



Managing Financial Risks as Markets Move

*Asset-based Reserve Requirements for All Lenders Would
Protect the U.S. Economy from Volatile Swings in Asset Prices*

Dr. Christian E. Weller and Kate Sabatini
Revised October 2007

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Dr. Christian E. Weller

Senior Fellow

Kate Sabatini

Research Associate for Economic Policy

Center for American Progress

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Introduction

What a ride! Housing and mortgages went from binge to withdrawal in just 12 months. Importantly, the housing boom contributed to a mortgage boom, especially in new exotic loan products such as adjustable-rate mortgages, interest-only mortgages, and payment-options mortgages, all of which helped to fuel economic growth. With the housing boom at an end, economic growth and job growth have both slowed, ultimately leaving more and more families unable to make their debt payments. Foreclosures have grown, resulting in tighter credit standards and contributing to further economic slowdown as borrowers, once awash in easy credit, find it harder to finance a new home, their education, or a business venture, among other things.

To address boom-and-bust financial cycles, which hold a serious threat to our economic health, we recommend a regulatory tool, considered but never adopted by policymakers, known as asset-based reserve requirements. ABRRs were first proposed in the 1970s by proponents of allocating credit to underserved borrowers, and the proposal was revived in the early 1990s to encourage access to credit for a wider set of socially desirable ends. More recently, ABRRs have been proposed as a way of diminishing speculative bubbles (see “Genesis of Asset-based Reserve Requirements,” page 9). We explore how this regulatory policy tool might have affected the recent mortgage boom and mitigated some of the adverse consequences of recent events. The tool may seem radical to some but deserves, in our view, serious consideration against the backdrop of apparently increasing systemic financial market risks. Specifically, ABRRs would require all lending institutions that originate new loans to place with the Federal Reserve a specified percentage of loans as low- or no-interest-bearing reserves. The share of loans to be held with the Federal Reserve would be larger for riskier loans and could be adjusted according to economic needs. For instance, when the economy slows down, regulators could reduce the share of a loan required to be held in reserves to increase the amount of credit available.

The use of ABRRs, if they had been in place, would have allowed the Federal Reserve to better manage economic fluctuations. It may have been able to slow the sudden proliferation of risky mortgages and thus protected the economy from the fallout of rapidly rising economic distress and the threat of severe credit tightening, which could hurt economic growth and job creation. Alternatively, ABRRs would also allow the Fed to react swiftly to a financial bust by lowering reserves to counter tightening lending standards.

Several aspects of today's financial markets and concomitant regulatory regimes support the introduction of ABRRs. Specifically:

- **The Federal Reserve needs new tools to fulfill its regulatory and monetary duties.** Some of the existing tools, such as reserve requirements on deposits, have become blunt since they apply to an ever-shrinking share of the financial system.¹ Hence, we recommend replacing existing deposit reserve requirements for depository institutions with ABRRs for all lending institutions. This would level the playing field among lenders. In addition, it would give the Federal Reserve a tool to directly influence financial market cycles without relying solely on interest rates.
- **ABRRs would complement existing capital requirements.** Under the aegis of the Bank for International Settlements' so-called Basel I and Basel II accords, the world's financial institutions are required to maintain adequate capital on their own books depending on their assets' riskiness. Capital requirements help to grow the credit supply when times are good and tighten it when times are bad, in line with fluctuations in the risk of a bank's underlying assets. As a complement to capital requirements, ABRRs would therefore give the Fed the ability to regulate the money supply in a countercyclical fashion by, for example, setting lower reserve requirements when times are tough and hence allowing lenders to expand credit more than otherwise would be the case.
- **There are established procedures to assess risk.** The implementation of capital reserve requirements has necessitated procedures to measure risk at the world's major financial institutions. If the same mechanisms to evaluate risk for the purposes of calculating capital requirements are used to value risk for the basis of assessing ABRRs, banks would have to implement only one valuation method and the Federal Reserve's regulatory work would be facilitated.
- **The Federal Reserve can process reserve requirements in a complex, fast-paced world.** The Fed has established mechanisms for deposit reserve requirements in a world characterized by increasing complexity and speed. For the calculation of deposit reserve requirements, for instance, deposits are averaged over several weeks as the basis for reserves so that reserves do not have to be calculated daily. Put differently, as long as lenders lend some money during a specified period, say two weeks, they will be required to hold ABRRs at the Fed.
- **Policymakers need to consider complementary policies to equalize credit access.** There needs to be a balance between restricting risky lending to stabilize financial markets and the economy and granting underserved borrowers sufficient access to credit. Specifically, if financial institutions respond to the incentives embedded in ABRRs, then access to some costly and risky forms of credit could decline. The hope would be that at least for some borrowers access to lower-cost and lower-risk credit may increase under this proposal. Policymakers, though, may have to consider additional measures to increase access to stable, low-risk, and low-cost forms of credit for borrowers, who may see

their access to credit decline if ABRRs were enacted. This is of critical importance to those borrowers who typically have less access than their counterparts to affordable and stable credit, such as minorities, low-income families, and small businesses.²

Given the sweep of financial liberalization in the United States over the past three decades—and the accompanying rise in volatility across a number of asset

marketplaces—the time for ABRRs may have arrived, although the proposal has been around some time (see box, page 9). We raise the issue once again because we want to give this proposal more visibility and spark a discussion over whether the country needs new regulatory tools to handle more complex and larger financial markets—and, if so, what those new tools should look like, using ABRRs as a possible example.³

Managing Financial Risks as Markets Move

The Economy in the Debt Boom and Bust Cycle

After years of easy credit and an unprecedented housing boom, the U.S. housing market went through some painful withdrawals. From March 2001 through December 2005, for example, new homes sales grew at an annual rate of 5.8 percent. In sharp contrast, over the course of 2006 the sale of new homes fell by 17.8 percent and by another 10.0 percent in the first five months of 2007.⁴

