part of these financial statements.*

* Read the accompanying notes on our website at www.clevelandfed.org/annualreport.