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# The Dodd-Frank Wall Street Reform and Consumer Protection Act: Accomplishments and Limitations\*

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**R**ecently, Friedrich Hayek's classic *The Road to Serfdom*, a warning against the dangers of excessive state control, was the number one best seller on Amazon. At the same time, the foundation of much modern economics and capitalism—Adam Smith's *The Wealth of Nations*—languished around a rank of 10,000. It is a telling reflection of the uncertain times we are in that precisely when confidence in free markets is at its all-time low, skepticism about the ability of governments and regulation to do any better is at its peak. So it is no trivial task for the United States Congress and the Obama administration to enact the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 and convince a skeptical public that financial stability will be restored in the near future.

The Act is widely described as the most ambitious and far-reaching overhaul of financial regulation since the 1930s. Together with other regulatory reforms introduced by the Securities and Exchange Commission (SEC), the Federal Reserve (the Fed), and other regulators in the United States and Europe, it is going to alter the structure of financial markets in profound ways. In this Prologue, we provide our overall assessment of the Act in three different ways: from first principles in terms of how economic theory suggests we should regulate the financial sector; in a comparative manner, relating the proposed reforms to those that were undertaken in the 1930s following the Great Depression; and, finally, how the proposed reforms would have fared in preventing and dealing with the crisis of 2007 to 2009 had they been in place at the time.

## The Backdrop for the Dodd-Frank Act of 2010

The backdrop for the Act is now well understood but worth an encore.

When a large part of the financial sector is funded with fragile, short-term debt and is hit by a common shock to its long-term assets, there can be *en masse* failures of financial firms and disruption of intermediation to households and corporations. Having witnessed such financial panics from the 1850s until the Great Depression, Senator Carter Glass and Congressman Henry Steagall pushed through the so-called

Glass-Steagall provisions of the Banking Act of 1933. They put in place the Federal Deposit Insurance Corporation (FDIC) to prevent retail bank runs and to provide an orderly resolution of troubled depository institutions—banks—before they failed. To guard against the risk that banks might speculate at the expense of the FDIC, they restricted depository banks' permissible activities to commercial lending and trading in government bonds and general-obligation municipals, requiring riskier capital markets activities to be spun off into investment banks.

At the time it was legislated, and for several decades thereafter, the Banking Act of 1933 reflected in some measure a sound economic approach to regulation in case of market failure:

- *Identify the market failure* or, in other words, why the collective outcome of individual economic agents and institutions does not lead to socially efficient outcomes, which in this case reflected the financial fragility induced by depositor runs.

- *Address the market failure through a government intervention*, in this case by insuring retail depositors against losses.

- *Recognize and contain the direct costs of intervention, as well as the indirect costs due to moral hazard arising from the intervention*, by charging banks up-front premiums for deposit insurance, restricting them from riskier and more cyclical investment banking activities, and, through subsequent enhancements, requiring that troubled banks face a "prompt corrective action" that would bring about their orderly resolution at an early stage of their distress.

Over time, however, the banking industry nibbled at the perimeter of this regulatory design, the net effect of which (as we explain in some detail later) was to keep the government guarantees in place but largely do away with any defense the system had against banks' exploiting the guarantees to undertake excessive risks. What was perhaps an even more ominous development was that the light-touch era of regulation of the financial sector starting in the 1970s allowed a parallel (shadow) banking system to evolve. In hindsight, while at least some of this could be judged as inevitable innovation in financial technology, it is hard to dispute the claim—made, for

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instance, by Paul Volcker, the former chairman of the Federal Reserve—that much evolution of the parallel banking system was designed precisely to circumvent existing regulations.

The parallel banking system consisted of the following: money market funds collecting uninsured short-term deposits and funding financial firms, effectively reintroducing the fragile maturity mismatch of traditional banking that the Banking Act had attempted to fix; investment banks performing many functions of commercial banks and vice versa; and a range of derivatives and securitization markets providing tremendous liquidity for hitherto illiquid loans but operating unregulated (or at least weakly regulated) in the shadow of regulated banks. The result was a parallel banking sector that was both opaque and highly leveraged. The fact that much of this innovation took place outside of the banking system rendered ineffective other regulatory institutions, like the SEC, that had been introduced in 1930s to address information asymmetries in intermediation.

In many ways, the parallel banking system reflected *regulatory arbitrage*, the opportunity for and propensity of the financial sector to adopt organizational forms and financial innovations that would circumvent the regulatory apparatus designed to contain bank risk-taking. Ignoring this regulatory arbitrage—or at least leaving it unchecked—was possible, in part, for several reasons: regulatory naivete' in the face of the ingenuity of the financial sector, the ideology of the times, and a cognitive failure by everyone to appreciate fully the unintended consequences of existing regulation and to develop the tools to deal with them.

As a result, the Banking Act began to be largely compromised. In four decades since its birth, the parallel banking system grew to over \$10 trillion of intermediation in the U.S. economy and reached a scale similar to the deposit-based commercial banking system. Traditional banks gradually morphed into large, complex financial institutions (LCFIs). The increasing size and connectedness of traditional and shadow banks rendered many of them too big to fail or too systemic or interconnected to fail—or rather, to be *allowed* to fail. Deposit insurance, which was explicit, rule-based, and bundled with mechanisms to contain risk-taking, was replaced by the effective insurance of the uninsured wholesale deposits of LCFIs—in other words, by anticipation of government intervention that was implicit, discretionary, and divorced from moral hazard concerns.

For sure, there were efforts to contain these financial behemoths. The increasingly global nature of the LCFIs and the threat that competition among countries to attract banking flows might produce a regulatory race to the bottom led, in late 1980s, to the setting of prudential capital standards. These were the Basel I requirements that provided a framework to assess the risk of banking assets and ensure they were not funded with too much leverage. But shadow banking allowed the behemoths easily to bypass these attempts at

global containment, which suffered the same fate as their predecessor, the Banking Act, in much shorter time. The coarse buckets of Basel I risk categories were easily gamed at the edges. The requirements were found to be, at best, catching up with the fast-paced evolution of banking activities, rather than being ahead of the game; in the end, they turned out to be woefully inadequate. Perhaps their greatest folly was—and is—that, unlike the Banking Act that had identified a clear market failure and addressed it, the Basel I regulations were narrowly focused on the individual risk of institutions rather than on their collective risk, a focus that would ensure financial stability of the system only if the institutions were, somewhat miraculously, all identical.

Now let's fast-forward to 2004, which many argue was the year when a perfect storm began to develop that would eventually snare the global economy. Global banks were seeking out massive capital flows into the United States and the United Kingdom by engaging in short-term borrowing, increasingly through uninsured deposits and interbank liabilities, financed at historically low interest rates. They began to manufacture huge quantities of *tail risk*—that is, events of small likelihood but with catastrophic outcomes. A leading example was the so-called safe assets (such as the relatively senior—AAA-rated—tranches of subprime-backed mortgages) that would fail only if there was a secular collapse in the housing markets. When LCFIs showed their willingness to pick up loans from originating mortgage lenders and pass them around or hold them on their own books after repackaging them, a credit boom was fueled in these economies. The government push for universal home ownership in the United States made subprime mortgages a particularly attractive asset class for manufacturing such tail risk. Given their focus on the individual institution's risk, prudential standards ignored the risk created by an entire financial system's manufacturing of such tail risk, and they even encouraged—through lower-risk weights—the manufacturing of AAA-rated mortgage-backed tranches.