Consequently, residential real estate turned from boom to bane for the economy in a matter of just a few quarters. From March 2001—when the current business cycle started—through the end of 2005, 13.7 percent of economic growth resulted from the activity in residential real estate, a larger share than for any business cycle since World War II. Yet from the end of 2005 through March 2007, the decline in the housing sector reduced the growth rate by almost one-third—by 29.8 percent.⁵ Economic growth in the first quarter of 2007 fell to its lowest level in almost seven years, to 0.6 percent, in the wake of six quarters of declining inflation-adjusted activity in the residential real estate sector.⁶

This rollercoaster ride was also reflected in the labor market. From March 2001 through the end of 2006, residential construction added 13,500 new jobs each month. During the boom years of 2004 and 2005, residential construction employment expanded at a rate of 20,600 per month. In contrast, from the end of 2005 through March 2007, residential construction employment declined on average by 5,200 jobs per month.⁷

What kept the housing boom rolling was a mortgage boom. By the end of 2006, mortgages equaled a record 100.0 percent of disposable income. The increase in mortgage debt to disposable income was six times faster in this business cycle, from March 2001 to March 2007, than it was in the 1990s.⁸

The effect of record-high debt was further exacerbated by the proliferation of more exotic mortgages, such as adjustable-rate mortgages, payment-options ARMs, and interest-only ARMs. All of these mortgages eased the monthly payment burden initially but often required higher payments down the road. Consequently, debt payments could increase, even if the debt growth slowed.

Not surprisingly, the mortgage boom turned into a foreclosure crisis as the economy and the labor market slowed. In the first quarter of 2007, 0.58 percent of all mort-

gages entered foreclosures.⁹ This marked the first time since the Mortgage Bankers Association collected these data in 1979 that the foreclosure rate rose for four quarters in a row, reflecting the sharpest annual increase to the highest level on record.

Rising household economic distress, however, holds the threat that what once was an almost uninhibited flow of easy credit could turn into excessive tightening of credit standards. Fewer families looking to buy a home or small business owners looking to invest will get access to the financing they need.¹⁰ Less investment in homes and businesses will likely dampen employment creation and economic growth.

Give Lenders an Incentive to Better Manage Risk

To better manage the potential of financial market boom-and-bust cycles that can put the economy on an undesirable rollercoaster ride, we recommend a regulatory tool, considered but never adopted by policymakers, known as asset-based reserve requirements. ABRRs were first proposed in a different context in the 1970s, revived in the early 1990s as a means of directing credit for various socially desirable ends, and their application was extended in the the 2000s as a means of diminishing speculative bubbles (see “Genesis of Asset-based Reserve Requirements,” page 9). Under this proposal, all lenders—deposit-taking and non-deposit-taking institutions alike—would be required to set aside low- or no-interest-bearing reserves at the Federal Reserve on all of their loan products, with differing levels of reserve requirements based on risk and determined by the Fed.¹¹ The greater the risk

of the asset is, the larger the asset-based reserve requirement would be.¹²

Deposit-taking institutions such as commercial banks and savings banks and non-deposit-taking institutions such as mortgage banks, brokers, and industrial loan banks would all have to maintain ABRRs on all of their loan products—from mortgages and small business loans to corporate credit facilities as well as other assets such as auto loans, credit cards, and margin loans for stock purchases. The Federal Reserve would set the reserve levels for these different classes of assets, enabling the central bank to raise or lower reserve requirements on different assets at different times depending on certain risk parameters.

ABRRs would be maintained by the central bank to influence financial institutions’ risk exposure to different asset markets depending on market conditions and these markets’ influence on the broader economy. This flexibility would complement existing capital requirements under the aegis of the Bank for International Settlements’ so-called Basel I and Basel II accords that ensure financial institutions maintain enough capital to remain solvent (see sidebar, page 7).

An ABRR regime recognizes the importance of a flourishing secondary market in different assets. Secondary markets allow reputable financial institutions the ability to offer first-time home buyers a mortgage because the lender knows it can offset some of the risk of lending by selling the mortgage in the secondary market. Demand in the secondary market is high among institutional investors for home mortgages, or auto loans or credit card receivables (to name just a few) that are repackaged into tradable securities.

Under this ABRR proposal, once a loan is sold into the secondary marketplace the originator of the loan would no longer have to hold reserves at the central bank for that asset. Any new lending by all financial institutions that sell their loan assets into the secondary market must set aside new reserves with the central bank when they make new loans. This would likely give all financial institutions incentives to make new loans based on prudent guidelines linked to the amount of reserves required by the Fed.

This proposal would not change any existing regulatory authority—other than eliminating liability-based reserve requirements, as discussed further below—over the different segments of the U.S. financial markets. Just as the Federal Reserve can currently set liability-based reserve requirements for deposits at deposit-taking institutions that are otherwise not regulated by the Fed, asset-based reserve requirements would remain separate from other features of banking regulation and supervision.

By adjusting ABRR levels, the Fed will be able to slow asset market run-ups and thus help forestall asset bubbles. This could smooth out economic cycles and protect financial institutions from overextending themselves in suddenly hot markets. The result would be healthier financial market and economic growth, which wouldn't be disrupted by overly concentrated financial market activity in one asset class during a boom and the inevitable and often sharp correction when the financial market bubble bursts.

These flexible and wide-ranging ABRRs will allow the Fed to manage economic cycles by also lowering asset-based reserve requirements on different asset

classes amid changing economic conditions. During an economic slowdown, for example, ABRRs could be used as a countercyclical measure to stimulate economic activity. By giving the Fed the flexibility to set reserve requirements on different sets of assets across the entire financial landscape as the need arises in an economic cycle, the central bank will be better able to manage the flow of money in tandem with the rest of the economy. Put differently, ABRRs could give the Federal Reserve the tool to better fine-tune an increasingly complex economy with large, dynamic financial markets.

One of the critical components of this proposal is that regulators will be able to assess risk differentials accurately. Regulators at the Fed must be able to tell a risky asset from a less-risky one. Fortunately, this discussion is already central to changes occurring in the regulatory environment for financial institutions. Specifically, U.S. financial institutions are expected to change the way they build capital in response to risk in their portfolio under the so-called Basel II accord. While ABRRs would have no impact on these new capital requirements, the Basel II accord holds important lessons, especially with respect to measuring risk in a financial institution's portfolio.¹³ That is, the tools necessary to adopt this proposal are already being developed.

The Mechanics of Asset-based Reserve Requirements

Not so long ago, a mortgage involved a lender and a borrower. Increasingly, however, a large share (if not the majority of mortgages) are securitized. This involves several players. Specifically, a lender, either a bank or a non-bank, issue a loan

Basel Accords: The Other Risk-Based Regulatory Regime

The asset-based reserve requirements recommended in our paper are designed to complement rather than replace or override almost two decades of work by the world's central banks to implement so-called risk-based capital requirements for financial institutions worldwide. These regulatory guidelines, known as the Basel I and Basel II accords, were drawn up under the aegis of the Bank for International Settlements, a kind of central bank for the world's central banks.

While our asset-based reserve requirements, or ABRRs, would have no impact on the capital-adequacy standards under the two Basel Accords, the two agreements do hold important regulatory lessons, especially with respect to measuring risk in the portfolios of financial institutions. Understanding exactly how the Basel Accords operate is also important since the two regulatory regimes would operate in tandem.

The initial Basel Accords, first adopted in 1988 and now referred to as Basel I, set minimum international capital requirements that all deposit-taking institutions must maintain as a safeguard for solvency. The world's central bankers adopted these new regulations after realizing that existing safeguards—such as deposit insurance—were insufficient to protect the safety and soundness of the financial system from the collapse of big financial institutions.

The new risk-based capital requirements were designed so that central bankers and other financial policymakers would not be obliged to bail out a major financial institution in crisis since that would set a precedent that could lead other financial institutions to engage in similarly unsafe and unsound business. The new guidelines set broad capital-adequacy ratios, such as capital as a share of assets, including mortgages.

In this way, Basel I served to more accurately align financial institutions' profit incentives with their own safety and soundness as they were forced to pay a greater price for more risky behavior. In essence, financial institutions now had more of their own money at stake. Within a decade, however, Basel I was determined to be insufficiently risk-sensitive for the largest financial institutions, leading to a revision of the accord—which is now commonly referred to as Basel II—in the fall of 2005.¹⁴

The new guidelines grew out of now widespread acceptance that capital-adequacy requirements should be based on the relative risks of financial institutions' behavior and holdings, which many federal regulators view as one of their top priorities.¹⁵ The primary change of Basel II was to make capital requirements sensitive to the risk embodied in a financial institution's assets.

In addition to establishing an overall framework of safeguards based on more calibrated risk-assessments, Basel II addresses mortgage as-

sets in particular. Rather than the one-size-fits-all 4 percent capital-to-asset reserve requirement for mortgage loans under Basel I, the new guidelines allow for more sensitive assignments of this risk-weighted percentage to reflect the reality that not all mortgage loans carry the same level of risk.

The Basel II rules for mortgages, which are scheduled to take effect in 2008, weigh risk according to a variety of factors, incorporating data already used in the loan approval process as well as data on the history of the loan performance. Thus, financial market regulations are already establishing the tools necessary for the Federal Reserve to establish ABRRs, especially with respect to mortgage assets.

The manner in which these capital-adequacy rules are administered, however, highlights why ABRRs would complement the Basel Accords as the Fed engages in its main responsibility of managing the money supply. Stricter capital requirements help to build cushions at financial institutions in case something goes wrong, but these requirements also encourage financial institutions to boost lending in good times and curtail lending in bad times. This pro-cyclical bias is inherent in the required capital.

For one, capital grows faster during periods of economic growth, but capital may even decline during an economic slowdown.¹⁶ Consequently, a financial institution would gain more leeway to extend its loans and thus take on more risks in good times, but would have to curtail its lending in an effort to reduce its risk exposure in bad times, simply because how its capital performed. Also, the value of assets at financial institutions may be overstated when the economy goes into a downturn, which means the chance of borrowers defaulting may be underestimated during good times.¹⁷

Consequently, when the bad times roll around and borrower defaults rise, banks may find that they may actually have insufficient capital reserves to provide an adequate level of liquidity to the economy as lenders restrict their lending and risk-taking during an economic slowdown. This does not necessarily mean that financial institutions will fail in droves when things go wrong, but it could mean they will cut back on their loans more than they otherwise would have—exacerbating an economic downturn that may have started the initial rise in default risk.

The Basel accords cannot adequately encourage financial institutions to adjust their capital reserve levels amid changes in economic cycles or amid dramatic financial market swings because Basel I and Basel II do typically not have the tools to curtail overextension during the good times and thus avoid a potentially vicious cycle of credit constraints during a downturn. In contrast, ABRRs would allow the Federal Reserve to do so.

to a borrower, either directly or with the help of a mortgage broker. The lender then turns around and sells the loan—actually, many of them—to the issuer of a securitized asset. The issuer of the securitized asset sells a bond to investors. These bonds are backed by the initial mortgages. Payments on the bonds to the investors are made out of interest and principle payments that the initial mortgage borrower makes to the mortgage servicer, an institution that acts as a go-between between the initial borrower and the institution that purchased the bond.

In the recent mortgage boom, ABRRs would have applied to all lenders that lent mortgages. Banks and non-banks alike would have issued a loan and at the same time would have had to set aside a share of the original mortgage amount aside as asset-based reserve requirement. This money would have been held as low- or no-interest-bearing reserves with the Federal Reserve.

If the lender continues to hold the mortgage, part or all of the asset-based reserves would have been released as the mortgage borrowers made principle payments. Part of the released reserves could then be used again to make another loan. In comparison, if the lender made an interest-only mortgage, the amount held in reserve would not change until the borrower makes payments on the mortgage principle. In this instance, the lender would have a strong incentive to issue a lower-risk mortgage product, such as a traditional, fixed-rate mortgage. A lower-risk product would carry with it a lower ABRR and the borrower would make principle payments that would automatically reduce the amount held as reserves with the Federal Reserve, thereby increasing the amount that could be lent out for new loans.