The net result of all this was that the global banking balance sheet grew twofold from 2004 to 2007, but its risk appeared small, as documented in the Global Financial Stability Report of the International Monetary Fund (IMF) in April 2008. The LCFIs had, in effect, taken a highly undercapitalized one-way bet on the housing market, joined in equal measure by the U.S. government's own shadow banks—Fannie Mae and Freddie Mac. While these institutions seemed individually safe, collectively they were vulnerable. And when the housing market crashed in 2007, the tail risk materialized, and the LCFIs crashed, too, like a house of cards. The first big banks to fail were in the shadow banking world. They were put on oxygen in the form of Federal Reserve assistance, but the strains in the interbank markets and the inherently poor quality of the underlying housing bets even in commercial bank portfolios meant that, when the oxygen ran out in the fall of 2008, some banks had to fail. A panic ensued interna-

tionally, making it clear that the entire global banking system was imperiled and needed—and markets expected it to be given—a taxpayer-funded lifeline.

In the aftermath of this disaster, governments and regulators began to cast about for ways to prevent—or limit the likelihood of—its recurrence. It was no surprise to discover that the regulatory framework needed rethinking; that had begun before the full onset of the crisis at the behest of United States Treasury Secretary Henry Paulson. The crisis created focus and led first to a bill from the House of Representatives, then one from the Senate, which were combined and distilled into the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. The critical task for the Dodd-Frank Act is to address this increasing propensity of the financial sector to put the entire system at risk and eventually to be bailed out at taxpayer expense.

Does the Dodd-Frank Act do the job? Before answering that, here are the Act's highlights:

- *Identifying and regulating systemic risk.* Sets up a Systemic Risk Council that can deem nonbank financial firms as systemically important, regulate them, and, as a last resort, break them up; also establishes an office under the U.S. Treasury to collect, analyze, and disseminate relevant information for anticipating future crises.

- *Proposing an end to too-big-to-fail.* Requires funeral plans and orderly liquidation procedures for unwinding of systemically important institutions, ruling out taxpayer funding of wind-downs and instead requiring that management of failing institutions be dismissed, wind-down costs be borne by shareholders and creditors, and if required, *ex post* levies be imposed on other (surviving) large financial firms.

- *Expanding the responsibility and authority of the Federal Reserve.* Grants the Fed authority over all systemic institutions and responsibility for preserving financial stability.

- *Restricting discretionary regulatory interventions.* Prevents or limits emergency federal assistance to individual institutions.

- *Reinstating a limited form of Glass-Steagall (the Volcker Rule).* Limits bank holding companies to *de minimis* investments in proprietary trading activities, such as hedge funds and private equity, and prohibits them from bailing out these investments.

- *Regulation and transparency of derivatives.* Provides for central clearing of standardized derivatives, regulation of complex ones that can remain traded over the counter (that is, outside of central clearing platforms), transparency of all derivatives, and separation of non-vanilla positions into well-capitalized subsidiaries, all with exceptions for derivatives used for commercial hedging.

In addition, the Act introduces a range of reforms for mortgage lending practices, hedge fund disclosure, conflict resolution at rating agencies, requirement for securitizing institutions to retain sufficient interest in underlying assets,

risk controls for money market funds, and shareholder say on pay and governance. And perhaps its most popular reform, albeit secondary to the financial crisis, is the creation of a Bureau of Consumer Financial Protection (BCFP) that will write rules governing consumer financial services and products offered by banks and nonbanks.

### Assessing the Dodd-Frank Act Using the Economic Theory of Regulation

Evaluating the Act in terms of the economic theory of regulation requires that we assess how well it addresses the market failures that led to the financial collapse of 2007 to 2009. First, does it address the relevant externalities? When an economic transaction imposes costs (or benefits) on individuals who are not party to the transaction, we call this an “externality” (also referred to as “spillovers” or “neighborhood effects”). In the instance of the financial crisis, the externality was the enormous build-up of systemic risk in the financial system, specifically the risk that a large number of financial firms funded with short-term debt would fail all at once if there was a correction in the housing market.

The full costs of an externality are not borne by parties in the transaction unless there are markets to appropriately price the externality. Typically, the markets for externalities are missing (think of carbon emissions, for example) and so, too, is the invisible hand operating through prices to produce externalities at the efficient level. Economists' preferred solution to this kind of market failure is generally to employ what are called “Pigouvian taxes,” named after Arthur Cecil Pigou, a British economist who was a contemporary of John Maynard Keynes. Such taxes are usually the least invasive way to remedy a market failure, because they do not require heavy-handed government intervention into the specific decisions made by households and firms. In the context of the financial crisis, these would take the form of taxes on financial firms that rise with their systemic risk contributions. They would also raise revenue that the government can use to reduce other taxes or improve the infrastructure of financial markets or cover the costs of sorting out systemic failures. Unfortunately, these taxes are often not politically palatable, as the debate over the Dodd-Frank Act has made clear. Nevertheless, we argue throughout this book that such solutions are preferred, and we describe in detail how systemic risk could be measured and taxed.

Economic theory also explains why there are missing markets due to asymmetric information between parties to transactions and the limited ability to make binding commitments, which have been analyzed in great detail in the context of insurance markets. These market failures do not always have clean solutions, and much of modern regulation involves designing contractual or other arrangements to overcome them with minimal cost to economic efficiency. However, transaction costs preclude overcoming



these failures completely, and we are always living in the world of second-best. As a result, the design of government intervention—say, through a Pigouvian tax on systemic risk contributions of firms—must prove workable despite any unintended consequences.

Viewed using this lens of economic theory of regulation, does the Dodd-Frank Act address the relevant market failures while guarding well against the Act's unintended consequences?

The first reaction to the Act—which evolved from the House bill in late 2009, then the Senate bill, and then their “conference”—is that it certainly has its heart in the right place. It is highly encouraging that the purpose of the new financial sector regulation is explicitly aimed at developing tools to deal with systemically important institutions. And it strives to give prudential regulators the authority and the tools to deal with this risk. Requirement of funeral plans to unwind large, complex financial institutions should help demystify their organizational structure—and the attendant resolution challenges when they experience distress or fail. If the requirement is enforced well, it could serve as a tax on complexity, which seems to be another market failure in that private gains from it far exceed the social ones.

In the same vein, even though the final language in the Act is a highly diluted version of the original proposal, the Volcker Rule limiting proprietary trading investments of LCFIs provides a more direct restriction on complexity and should help simplify their resolution. The Volcker Rule also addresses the moral hazard arising from direct guarantees to commercial banks that are largely designed to safeguard payment and settlement systems and to ensure robust lending to households and corporations. Through the bank holding company structure, these guarantees effectively lower the costs for more cyclical and riskier functions such as making proprietary investments and running hedge funds or private equity funds. However, there are thriving markets for performing these functions, and commercial banking presence is not critical.

Equally welcome is the highly comprehensive overhaul of derivatives markets aimed at removing the veil of opacity that has led markets to seize up when a large derivatives dealer experiences problems (Bear Stearns, for example). Centralized clearing of derivatives and the push for greater transparency of prices, volumes, and exposures—to regulators and in aggregated form to the public—should enable markets to deal better with counterparty risk, in terms of pricing it into bilateral contracts, as well as understanding its likely impact. The Act also pushes for greater transparency by making systemic nonbank firms subject to tighter scrutiny by the Fed and the SEC.

However, when viewing it in its full glory, some experts have dismissed the over 2,300-page script of the Dodd-Frank Act out of hand. The Act requires over 225 new financial

rules across 11 federal agencies. The attempt at regulatory consolidation has been minimal and the very regulators who dropped the ball in the current crisis have garnered more, not less, authority. But, given that the massive regulatory failure of the financial crisis needs to be fixed, what options do we have? Given a choice between Congress and the admittedly imperfect regulatory bodies designing the procedures for implementing financial reform, it would not seem to be a difficult decision. The financial sector will have to live with the great deal of uncertainty that is left unresolved until the various regulators—the Fed, the SEC, and the Commodity Futures Trading Commission (CFTC)—spell out the details of implementation.

That said, from the standpoint of providing a sound and robust regulatory structure, the Act falls flat on at least four important counts:

1. The Act does not deal with the mispricing of pervasive government guarantees throughout the financial sector. This will allow many financial firms to finance their activities at below-market rates and take on excessive risk.