This is the simple case. Typically, though, a large share of mortgages is securitized and loans are no longer held by the lender. Once the loan is sold off to the issuer of a securitized bond, the reserve amount is released to the original lender. The lender then uses the money to make another mortgage, for which the lender will have to hold again ABRRs. In practical terms, the Federal Reserve would likely average the number of loans for which ABRRs are due over several weeks so that lenders would only have to receive back portions of their original ABRRs or pay portions of what is due, as long as they issue regulated loans.

Even with securitization, ABRRs remain effective. Under a system of ABRRs, lenders will never be able to lend the full amount of money available since lenders will always have to hold part of their assets as reserve and not use them for mortgages or other loans. Again, lenders will have an incentive to move towards lower-risk loans, especially those in which principle gets paid down more quickly, since those mortgages allow lenders to more easily make another loan.

Moreover, ABRRs are a regulatory tool that focuses on an institution—in this case, lenders—not on particular products. That is, ABRRs would apply to all loan products offered by a regulated lender, not just mortgages. Many regulated lenders, which would include, for example, hedge funds and brokers, will lend money in the forms of bonds, including those backed by mortgages.¹⁸ The Federal Reserve can decide whether the mortgage-backed security is more or less risky than the original mortgage; securitized loan obligations, for example, could have different ABRRs than mortgages or other loan products depending on the Federal

Reserve's assessment of risk and economic needs. As long as lenders are regulated, collateralized loan obligations will also be affected by ABRRs.¹⁹

Lenders, of course, were not the only ones with limited incentives to offer low-cost, low-risk mortgages to borrowers during the recent mortgage boom. Mortgage brokers, who sell mortgages to borrowers with capital provided by lenders, typically did not share any of the default risk from the loans they originated. In addition, mortgage brokers earn a yield spread premium, or YSP, which is essentially an interest-rate kickback that increases with the interest rate charged to the borrower. An estimated 90 percent of brokers in the subprime market received YSPs.²⁰ As a result, mortgage brokers had

no clear incentive to pursue the lowest-cost option for borrowers.

Mortgage brokers would probably not be considered lenders under an ABRR-style regulatory regime and thus would not be affected by these new reserve requirements. Because ABRRs regulate all lending institutions and not products, asset-based reserves would not be due to the Federal Reserve until the loan itself was booked by the primary lender. Since the lender and not the mortgage broker is the one who seeks refinancing in the capital market, the decision as to how much money and at what price the lender's money can be lent would rest with the lender. Because the lenders for which a broker originates a loan would be affected by the new regulatory tool, the lender would

Genesis of Asset-based Reserve Requirements

The concept of asset-based reserve requirements boasts a long history in modern regulatory theory. In one form or another, ABRRs have come close to implementation over the past 30 years. However, while much of the original focus was to steer lending toward projects that were deemed socially worthwhile, our primary focus here is to reduce the chance for systemic risk through the implementation of ABRRs.

Early advocates included former Federal Reserve governors Andrew Brimmer and Sherman Maisel and Massachusetts Institute of Technology economist Lester Thurow.²¹ Brimmer in particular lobbied his fellow governors throughout the 1970s to adopt a supplemental system of asset-based reserve requirements with the primary goal of channeling credit to priority borrowers.

Other scholars, such as University of Massachusetts professor Robert Pollin, took up the work of Brimmer and others and continued to advocate for an ABRR regulatory regime. In 1993, Pollin argued for ABRRs as part of an overall restructuring of the Federal Reserve to better allocate credit via public means.

Pollin cites econometric studies showing that long-term changes in asset-based reserve requirements could significantly affect the profitability of the financial institutions and financial intermediaries to which they applied—ultimately affecting lending patterns.²² His review of the relevant research shows that lower profitability associated with higher asset-based reserve requirements should ultimately reduce undesirable lending activities.

While the intention behind some of the earlier proposals was to encourage credit extension to activities that were deemed socially desirable, it seems currently more appropriate to consider ABRRs as a tool to discourage activities that increase the boom-and-bust cycles in the economy, as suggested by economist Thomas Palley in various studies.²³ For many borrowers today in the subprime market, ABRRs could restrict access to high-cost, high-risk loans.

While ABRRs could give financial institutions an incentive to extend lower-cost, lower-risk credit, this is not assured. Policymakers may have to consider additional steps to increase access to lower-cost credit for those groups that will see their access to credit shrink as a result of the use of ABRRs.

also have a strong incentive to direct the broker toward lower-cost, lower-risk loan products—especially if ABRRs are raised to slow the growth of credit and/or if ABRRs for riskier loan products are higher than for other, lower-risk loans.

Asset-based Reserve Requirements and the Recent Mortgage Boom

To see the impact of ABRRs in the recent housing and mortgage booms, consider what the Federal Reserve may have done. Ideally, the Federal Reserve would use its newly created authority to use ABRRs to achieve two things. First, it would try to influence the overall amount of loans issued, and second, it would try to influence the overall risk embodied in the mortgages that are issued by lenders.

Let's look at this step-by-step, beginning six years ago. After 2001, mortgages accelerated relative to disposable income. Over that time, there may have come a point when the Fed thought that mortgages were growing too large. Such a point may have come in early 2005. After all, Federal Reserve chairman Alan Greenspan warned of the potential “froth” in the housing market in the middle of 2005.²⁴ At that point, the Fed may have raised ABRRs on mortgages and on mortgage-backed securities. Lenders would have had less money to lend for these activities and mortgages would have grown slower.

Instead, lenders would have shifted their assets to other loans, such as small business loans, as long as the Federal Reserve did not raise ABRRs associated with these activities, too. The result may have been a different mix of debt and thus an

economy that may have been less dependent on the housing boom as a primary driving force. If the Fed had decided that certain types of mortgages that it considered more risky than others were growing faster than was desirable, it would have raised the ABRRs on these riskier mortgages and on bonds backed by these riskier mortgages faster than for other mortgages. The result would have been fewer higher-risk mortgages.

What's more, because higher ABRRs would have reduced the share of lenders' assets that could have been used productively, and because ABRRs would have been higher for higher risk loans, lenders would likely have responded in two very positive ways. First, less risky loans would have become relatively more attractive, which would have sparked the origination of more low-risk loans. Second, lenders would have charged higher interest rates to higher risk customers, thereby curtailing demand for more risky mortgages.

The result would have been slower mortgage growth in general and fewer high-risk mortgages in particular. That is, the use of ABRRs could have curtailed some of the most rapid run-up in the subprime market, especially in the form of more exotic mortgages.²⁵

Since the default risk of mortgages would have been lower, the ensuing crisis would likely have been less pronounced. Specifically, some of the more high profile failures could have been avoided. New Century Financial Corporation—the second-largest U.S. provider of mortgages to borrowers with less than perfect credit history—admitted in early 2007 that it would need to restate financial statements for the first three quarters of 2006 because it failed to allocate enough

money to losses on loan repurchases.²⁶ Following a period in which it no longer accepted new loan applications, New Century filed for Chapter 11 bankruptcy protection on April 2, 2007. And this is only one of the more publicized cases. Between the end of 2006 and the spring of 2007, more than two dozen mortgage companies have stopped issuing loans since the start of 2006.²⁷

Among the kinds of mortgage loans extended by these companies were interest-only ARMs, payment-options ARMS, and “no document” mortgages. Higher ABRR ratios for these types of loans than for others would have created a strong incentive for lenders to issue less risky loans so that they could deploy more of their capital more productively.

Of course, traditional mortgage lenders such as HSBC Holdings PLC, the world’s largest bank by assets, also would have had to adhere to these new ABRR guidelines since they or their subsidiaries would presumably be subject to U.S. regulation. That might have led the London-based bank to look more closely at U.S.-based Household International Inc. before it paid \$14.6 billion for the home mortgage lender in 2004. Renamed HSBC Finance, the new unit became the third-largest lender in the subprime mortgage market.

In early 2007, HSBC admitted to inadequate management of HSBC Finance and was starting to see big losses from exceedingly large mortgage lending to subprime borrowers. In an update released in February 2007, HSBC acknowledged that its charge for bad debts would be 20 percent higher for 2006 than analysts’ average forecasts—bringing the total to approximately \$10.6 billion, as opposed to \$8.8 billion.²⁸

Once the crisis struck, ABRRs may have proven useful, too. Once lenders became more reluctant to extend credit in the wake of rising foreclosure rates, the Fed could have lowered ABRRs on low-risk mortgages to individuals and small businesses as well as on securities backed by mortgages that were considered low risk. In this way the Fed could have helped to stave off more credit tightening on loan products unrelated to the subprime lending boom without giving up financial stability.

The Economic Rationale for Asset-Based Reserve Requirements

Indeed, the experience of the past few decades suggests that the U.S. financial system may need additional regulatory tools to reduce systemic risk. In particular, boom-and-bust cycles can be harmful to the health of the economy. Hence, economic and financial stability become important policy steps to promote economic growth and mobility.

While much of our discussion in this paper so far has focused on the recent experience in the mortgage market, ABRRs could obviously be used for other types of loans. The rest of the discussion is meant to be illustrative of the type of boom-and-bust cycle to which the U.S. economy has been exposed in the past.

Increased financial market volatility results in less investment and growth

High levels of volatility, as often occur in a boom-and-bust economy, could pose an impediment to long-run growth. For one, vast sums of wealth are often destroyed in

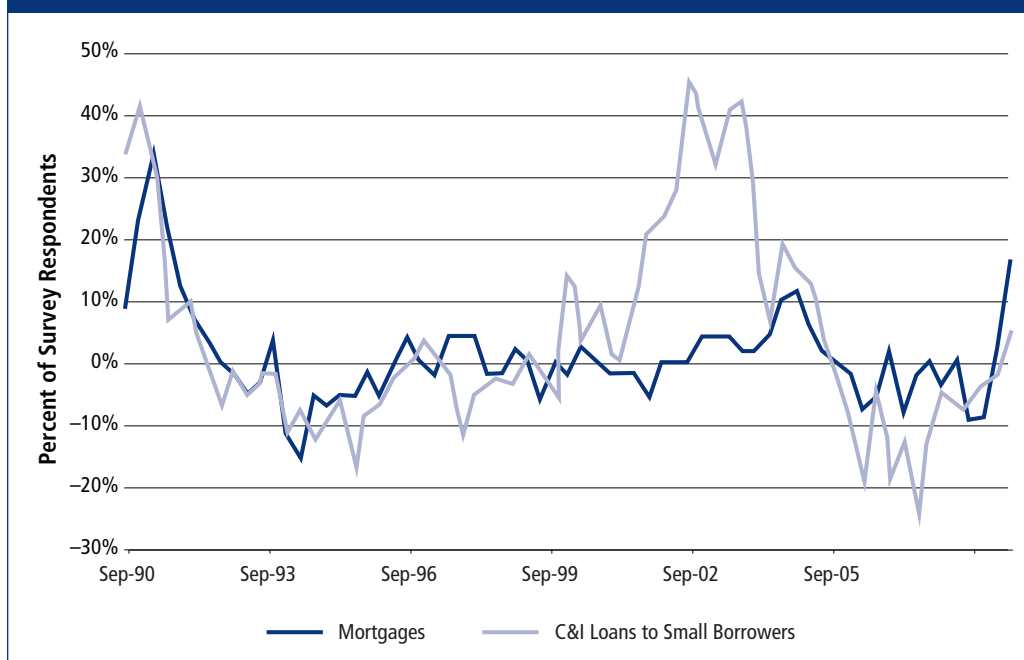
an asset bust. When asset values decline, borrowers have less collateral, and lenders, who just lost large sums of money, will become extra cautious, possibly overly so, in extending credit. The first to feel the brunt of declining credit availability are typically smaller businesses and startups. In a matter of months these borrowers could find themselves going from being flooded with loan offers to facing a dearth of adequate financing options.