2. Systemically important firms will be made to bear their own losses but not the costs they impose on others in the system. To this extent, the Act falters in addressing directly the primary source of market failure in the financial sector, which is systemic risk.

3. In several parts, the Act regulates a financial firm by its form (bank) rather than function (banking). This feature will prevent the Act from dealing well with the new organizational forms likely to emerge in the financial sector—to meet the changing needs of global capital markets, as well as to respond to the Act's provisions.

4. The Act makes important omissions in reforming and regulating parts of the shadow banking system that are systemically important. It also fails to recognize that there are systemically important markets—collections of individual contracts and institutions—that also need orderly resolution when they experience freezes.

The net effect of these four basic faults is that implicit government guarantees to the financial sector will persist in some pockets and escalate in some others; capital allocation may migrate in time to these pockets and newer ones that will develop in the future in the shadow banking world and, potentially, sow seeds of the next significant crisis. Implementation of the Act and future regulation should guard against this danger.

### **Government Guarantees Remain Mispriced in the Financial System, Leading to Moral Hazard**

In 1999 economists John Walter and John Weinberg of the Federal Reserve Bank of Richmond performed a study of how large the financial safety net was for U.S. financial institutions. Using fairly conservative criteria, they reported that 45% of all liabilities (\$8.4 trillion) received some form of guarantee.

A decade later, the study was updated by Nadezhda Malyshева and John Walter with staggering results—now, 58% of all liabilities (\$25 trillion) are under a safety net. Without appropriate pricing, government guarantees are highly distortionary: They lead to subsidized financing of financial firms, moral hazard, and the loss of market discipline, which in turn generate excessive risk-taking. Examples include FDIC insurance provided for depository institutions, implicit backing of the government-sponsored enterprises (GSEs)—Fannie Mae and Freddie Mac—and the much discussed too-big-to-fail mantra of LCFIs. The financial crisis of 2007 to 2009 exposed the depth of the problem with the failure of numerous banks and the need to replenish FDIC funds, the now virtually explicit guarantee of GSE debt, and the extensive bailouts of LCFIs.

The Dodd-Frank Act makes little headway on the issue of government guarantees. While admittedly such guarantees have been a problem for many years, the Act nonetheless makes little attempt to readdress the pricing of deposit insurance, which until now has effectively returned insurance premiums to banks in good times. And while the GSEs are the most glaring examples of systemically important financial firms whose risk choices went awry given their access to guaranteed debt, the Act makes no attempt to reform them. The distortion here is especially perverse, given the convenience of having the GSEs around to pursue political objectives of boosting subprime home ownership and using them as so-called “bad banks” to avoid another titanic collapse of housing markets. Finally, there are several large insurance firms in the United States that can—and have in the past—build leverage through minimum guarantees in standard insurance contracts. Were these to fail, there is little provision in the Act to deal adequately with their policyholders: There are currently only the tiny state guarantee funds, which would never suffice for resolving the obligations of the large insurance firms. Under the Act, there would be no *ex ante* systemic risk charges on these firms, but it is highly unlikely that their policyholders will be allowed to be wiped out or that the large banks will be made to pay for these policies (as the Act proposes)! Taxpayer bailout of these policies is the more likely outcome. These institutions remain too big to fail and could be the centers of the next excess and crisis.

Of course, proponents of the Act would argue that at least the issue of being too big to fail has been dealt with once and for all through the creation of an orderly liquidation authority (OLA). But when one peels back the onion of the OLA, it is much less clear. Choosing an FDIC-based receivership model to unwind such large and complex firms creates much greater uncertainty than would a restructured bankruptcy code for LCFIs or the forced debt-to-equity conversions inherent in so-called living wills. Time will tell whether the OLA is considered credible enough to impose losses on creditors of too-big-to-fail firms (FDIC-insured depositors aside),

but market prices of LCFI debt will be able to provide an immediate answer through a comparison of yield spreads with not-too-big-to-fail firms.

### **The Act Does Not Sufficiently Discourage Individual Firms from Putting the System at Risk**

Since the failure of systemically important firms imposes costs beyond their own losses—to other financial firms, households, the real sector, and potentially, other countries—it is not sufficient to simply wipe out their stakeholders: management, shareholders, and creditors. These firms must pay in advance for contributing to the risk of the system. Not only does the Act rule this out, it makes the problem worse by requiring that other large financial firms pay for the costs, precisely at a time when they are likely to be facing the risk of contagion from failing firms. This is simply poor economic design for addressing the problem of externalities.

It is somewhat surprising that the Act has shied away from adopting an *ex ante* charge for systemic risk contributions of LCFIs. And, in fact, it has most likely compromised its ability to deal with their failures. It is highly incredible that in the midst of a significant crisis, there will be the political will to levy a discretionary charge on the surviving financial firms to recoup losses inflicted by failed firms: It would in fact be better to reward the surviving firms from the standpoint of *ex ante* incentives and relax their financing constraints *ex post* to boost the flagging economic output in that scenario. Under the proposed scheme, therefore, the likely outcomes are that the financial sector will most likely *not* pay for its systemic risk contributions—as happened in the aftermath of this crisis—and that to avoid any likelihood that they have to pay for others’ mistakes and excesses, financial firms will herd by correlating their lending and investment choices. Both of these would increase, not decrease, systemic risk and financial fragility.

Equally problematic, the argument can be made that the Act has actually increased systemic risk in a financial crisis. While it is certainly true that the Financial Stability Oversight Council of regulators has more authority to address a systemic crisis as it emerges, there is the implicit assumption that the Council will have the wherewithal to proceed. Given the historical experience of regulatory failures, however, this seems like a tall order. In contrast, the Act reduces the ability of the Federal Reserve to provide liquidity to nondepository institutions, and, as just mentioned, does not prearrange funding for solvent financial institutions hit by a significant event. The Council will be so restricted that its only choice in a liquidity crisis may be to put the systemically important firm through the OLA process, which, given the uncertainty about this process, could initiate a full-blown systemic crisis. Much greater clarity on exact procedures underlying the OLA would be necessary to avoid such an outcome.

## The Act Falls into the Familiar Trap of Regulating by Form Rather Than Function

The most salient example of this trap is the Act's overall focus on bank holding companies, after clarifying that nonbanks may get classified as systemically important institutions, too, and be regulated accordingly. As we just explained, the Act allows for provision of federal assistance to bank holding companies under certain conditions, but restricts such assistance to other systemically important firms—in particular, large swap dealers. This will create a push for the acquisition of small depositories just as nonbanks anticipate trouble, undermining the intent of restriction. There are also important concentrations of systemic risk that will develop, for instance, as centralized clearing of derivatives starts being implemented. And when their systemic risk materializes, employing the Fed's lender-of-last-resort function may be necessary, even if temporarily so, to ensure orderly resolution.

Consider a central clearinghouse of swaps (likely credit default swaps to start with, but eventually several other swaps, including interest rate swaps). As Mark Twain would put it, it makes sense to “put all one's eggs in a basket” and then “watch that basket.” The Act allows for prudential standards to watch such a basket. But if the basket were on the verge of a precipitous fall, an emergency reaction would be needed to save the eggs—in this case, the counterparties of the clearinghouse. The restriction on emergency liquidity assistance from the Fed when a clearinghouse is in trouble could prove disastrous, as an orderly liquidation may take several weeks, if not months. The most natural response in such cases is to provide temporary federal assistance, eventual pass-through of the realized liquidation losses to participants in the clearinghouse, and its private recapitalization through capital contributions from participants. Why force intermediate liquidity assistance to go through a vote of the Council (and perhaps the Congress) to make an exception to the Act and have the markets deal with uncertainty around such regulatory discretion?