Credit standards, for instance, started to tighten at the end of 2006 (Figure 1), reflecting a cyclical slowdown in the economy.²⁹ Importantly, the tightening in the mortgage market in late 2006 has been more pronounced than the tightening for small business loans. Tightening for both mortgages and small business loans will affect small businesses since the majority of their loans are mortgages.³⁰ Hence, tightening credit can contribute to a greater

failure rate of small businesses and start-ups that may be unable to weather a credit crunch with inadequate financial reserves.

Large boom and bust cycles also make it difficult for companies of all sizes to plan ahead. Faced with an uncertain planning horizon, companies will invest less than they otherwise would. Under tight credit constraints, the long-term investment of companies becomes pro-cyclical, meaning that they invest more during good times and pull back during bad times because they cannot get the necessary financing, thereby exacerbating swings in the business cycle.³¹ This interaction between credit constraints and investments leads to larger swings in investment and less overall investment than would otherwise be the case. Thus, in an economy with more asset volatility, the productive and innovative capital base will grow slower than otherwise would be the case.³²

FIGURE 1: NET PERCENTAGE OF SENIOR LOAN OFFICERS REPORTING TIGHTENING LOAN STANDARDS, MORTGAGES AND SMALL C&I LOANS



Notes: C&I loans stands for commercial and industrial loans.
Source: Board of Governors (2007b).

The Link Between Financial Market Liberalization and Financial Volatility

Financial market volatility observed over the past several decades is in large part due to waves of financial market liberalization that began in the 1970s and is continuing into the 21st century.³³

Starting in the 1970s, banking regulation in the United States underwent several profound changes as deregulation was pushed to promote a more flexible and globally competitive banking system in which different types of financial institutions would also be on more equal footing.³⁴ Specifically, the International Banking Act of 1978 served as an equalizer between foreign and U.S. commercial banks in terms of a variety of regulations, including branching and reserve requirements.

Among domestic institutions, *The Depository Institutions Deregulation and Monetary Control Act of 1980* served as an equalizer by, among other things, requiring the same deposit reserve requirements of all insured depository institutions. The act also eased the constraints on savings and loan associations, broadening the scope of their lending capabilities, and opened up Federal Reserve services and credit facilities to a broader array of financial institutions.

Regulatory changes in the 1990s led to greater consolidation in the financial services arena, with larger and more complex financial institutions coming together to offer a much wider array of financial products and

services. Specifically, The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 ended interstate banking restrictions, allowing for banking activities to take place across state lines.

Then, in 1999, the Gramm-Leach-Bliley Financial Services Modernization Act repealed the 1930s-era Glass-Steagall Act, opening up competition among commercial banks, investment banks, and insurance companies. The new legislation allowed for the consolidation of commercial and investment banks and cross-ownership between financial and non-financial intermediaries.

These financial liberalization moves have made it more likely that financial market swings—in particular sudden changes in asset prices—will contribute to more severe economic fluctuations.³⁵ Case in point today is the currently troubled subprime mortgage marketplace and the ripple effects across the larger mortgage marketplace, the U.S. housing market, and the broader economy.

Giving the Federal Reserve the power to set asset-based reserve requirements on a broad array of financial products would allow regulators to better manage the effects of sweeping financial market liberalization over the past three decades. Flexible ABRR guidelines would enable the Fed to match the complexities of financial marketplaces today with equally targeted regulatory tools.

One important transmission mechanism between financial markets and the real economy are risk-based capital adequacy standards (see sidebar above). Financial institutions are expected to have enough reserves to cover a certain percentage of their assets. This capital requirement is tied to the risk embedded in a financial institution's assets. If risk increases, capital has to increase, too.

Thus, although stricter capital requirements help to build a cushion at a financial

institution for the eventuality that something may go wrong, they also add a procyclical component. Financial institutions become more likely to extend credit during good times, since they need to have less capital due to less risk, and curtail it during bad times, all else being equal, because their own reserves grow faster during periods of economic growth and may even decline during periods of economic decline.³⁶

Importantly, while financial institutions are expected to have sufficient reserves to

handle a downturn, the value of their assets may be overstated and the chance of borrowers defaulting may be underestimated during good times.³⁷ Consequently, when the bad times roll around and borrower defaults rise, financial institutions may find that they may actually have insufficient reserves to provide an adequate level of liquidity to the economy.

While this does not necessarily mean that financial institutions will fail in droves when things go wrong, it could mean that financial institutions will cut back on their loans more than they otherwise would have, thus exacerbating an economic downturn that may have started the initial rise in default risk. The more large financial market ups and downs there are, the more obstacles there will be to grow businesses and the economy.

At present, our current financial regulatory system does not have the tools to curtail overextension during the good times and thus avoid a potentially vicious cycle of credit constraints during a downturn. While some researchers, such as the New York Fed's former research director, Stephen Cecchetti, point directly to the need to have greater control and stability over asset prices, the bottom line is the need for a new system and better tools.³⁸

Boom-and-bust cycles center on financial institutions' behavior

In today's economy, lenders may have become complacent about the risks included in their portfolios and the ensuing rise in overall default risk. Existing safety nets and historical precedent have virtually eliminated genuine fear of wholesale failure on the part of financial institutions. This in turn implies that financial institutions know that they can afford to take on

more risk than they otherwise would have because they can be reasonably sure that if default risk actually materializes, the Federal Reserve or other public institutions will likely step in to stabilize the financial system.

In fact, the chance of public support is more likely if the problem is larger. Importantly, financial institutions are keenly aware of the behavior of other financial institutions. It is not lost on them that many of their competitors are engaging in risky behavior and enjoying the interim benefits of higher rates of return. Financial institutions thereby may encourage each other to push the envelope to stay competitive—all collectively knowing that public policy will support the financial market if things go haywire.

Commonly referred to as the “too-big-to-fail” problem, this mentality on the part of financial institutions is by no means a new development. With a string of failures and subsequent bailouts come regularly, confidence, and a false sense of security on the part of financial institutions. When things tip out of balance, lenders have come to expect the government to step in—often at considerable cost to the government and taxpayers.

The U.S. government, for example, came to the rescue of the financial sector during the savings-and-loan crisis of the 1980s, the Mexican peso crisis in 1994, the Asian currency crisis in 1997, and the hedge fund crisis of 2000. In each case, different tools were used—such as direct infusions of cash, lower interest rates, and increased access to liquidity from the Federal Reserve. To take the S&L crisis as one example, the federal government created the Resolution Trust Corporation to resolve the crisis with a direct infusion of cash. The FDIC estimates that the final resolu-

tion costs were more than \$160 billion, with \$132 billion in public sector dollars.³⁹

There is some evidence suggesting that the “too-big-to-fail” problem may have gotten worse over time, in part due to the fact that financial institutions have become larger and more complex, while controlling larger portions of total banking system assets.⁴⁰ Recent trends in risk measures indeed suggest that default risk has increased over time.

One indicator of rising default risk is the personal bankruptcy rate (Figure 2). Though a new bankruptcy law had a dramatic impact on the data beginning in the middle of 2005, there is clearly a long-term upward trend going back to March of 1980. Moreover, the new series that starts after the break in 2005 also shows an upward trend in bankruptcies for 2006 (not shown here). From the first quarter of 2006 to the fourth quarter of 2006, the bankruptcy rate increased from 1.5 cases per 1,000 people to 2.5 cases per

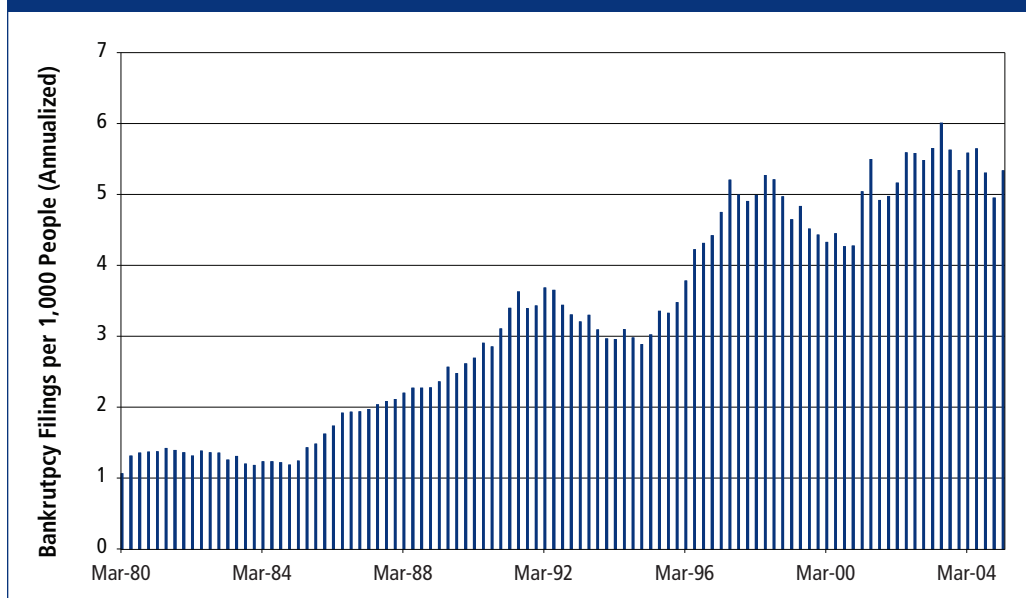
1,000, an increase of 65 percent.⁴¹ This seems to support the notion that default risk has become more pronounced, at least at the household level.

The mortgage boom as the latest example of a boom-and-bust cycle

Starting in 2001, mortgages accelerated at an unprecedented rate. From March 2001, when the current business cycle started, to March 2007, the ratio of mortgages to disposable income grew from 66.2 percent to 99.3 percent. That is, on average the ratio of mortgages to disposable income increased by 1.4 percentage points each quarter. In comparison, the quarterly gain during the 1990s was 0.2 percentage points (Figure 2).

Much of the recent run-up in mortgages occurred in the subprime market and in more exotic mortgages, which tend to embody greater default risk. Non-tradi-

FIGURE 2: PERSONAL BANKRUPTCY FILINGS RELATIVE TO THE POPULATION



Notes: Bankruptcy rate is defined as the number of cases per 1,000 people. Sources are American Bankruptcy Institute (2006) and U.S. Census Bureau (2007).

tional, often riskier mortgage products, such as ARMs, interest-only mortgages, and payment-option ARMs proliferated. The Government Accountability Office reported in 2006 that the use of these alternative mortgage products (in particular interest-only mortgages or payment-option ARMs) grew rapidly between 2003 and 2005, from 10 percent of all mortgage originations in 2003 to 30 percent in 2005.⁴² Together, interest only mortgages and payment option ARMs totaled \$575 billion in originations in 2005.⁴³ Also, the share of variable interest rate debt out of total mortgage debt grew from 16 percent in 2001 to 25 percent in 2004, and the share of home owning families with ARMs and home equity lines in excess of 50 percent of income rose from 8 percent in 2001 to 12.3 percent in 2004.⁴⁴