## Regulatory Arbitrage Is Not Adequately Addressed, Keeping Large Parts of the Shadow Banking Sector Remain in their Current Form

The story of the financial crisis of 2007 to 2009 was that financial institutions exploited loopholes in capital requirements and regulatory oversight to perform risky activities that were otherwise meant to be well capitalized and closely monitored. Examples are numerous: (1) financial firms' choosing unqualified regulatory agencies to oversee them; (2) the loading up of so-called AAA-rated securities in a regulatory setting ripe for conflicts of interests between rating agencies, security issuers, and investors; and (3) the development of a parallel banking sector that used wholesale funding and over-the-counter (OTC) derivatives to conduct activities identical to those of commercial banks without being subject to bank rules and regulations.

To be fair, the Dodd-Frank Act does not ignore all of this in its financial reform. For example, it makes major steps forward to deal with the regulatory reliance and conflict-of-interest problem with rating agencies, OTC derivatives are brought back into the fold, and leverage-enhancing tricks like off-balance-sheet financing are recognized as a major issue. But the basic principle that similar financial activities or, for that matter, economically equivalent securities should be subject to the same regulatory rules is not core to the Act.

For example, several markets—such as the sale and repurchase agreements (repos)—that now constitute several trillion dollars of intermediation flows have been shown to be systemically important. In what sense do these markets perform different functions than demand deposits, and why aren't they regulated as such? Moreover, these markets can experience a freeze if a few financial firms are perceived to be risky but their exact identity is unknown. Orderly resolution of a freeze and prevention of fire-sale asset liquidations in these markets remain unplanned. And ditto for dealing with runs on money market funds whose redemption risk following the collapse of Lehman brought finance to a standstill.

## Learning from the Lessons of the 1930s

Next, we assess the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 in a comparative sense, using the lessons we can learn from the history. Like the regulatory reforms of the 1930s, the Dodd-Frank Act was born of a severe financial crisis that immediately preceded it in 2007 to 2009 and the Great Recession that it set off. The issues the Act covers were informed by many of the perceived failures of our financial architecture in the crisis. The Act is already being denounced by some for not going far enough to curb the risky behavior of financial institutions, and denounced by others for going too far and hampering innovation and efficiency in financial markets. We provide a somewhat more balanced and sober assessment of the likely success of the new regulatory architecture proposed by the Act, using history as benchmark.

Financial crises are recurring phenomena, just like the business cycle. The U.S. economic history of the pre-1934 era was one of repeated crises that brought the financial system to a halt and often led to sharp economic contractions. The most dramatic, of course, was the banking crisis that began in the 1920s and 1930s and led to the sharp and prolonged contraction of the Great Depression. And it was that crisis that inspired the great expansion of financial regulation and the creation of many of the central regulatory institutions—the FDIC and the SEC—that we rely on to this day.

Prior to the 1930s, there was relatively light regulation of the financial system and of securities markets in general. But the 1920s were a remarkable decade, driven by enormous technological change, large increases in wealth and inequality, and a rapid expansion of finance and of debt. The decade



ended with a banking crisis that saw the failure of more than 4,000 banks between 1929 and 1932. It was clear that the institutions put in place in 1914 with the creation of the Federal Reserve System were not sufficient to forestall panic and halt bank runs. More intervention that dealt directly with bank failures and risk-taking was needed.

What ensued was a series of bold moves to address the financial crisis. There were two goals. First and foremost was to create mechanisms to stop the panic that was unfolding. As we describe in the following paragraphs (and in later chapters of this book), the result was a set of institutions that we relied on heavily in the financial crisis of 2007 to 2009 with mixed success. The second goal was to create institutions to address the market failures that led to the financial crisis, with the objective of making the system more stable for the future.

The actions taken in the 1930s were truly dramatic. Federal agencies were created to borrow on public credit and use the proceeds to make loans to, and investments in, private financial and nonfinancial firms. The monetary system changed from one based on the gold standard to one of fiat money domestically and a gold exchange standard internationally. In central banking, the powers of the Federal Reserve System were both increased and centralized. The banking system was restructured in important ways and made safer by the introduction of deposit insurance for retail deposits. Federal regulation of the securities industry came with the creation of the SEC and related measures.

## Addressing the Panic

**Providing Liquidity to Markets.** In the early days of the banking crisis of the 1930s, it became clear that there was a huge shortage of liquidity in the economy. Congress created the Reconstruction Finance Corporation (RFC) in January 1932, on President Herbert Hoover's recommendation, to aid a variety of enterprises that had exhausted their ability to garner private credit in the depths of the Great Depression. The RFC's capitalization came from the federal government, and it was authorized to borrow several times that amount to make secured loans to banks, insurance companies, and railroad corporations. Subsequent amendments in 1932 extended RFC lending powers to states, farmers, and banks. Thousands of banks took advantage of these federal capital injections. But the RFC was eventually abolished.

The more important and lasting innovation was the Emergency Relief and Construction Act of 1932 that added paragraph 3 to Section 13 of the Federal Reserve Act. It said: "In unusual and exigent circumstances, the Board of Governors of the Federal Reserve System, by the affirmative vote of not less than five members, may" allow the Federal Reserve to lend money to "any individual, partnership, or corporation," as long as certain requirements are met. Provisions in the 1933 Emergency Banking Act further extended these powers.

Taken together, these represented an enormous expan-

sion of the power of the Fed to intervene in the economy in a crisis to provide liquidity where it was needed. It was exactly this power that the Fed relied on during the crisis of 2007 to 2009 when it came to the aid of Bear Stearns and others. The Fed's actions invoking Section 13(3) have been given much credit for ameliorating the crisis, just as the 1930s reformers envisioned. But it is also true that the way it used that power, forcing arranged marriages of large institutions and rescuing some nonbanks and not others, drew enormous criticism. The Fed arguably exacerbated the problem of having institutions that are too big to (be allowed to) fail, and it engaged in what is essentially fiscal policy, the provenance of the Treasury.

In reaction to perceived mistakes that the Fed made, the Dodd-Frank Act poses some new limits on the Fed's Section 13(3) authority, curbs that could limit its effectiveness in a future crisis. This is an example of the trap of regulating by form rather than function. We later argue that the provisions constraining the ability of the Fed to extend liquidity to specific nonbank firms may limit its flexibility in a crisis, and we accordingly propose better ways to reduce the risks from temporary, quasi-fiscal actions by the Fed during a crisis.

**Stopping Bank Runs.** When Franklin D. Roosevelt took office in 1933, there was a full-fledged banking panic going on and cries for reform of the banking system. The response to those pressures could have been many—for example, nationalizing the banks, or a relaxation of restrictions on bank mergers or interstate banking, leading to a highly concentrated banking system—all solutions that had been adopted elsewhere and all actively debated at the time.

The immediate response to the panic was to declare a bank holiday, as had been done in 1907, to determine whether individual banks were solvent, illiquid, or liquid enough to reopen. This helped to calm the system but only restored the status quo of the post-1907 world. The fundamental fragility of the fractional reserve banking system still existed. Banks borrowed deposits and made money by engaging in risky intermediation, holding only a fraction of reserves needed at any point of time to repay depositors; depositors had no easy way of assessing the risk of banks' failure to repay, leaving intact the possibility of panics and bank runs.

The Banking Act of June 1933, the so-called Glass-Steagall Act, contained several of the most important and long-lasting reforms to deal with panics and bank runs. It introduced deposit insurance by creating the FDIC, capitalized by a Treasury subscription and some of the surplus of the Federal Reserve banks. The Banking Act required all banks that were members of the Federal Reserve System to have their deposits insured, up to a limit, by the FDIC. Other banks could also be covered, subject to approval by the FDIC. Insured banks were required to pay premiums for their insurance based on their deposits. Within six months of the creation of the FDIC, 97% of all commercial bank deposits were covered by insurance.



The creation of the FDIC was arguably the most successful policy response to the banking crisis of the 1930s. The FDIC was economically successful because it solved a well-defined problem: uncertainty about the solvency of the banks among retail depositors. More importantly, it did so in a way that acknowledged the contradictions and risks inherent in fractional reserve banking, by making those responsible for managing the risks—the banks themselves—pay for insuring against them. These costs were passed through to bank borrowers, time depositors, and investors. Bank runs disappeared, and the number of bank failures dropped to an extremely low level compared with prior decades. Over time, the FDIC developed a highly effective mechanism for allowing insolvent banks to fail without disrupting markets.

The FDIC has since evolved, becoming more effective in some ways and less effective in others. The glaring weaknesses that became apparent during the crisis of 2007 to 2009, however, were twofold. Much financial intermediation had moved to the shadow banking system, which was immune to the solutions that worked for deposit-based commercial banking. Thus, we were again vulnerable to banks runs and panics in the shadow banking sector. Further, it became clear that the resolution mechanisms that worked so successfully for insolvent commercial banks were not workable for LCFIs.

The Dodd-Frank Act makes some progress in addressing the latter issue by expanding the role of the FDIC in dealing with large systemic institutions, but it does precious little to address the former issue of the shadow banking system. In particular, the likelihood of runs on money markets and repo markets remains a real threat in future crises. The Act is relatively impotent on this front, since it refuses to recognize that a large part of the deposits of the financial sector are no longer in the traditional form of insured FDIC deposits, but rather in the form of money market deposits and interbank repos. And, as noted earlier, it is completely silent on the problem of how the FDIC is to be funded and what the role of systemic risk assessments would be in that funding. This is something that the reformers of the 1930s viewed as crucial but that was eroded by regulatory capture over the decades.

## Making the Financial System Safer

**Constraining Risky Behavior.** The Banking Act of 1933 not only created the FDIC to address bank panics, but also required the separation of securities affiliates from commercial banks, and restricted the latter from granting credit for speculative purposes. It prohibited payment of interest on demand deposits. And it permitted national banks to branch within a state to the same extent that state banks were allowed to branch. In 1932, President Hoover and Senator Glass had tried, and failed, to pass a law separating commercial and investment banking, and also allowing national banks to branch statewide.

The 1933 Act became politically feasible in a time of great turmoil because all of the politicians and private inter-

ests involved got something that they each wanted. Glass got the separation of commercial and investment banking and the restrictions on loans for speculative purposes. He thought these provisions made banking safer by eliminating conflicts of interest and risky lending practices that, in his view, had caused the stock market to crash and banks to fail. Steagall got deposit insurance to make banks safer in the eyes of depositors, and he staved off some of the more liberal branching provisions that might have accomplished the same end but only by posing a competitive threat to his small unit-bank constituents. Investment banks benefited because they would no longer have the investment banking affiliates of commercial banks as competitors. And commercial banks benefited by the ban on demand deposit interest which had the effects of reducing their costs, enhancing their charter values, and diffusing incentives to take excessive risks. Many politicians liked the measure because they believed that payment of interest on demand deposits had contributed to the Depression's bank failures by encouraging banks to take more risks to pay those interest costs.

The 1930s bank reforms also made banks and savings institutions safer by protecting them from competition through a host of regulations and entry controls; in effect, they created a cartel in the U.S. commercial banking and thrift industry. This cartelization, which was also a hallmark of Roosevelt's approach to other industries, helps to explain why the reforms eventually stopped working. The commercial banking and thrift sector lost ground within the financial system when depositors discovered in the 1970s that they could earn a higher return on their money and still use it for transactions by placing it in new financial market innovations—the money market funds and cash-management accounts offered by brokerage firms. These instruments faced no restrictions on the interest rates that could be paid on their deposits, and hence they were able to invest in short-term commercial paper issued by highly rated financial firms and corporations, and partly pass through the greater, but riskier, return earned on this paper.

In the 1980s, Congress responded by increasing deposit insurance limits and removing some restrictions on deposit interest rates and permissible types of bank lending. However, this had the unintended consequence of encouraging riskier loan-making by banks, leading to more bank failures and a thrift institution crisis a decade later. In the 1990s, a major consolidation movement swept through the U.S. banking sector, aided by Congress's enactment of nationwide branch banking privileges in 1994, which followed a series of similar bilateral branching deregulations between states. A relatively small number of very large banks soon came to hold the lion's share of U.S. bank deposits.

The Glass-Steagall separation of commercial and investment banking of 1933 lasted for more than six decades before it was formally repealed in 1999. The move for its repeal had

proceeded steadily since the 1970s on several fronts. Academic studies argued that before Glass-Steagall, commercial banks with investment banking affiliates were less, not more, risky than independent investment banks. Within the banking sector, large U.S. commercial banks contended that they were at a competitive disadvantage relative to the universal banks allowed by other nations, banks that combined commercial with investment banking and other financial services. But nothing effective was put in place of Glass-Steagall to limit the risks in the system as banks became more complicated.

The main attempt to limit bank risk took the form of the Basel Accords, the internationally agreed-upon capital standards that were designed to provide a common risk-based assessment of bank assets and the required capital levels. The basic idea underlying the requirements was to bring the solvency risk of an individual bank to a desired level. The Accords dealt with the lending books of banks to start with, but soon incorporated value-at-risk-based capital charges for trading books. Eventually, they added further gradation of risk categories to refine the required capital calculations. Although the process of achieving international consensus might have had some merits, the end result has been a disaster. The standards have been both easy to game—they measured the risk of assets from the standpoint of individual banks' risk but ignored systemic risk, the primary rationale for bank regulation—and they ignored the new fragility that was developing on banks' liability side in the form of uninsured wholesale deposit funding.

**Addressing Informational Asymmetries.** Three weeks before it enacted the 1933 Glass-Steagall separation of investment and commercial banking, Congress began its reform of Wall Street with the Securities Act of May 1933. There were two major provisions: a requirement that *new* offerings of securities had to be registered with a government agency, the Federal Trade Commission (soon replaced by the yet-to-be-created SEC), and a requirement that potential investors in the new offering had to be furnished a prospectus containing sufficient information from the registration statement to allow them to judge the value of the offering.

Before 1933, there had been no federal regulation of the securities industry, although a couple of decades earlier, states had enacted the so-called blue-sky laws, which required sellers of securities to provide information about them to buyers. Information is what the reforms were largely about. Before the 1930s, information about most publicly traded companies was pretty much the province of insiders, corporate managers and directors, and investment bankers, who supplied capital and advice to the firms and managed their offerings of securities. To some extent, organized securities exchanges mitigated the asymmetry of information between investors and insiders by requiring companies whose securities were listed on the exchanges to provide some information to the exchanges and investors. But these listing requirements were not uniform

and were subject to changes according to the exchanges' own interests. Losses suffered by many investors in the Crash of 1929 and the Great Depression posed a political challenge to the control of corporate information by insiders, particularly when congressional investigations uncovered evidence of market rigging and manipulation.

The Securities Exchange Act of June 1934 extended the registration and disclosure requirements of the 1933 act to *all* listed securities. It established the SEC and required corporations with listed securities to file annual financial reports (balance sheets and income statements) and quarterly earnings statements to the new agency. These were to be public information, and they were to be verified by independent auditors employing standardized accounting procedures. This was a boost to the accounting profession, and it would shortly lead to the emergence of a new profession, securities analysis.

Many later acts of Congress added to the new regulatory regime for the securities industry. It is not an exaggeration to say that many players on Wall Street and in corporate America in the 1930s hated the new regulatory regime imposed on them by these reforms. It reduced their power relative to that of investors and the government, and it raised their costs of doing business. But in the long run, as many of them would recognize, the new regulatory regime was one of the best things that ever happened for Wall Street and corporate America. Why? Because it created confidence among investors—then and in the decades to follow—that Wall Street finally had become a level playing field and that the informational asymmetries that had formerly plagued the game of investment had been greatly reduced, if not eliminated. Without the 1930s reforms, it is difficult to envision that the securities investing classes of the United States would have grown to the extent they did by the end of the century, or that institutional investors, such as mutual funds and pension funds, would have thrived to the extent they did.

The financial crisis of 2007 to 2009, however, revealed some glaring weaknesses of the institutional legacy of the 1930s. First, financial markets and financial firms have become ever more complex and difficult for the SEC and investors to understand. Over time, the SEC and other regulators grew to rely on external sources of information: the rating agencies, whose information was contaminated by a market failure. Further, many new products and firms have fallen outside the purview of the traditional regulatory institutions. Hedge funds, derivatives trading, and complex products are examples of innovations that have all increased the informational asymmetries in the world of finance.

The Dodd-Frank Act tries to address many of these increasing complexities. In particular, as we explain in the book, its attempt to unveil the opaque over-the-counter market for derivatives is to be lauded and can in fact be expanded to reveal to regulators—and, in some aggregated forms, even to market participants—information about

counterparty exposures that would be most relevant for assessing systemic risk. Similarly, the Act requires the Office of Financial Research to be set up to collect and analyze data and to provide timely reports on building concentrations of systemic risk in the economy. This type of macro-prudential focus has been missing so far in the existing supervision of banks and the financial sector, as the emphasis has tended to be at the micro level of individual institutions. And, once again, the Act greatly expands the responsibility and reach of the regulators in ensuring these objectives can be met.

### Turn Back the Clock?

Were the 1930s financial reforms responsible for the several decades of financial stability that followed? Is the seemingly increased financial instability of the past two or three decades a result of dismantling parts of the 1930s regulatory structures? Today, some observers are tempted to answer both questions in the affirmative. But the nostalgia for this earlier system is probably misplaced.

Any evaluation of the success of the 1930s reforms in promoting a long period of financial stability needs to take into account the larger context of the United States in the world economy. In that light, it becomes apparent that a good bit of the seeming success of the 1930s reforms was less inherent in the reform legislation than a result of the unique position of economic strength that the United States enjoyed in the world of the 1940s through the 1960s. World War II damaged the economies of every other large nation, while it strengthened that of the United States.

As other nations recovered from the war and returned to more normal economic relationships with the United States, and the United States embarked on an ill-conceived inflationary binge, the flaws in the 1930s financial regulatory structure became increasingly apparent. There were, for instance, credit crunches and disintermediations in the late 1960s and 1970s caused by regulated ceilings on deposit interest rates.

There have been too many changes in the world economy and national and world financial systems in recent decades to support an argument that an increased proneness to financial crises resulted from dismantling some of the 1930s financial reforms. Parts of those reforms did contribute to some of the financial instabilities of the 1970s and 1980s. However, Americans, including bankers and bank investors, probably gained from the elimination of regulated deposit interest rates and the liberalization of restrictions on branch banking in the 1980s and 1990s.

There were early warning signs that the evolution of the financial system was creating new risks that the old Glass-Steagall rubric could not deal with. Glass-Steagall restrictions encouraged the rise of fragile shadow banks. To restore stability, shadow banks needed to be treated more like banks, but this did not happen. The collapse of Continental Illinois Bank in 1984 pointed to the dangers of wholesale funding of banks

and was the first bank deemed too big to fail. The collapse of Long Term Capital Management in 1998 highlighted the growth of systemic risk and the need for better bankruptcy mechanisms for financial firms. These warnings were ignored, despite reports immediately following these events pointing to new forms of systemic risk that were emerging and the need to nip them in the bud. By at least recognizing the problem of resolving and containing risks of large, complex financial institutions that are systemically important, the Dodd-Frank Act does take a giant step forward, even though critical implementation details remain to be fleshed out.

### Preventing the Last Crisis—How Would the Dodd-Frank Act Have Performed?

It should be clear from the discussion thus far that designing effective regulatory policy is not easy. Unlike laboratory science that relies on a controlled environment, economic systems are inherently more dynamic, constantly evolving as changes in the nature of markets and institutions drive them in one direction or another. This evolution makes it difficult for policymakers to fully anticipate the direction or magnitude of change. But this does not mean that policymakers should not be thinking about the future. Ideally, what we want are policies that will stand up to changes in the environment and remain effective, without leaving a large footprint of unintended consequences. At a minimum, though, they must address current issues that are unlikely to go away.

Does the Dodd-Frank Act meet this minimum standard? Starting in 2003 and 2004 (years during which the credit boom took hold), until the fall of 2008 (when the financial system had to be rescued), how effective would the Act's provisions have been? Would the Act have prevented the enormous build-up of leverage on financial balance sheets, all betting against a material correction in the U.S. housing market? And would the Act have dealt adequately with the failures of Bear Stearns and Lehman Brothers, along with the attendant stress in money markets?

This "back to the future" exercise has its limitations, to be sure. We do not want legislation that will help us to win the last war, or only the next one, but it is equally dangerous to think the next one will be different altogether. The exercise does point out some serious limitations of the protective umbrella that the Dodd-Frank Act is supposed to represent, and since much is still to be determined in the implementation of the Act, there is value in knowing those limitations. We have already mentioned as serious limitations the lack of a direct tax on systemically important institutions commensurate with their systemic risk contributions, and the failure to provide adequate resolution mechanisms for shadow banking institutions as serious limitations. But the question is: Would the Dodd-Frank Act have sufficed in other ways? We remain skeptical.

Let's go back to 2003. Recall the most staggering statistic of the credit boom of 2003 to the second quarter of 2007:



The balance sheet size of the ten largest global banks more than doubled, from about €7 trillion to €15 trillion during this period. And, during the same period, the regulatory assessment of the risk on their balance sheets (assessed for computing the banks' Tier 1 capital) moved far more gradually from €3.5 trillion to under €5 trillion. The system was deemed to be very well capitalized in the second quarter of 2007—indeed, better capitalized by this standard than in 2003. Something was clearly amiss.

The apparent safety of the financial sector's collective balance sheet was attributable to the fact that the top ten global banks had amassed vast quantities of AAA-rated tranches backed by residential mortgages. These assets had historically been safer than similarly rated corporate loans. This was the principal reason behind their lower risk charge (by a factor of five) under the Basel capital requirement.<sup>1</sup> Even accepting that the AAA-rated mortgage-backed securities were indeed safer than corporate loans at the time—in itself a strong assumption for the period ahead—capital requirements ignored the fact that the entire system was at risk should mortgage defaults reach levels at which AAA-rated tranches could take some losses. Next, we explain that such financial fragility—the extraordinarily high level of exposure of the system to a common asset shock—would not have been discouraged by the Dodd-Frank Act.

The Dodd-Frank Act will require systemically important institutions to be identified and to be subjected to higher capital and liquidity requirements. These requirements are unlikely to be raised in the near future, given the weak state of global economic recovery. But assume a new 8% Tier 1 capital requirement had existed in place of the actual 4% in 2003. Would such a higher capital requirement have done the job? The problem in the build-up to the credit crisis was not the *level* of the capital requirement but its *form*. Suppose the level of the capital requirement is raised but there is no change in the Basel risk weights. The AAA-rated mortgage-backed securities would continue to enjoy a one-fifth risk-weight charge, compared with AAA-rated corporate loans. Consequently, the basic distortion favoring mortgage finance in the economy would remain. Worse, by raising the capital requirement, bankers face a lower return on equity (ROE). So to restore their ROE, bankers would tilt their portfolios even more toward mortgage-backed securities, in essence leveraging up more in an economic sense, yet remaining safer in a Basel risk-weighted sense.<sup>2</sup>

There are several things that could be done differently in the Dodd-Frank Act to avoid such a correlated buildup of mortgage exposures starting in 2003. First, rather than

taking an *a priori* stance that one asset will remain safer than some other asset, the regulators could assess this by applying an annual stress test of the financial sector based on the composition of assets in different banks' portfolios. If all of them were concentrated in mortgages, they would hardly represent a safer asset class from a systemic risk standpoint. Or the systemic risk itself could be assessed in a reduced-form measure that investigates whether banks' equity returns imply greater systemic risk—for example, if they are more correlated with the overall market or the financial sector as a whole. If applied during the pre-2007 period, our research shows that such measures would have (1) noted that the most systemically risky institutions were the investment banks (which were also most highly leveraged), followed by Fannie Mae and Freddie Mac, and (2) suggested charging them with a higher capital requirement or a systemic risk tax instead of simply raising the level of capital requirement uniformly for all players.

Second, the regulators should have recognized that, if a particular asset were given capital relief relative to some other asset based on past performance, there would—in response to the capital relief—be greater allocation to that asset by the banks in question. This allocation would lead to lower-quality loans over time, and the two assets would converge in their risk qualities and possibly even swap risk rankings. Ignoring the response of asset allocators to policymaking and treating the design of capital requirements as a purely statistical exercise focused on estimating and buffering against past losses on assets are fatal flaws in the Basel tool kit that the Dodd-Frank Act has failed to correct.

Of course, the Dodd-Frank Act is not focused just on capital requirements. It proposes liquidity requirements, as well. But putting aside more liquidity would not have been difficult in 2003 because of the huge capital inflows from current-account-surplus countries, such as China, into current-account-deficit countries, such as the United States, the United Kingdom, and Spain. It is worth noting that the Dodd-Frank Act—notwithstanding the Bureau of Consumer Finance Protection it plans to set up—would have done little to prevent the enormous lending bubble specific to subprime mortgages in the United States. In large part, that bubble was the result of the intentional politically driven expansion of owner-occupied housing. The Act does nothing to address the worst-performing shadow banks—Fannie Mae and Freddie Mac—which were at the center of the housing expansion, had to be taken into government conservatorship in the early fall of 2008, and have cost U.S. taxpayers more than the total of all Wall Street institutions, with no end in sight. Although we are

1. This was true under Basel II capital requirements that applied to European banks. While Basel I capital requirements applicable to the U.S. commercial banks did not give the privileged capital treatment to AAA-rated tranches, these banks could reduce their capital requirements by a factor of five to 10, by putting assets off the balance sheet into conduits and structured investment vehicles (SIVs). And the U.S. investment banks were

allowed to use their internal models to calculate risks in 2004, which reduced capital requirements on AAA-rated tranches practically to zero. For the sake of argument, however, we will stick to the Basel II requirements in our exercise.

2. Similarly, any propensity of commercial banks to offload assets into conduits and SIVs, and thereby lower regulatory capital, would also become only stronger.



assured that this is the next policy priority, separating Fannie and Freddie from the financial reforms of the Dodd-Frank Act only highlights their intensely political role in mortgage finance, a role that is unfortunately highly distortionary from the standpoint of financial stability of the system.

It is also worth asking if the Volcker Rule provisions of the Dodd-Frank Act would have helped to stem the crisis by limiting the trading activities of banks. The way the Volcker rules are written, they would not have constrained the risk-taking activities of banks for a very long time (even now, they are likely to bind only for a few large players such as Goldman Sachs). But, assuming they were binding, would they have prevented the build-up of systemic risk?

The answer is less than crystal clear. Proprietary trading is defined as short-term trading on your own accounts. Much risk was undertaken by commercial banks by simply borrowing short, lending long, and not holding adequate capital for the maturity mismatch. This form of risk taking is not technically called proprietary trading, but without adequate capital, maturity mismatch is just another form of a carry trade, which generates a small return most of the time, but can eventually blow up in a big way. A part of this maturity mismatch was possible as banks exploited weak capital requirements. A lot would thus depend on how the Volcker rules are interpreted for the process of moving assets into structured investment vehicles (SIVs) and conduits. It is not hard to imagine interpretations of the Volcker Rule that would make such activities more attractive (than, say, short-term proprietary trading) and potentially create even more tail risk.

Finally, the Act also gives rights to prudential regulators to break up the systemically important institutions when they get into trouble and requires wind-down plans of these institutions in advance for resolving them in an orderly manner. We argue, however, that there remains substantial uncertainty that this is going to work well, if at all.

To illustrate this, assume a credit boom took hold in the financial sector from 2003 to the second quarter of 2007, followed by a housing price collapse across the board in the United States. In March 2008, Bear Stearns was beginning to experience trouble as a result of its poor equity base relative to its leverage (while remaining well capitalized from the Basel capital standpoint!). Bear's balance sheet had an asset side exposed to the housing market and a liability side that was extremely fragile and exposed to runs. In particular, Bear Stearns was rolling over each night in excess of \$75 billion of repo contracts on mortgage-backed securities. These were AAA-rated for the most part but were anticipated to have losses in the future and rightly feared to be illiquid by the repo financiers, mainly money market mutual funds. Bear's primary money market financiers—Fidelity and Federated—feared having to liquidate the underlying collateral in an illiquid market at substantial fire-sale discounts (since they would not be able to hold long-term assets without violating

their maturity restrictions). When they refused to roll over the repos, Bear Stearns had to draw down on its \$20 billion pool of liquidity; and within a week, the firm was brought to its knees with no assets on its balance sheet that could be pledged in markets without investors fearing the risk of rollover and thus charging substantial haircuts. Bear Stearns faced bankruptcy by the middle of March.

The first two weeks of March 2008 can be considered the run phase of the Bear Stearns collapse. As Bear faced bankruptcy, authorities had to decide whether to let it fail. Bankruptcy would lead to substantial liquidations of its assets backing the repos that were still outstanding, which would translate to losses to Bear's commercial paper providers—again, mainly money market mutual funds. In short, the failure of Bear Stearns could have led some money market funds to “break the buck” (net asset value falls below \$1 per share), as the Reserve Primary Fund eventually did when Lehman Brothers was allowed to fail in mid-September of 2008. This would have precipitated redemptions from money market funds, in general, because many of them were exposed to investment banks with portfolios similar to Bear's. Also complicating the scenario was the fact that Bear Stearns was a primary clearer of a large number of credit default swaps, effectively performing the role of a clearing bank (if not exactly a clearinghouse) as a private entity side by side with its other investment banking activities. The failure of Bear would have thus created severe uncertainty about possible contagion spreading through the network of counterparty exposures stopped by the government.

Now, suppose the Dodd-Frank Act had been in place at the time of Bear's collapse. The first thing to note is that the Federal Reserve would not have been able to act as swiftly to provide direct aid to Bear in the form of the guarantees that were required to facilitate its sale to JPMorgan Chase. The Dodd-Frank Act limits the Section 13(3) lending authority of the Fed. The Fed would have had to appeal to the Systemic Risk Council to begin the reorganization process. It is hard to know if the Council would have responded with sufficient speed and cohesion to meet the needs of the situation, but the constraints on the Fed could have arguably made the panic worse. Note also that even a forceful version of the Volcker Rule would have made no difference for the structure or risks on Bear's balance sheet because it does not restrict the proprietary trading activities of nonbanks.

One thing the Dodd-Frank Act does is to increase transparency in markets in a number of ways, and that would have helped in the Bear Stearns case. One of the biggest problems confronting regulators at the time was uncertainty about counterparty exposures and their likely consequences. With the Dodd-Frank provisions in place, the credit default swaps that Bear was clearing would most likely have been cleared instead through a central clearinghouse. For their part, the clearinghouse and the regulators would have had access to

full information on various counterparties, and therefore would have been able to assess whether there was, in fact, substantial settlement risk arising from reintermediation of swaps cleared by Bear Stearns. And, even if some of the swaps were not centrally cleared, the transparency requirements of the Dodd-Frank Act would have meant that information about counterparties to these swaps would have been in a centralized data repository such as the Depository Trust & Clearing Corporation (DTCC). Armed with this knowledge, regulators could have dealt with containing the damage and reassuring markets if there were no significant exposures, after taking account of the (greater) collateral or margin that would have been required under the Dodd-Frank Act.

The only uncertainty would arise if there were substantial uncollateralized exposures to another counterparty, say Goldman Sachs, that would now face a significant write-down. Without a clear plan to deal with this exposure, the regulators would struggle to release information to the market that Goldman Sachs was in trouble as a result of Bear's failure. But a lack of revelation of such information by regulators would itself be adverse information to markets! What would be required under such circumstances is a temporary mechanism to deal with the uncollateralized exposure—for example, making Goldman Sachs a conservative payment against its exposure through the Fed's emergency lending Section 13(3) assistance—but with a claw-back based on eventual reintermediation or liquidation costs incurred on these exposures.

The resolution process would have been triggered by Bear's difficulty, and the orderly liquidation of positions could take place in principle. But the important question remains: Would the regulators implementing the Act—the Treasury, the Fed, the FDIC—have been able to stick to its premise of passing along all losses on its counterparty exposures at a time when the whole system was subject to similar exposures? As we have said before, while the Act has its heart in the right place in wanting to eliminate the too-big-to-fail problem, there is a fair bit of uncertainty left in terms of exact resolution and wind-down procedures. While markets would certainly not digest such uncertainty well, history has shown over and over again that regulators do not, either, and there would have been a call for emergency powers overriding the provisions of the Dodd-Frank Act.

The Bear Stearns example also highlights another generic problem with the Dodd-Frank Act: that it does not come to grips with the question of what is a bank and what is banking, and therefore it does not address many of the issues of the shadow banking system. It contains nothing that would deal with the commercial paper and repo market runs that triggered Bear's collapse. In cases when the liquidated values on repo contracts and anticipated recoveries on commercial paper holdings turn out to be substantially discounted, some of the money market funds providing the financing might get pushed to breaking the buck. Without a clear plan to resolve

money market fund failures, the depositors of money market funds would now rush in to claim their deposits before others could, imposing further redemption issues for these funds. Some of the depositors might have deposits in other funds, too, and realizing losses on one set of savings, they might need to liquidate some others, inducing a contagious run on these other funds.

Once again, one would need the Fed to step in to temporarily provide liquidity to stop the redemptions—provisions that could be at conservative valuations of money market fund assets. And the unwinding of insolvent funds would have to be orderly in due course with additional losses clawed back from investors redeemed by the Fed. The same questions arise, however. Given that this is the Fed's Section 13(3) emergency lending to a nonbank holding company, would the Financial Stability Oversight Council approve it quickly enough, or would uncertainty about the outcome of the process lead investors to rush even faster to pull out their deposits, thus exacerbating the run?

Hence, in all likelihood, even with the Dodd-Frank Act in place, we would have seen something like what happened in the demise of Lehman Brothers if Bear had been allowed to collapse. While some may argue this may have been a good thing—letting Bear fail in March 2008 rather than Lehman in September 2008—the bigger point is that failures of both required orderly resolution. This, in turn, required temporary liquidity assistance to stem the run or the authority to suspend redemptions for a period, by which orderly unwinding of assets of failed institutions could be planned.

At the heart of the problem is the bankruptcy exemption given to repo and derivatives contracts, and the Dodd-Frank Act explicitly keeps that in place. It is clear that this exemption is needed, because without it a large number of contracts could get stuck in the bankruptcy of a failing firm. The exemption, however, requires a systemic exception. When there were bank runs in the pre-FDIC era, commercial bank clearinghouses in New York would suspend redemption of individual bank deposits and convert those into joint liability certificates of the clearinghouse. Then, we put deposit insurance in place to deal with depositor runs more directly. In the crisis of 2007 to 2009, when we faced wholesale depositor runs, the Federal Reserve had to pull out all the stops—given the lack of FDIC coverage of such deposits—to effectively suspend the runs. And, in between these episodes, almost all massive bank failures have required such suspension. The systemic bankruptcy exception—that all claims immediately payable be stayed for a day or a few days—could work in the context of the Dodd-Frank Act, if the orderly resolution process acts swiftly enough. For instance, if the regulator has 24 hours to transfer the derivatives of a counterparty to a third party, and at that point the counterparty does not get to (or need to) terminate the contracts, then the liquidity problems would be much more muted. But this may require

the Fed to employ its emergency lending facility, which the Dodd-Frank Act explicitly restricts in the context of individual nonbanks.

The good news is that the Dodd-Frank Act does leave substantial latitude to the prudential regulators—the FDIC and the Federal Reserve System—to design orderly resolution procedures. Our back-to-the-future tests make it clear that for the Act to succeed in putting an end to taxpayer-funded bailouts, prudential regulators need to design (1) resolution and wind-down plans not just for systemically important institutions, but also for systemically important markets and collections of small institutions, and (2) robust mechanisms to deal with runs on the system at large from short-term creditors—runs that can arise not just in retail deposits (which have been addressed since 1934), but also with wholesale finance (such as repos, commercial paper, and derivatives) that were at the heart of the recent financial crisis. What is clear is that we have not yet made plans to address this aspect of the issue.

## Conclusion

As we prepare for the implementation of the new reforms to our financial regulatory system, it is useful to remember that the major round of reforms in the 1930s was appropriate based on the problems faced by policymakers and legislators in the wake of the Great Depression. Many of the reforms put in place had long-lasting benefits and are still with us. But the problems exposed by the current financial crisis are not the same as those of the 1930s, so it would be a mistake to think we can fix them simply by going back to the 1930s solutions. That is why we have to focus on their success at addressing the critical flaws that led to the financial crisis: our failure to make financial firms pay for government guarantees, our failure to control systemic risk, our failure to implement orderly resolution mechanisms for large systemic institutions, and our failure to bring the shadow banking system into the regulatory orbit.

In a somewhat less well-known passage from *The Wealth of Nations*, Adam Smith explains beautifully that:

*To restrain private people... from receiving in payment the promissory notes of a banker... when they themselves are willing to receive them; or, to restrain a banker from issuing such notes, when all his neighbors are willing to accept of them, is a manifest violation of that natural liberty, which it is the proper business of law not to infringe, but to support. Such regulations may, no doubt, be considered as in some respects a violation of natural liberty. But those exertions of the natural liberty of a few individuals, which might endanger the security of the whole society, are, and ought to be, restrained by the laws of all governments; of the most free, as well as of the most despotic. The obligation of building party walls, in order to prevent the communication of fire, is a violation of natural liberty, exactly of the same kind with the regulations of the banking trade which are here proposed.*

The Dodd-Frank Act is right in charging depository banks—and their prudential regulators—to build party walls. But the fire can (and did) happen elsewhere in the shadow banking system.

The Dodd-Frank Act is right in demanding an orderly resolution to fires when they break out, but by putting hard brakes on emergency services that can extinguish fires, it exposes the system to serious risk in case the fire alarms fail and the sprinklers do not start.

The Dodd-Frank Act is right in putting an end to taxpayers' footing the bill to put out fires. But it makes little economic sense to charge neighbors for that and, especially so, when their houses are in great danger of catching fire too.

And alas, much of what the Dodd-Frank Act attempts to do may be for naught if the government continues to fund future fires through Fannie Mae and Freddie Mac with no walls around whatsoever!

In the end, we applaud the Dodd-Frank Act's ambition and its copious attempt to rewrite financial sector regulation. The Act does represent the culmination of several months of sincere effort on the part of the legislators, their staffers, the prudential regulators, academics, policy think tanks, and, of course, the financial industry (and the lobbyists!). But it is equally important to recognize that the most ambitious overhaul of the financial sector regulation in our times does not fully address private incentives of individual institutions to put the system at risk, leaves a great deal of uncertainty as to how we will resolve future crises, and is likely to be anachronistic, in parts, right from the day of its legislation. Not all is lost, though, and these limitations can be fixed in due course.

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