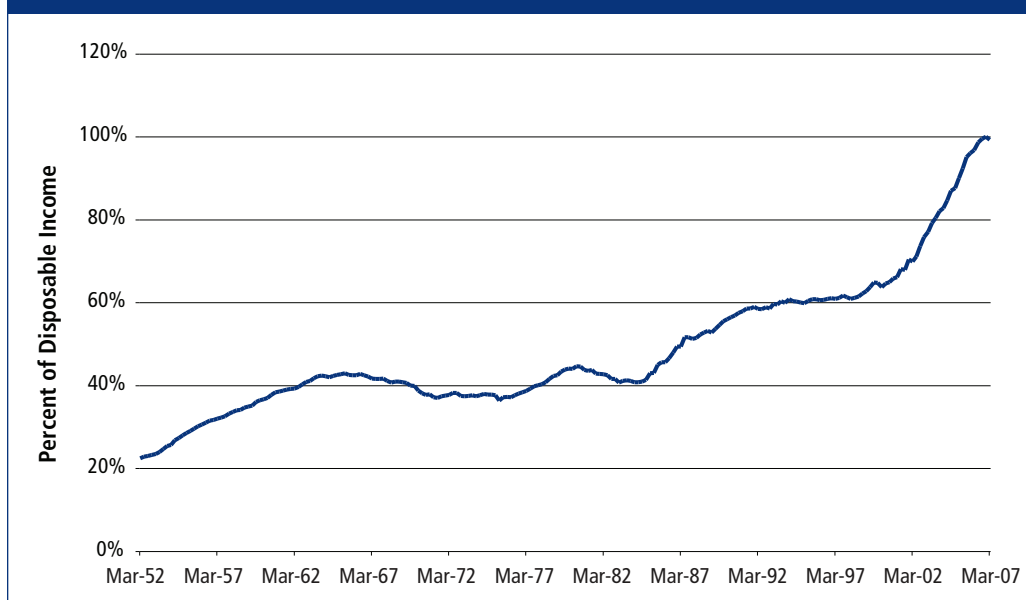
These mortgage products exposed borrowers to greater interest rate risk because of the heightened chance that interest rates and thus mortgage payments could increase. These products also

threatened lenders with larger default risk if borrowers could not meet the additional demands on their incomes should interest rates rise.

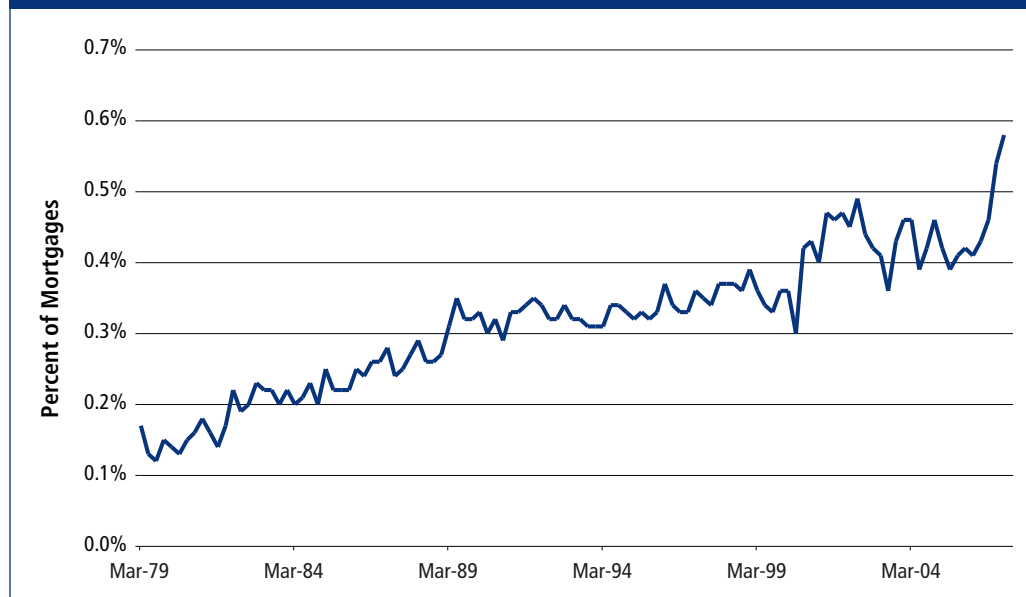
Starting in early 2006, the downside of this mortgage boom became apparent. Most notably, foreclosures increased sharply. Data from the Mortgage Bankers Association (Figure 3) show a relatively long-term upward trend, with steady increases in the share of mortgages on which foreclosures have started in any given quarter. More importantly, though, the data show a particularly pronounced spike after 2005. By the first quarter of 2007, the share of mortgages that entered foreclosure rose to 0.58 percent—a historic high that came after an unprecedented increase over four quarters—and the one-year increase of 0.17 percentage points was the largest one-year increase on record.

At the subprime level, the data are perhaps even more concerning. A report from the Center for Responsible Lend-

FIGURE 3: MORTGAGES RELATIVE TO DISPOSABLE INCOME



Notes: Authors' calculations based on BOG (2007a).

FIGURE 4: SHARE OF MORTGAGES, WHERE FORECLOSURE HAS STARTED 1979–2006

Notes: Figures are in percent. Source is MBAA (2007). Data are through March 2007.

ing in 2006 found that close to one out of five loans, 19.4 percent, that originated in the sub-prime market from 1998 through the third quarter of 2006 will fail—with 2.2 million homeowners slated to lose their homes and as much as \$164 billion.⁴⁵

The fallout of the mortgage market had serious real economic consequences. As pointed out earlier, economic growth slowed substantially as did employment growth, particularly in the pivotal residential construction sector.

Fitting Asset-based Reserve Requirements with Other Regulatory Tools

The recurrence and size of asset boom-and-bust cycles are disruptive to economic growth, harmful to economic opportunity, and can prompt serious demands from the public for policymakers to intervene. ABRs can be helpful since they would

broaden the Federal Reserve's tool kit to manage the various economic challenges in an increasingly complex economy.

It is a long-standing expectation that the Fed will pursue a number of goals, the primary ones being price stability and full employment. It has also been argued that the Fed should focus on a range of other goals, including exchange rate stability and asset price stability. Yet the Fed currently has very few effective tools at its disposal to achieve these goals. The primary one is the federal funds rate, of which the target is set by the Federal Open Market Committee.

To supplement this tool, executives of the Federal Reserve have tried to develop public pronouncements as additional policy tools. For example, Alan Greenspan coined the term “irrational exuberance” to warn of the dangers of an over-inflating stock market, and the term of “froth” to indicate his concerns over the hous-

ing and mortgage boom.⁴⁶ Some argue that the Fed is actually able to achieve its policy goals through what are referred to as “open mouth operations,” whereby Federal Reserve policy makers highlight perceived problems and the need for solutions and allow the market to do the rest.⁴⁷

This point came to the fore again as the economy tried to handle the downturn following the end of the housing boom. Existing tools, particularly short-term interest rates, may be ill-suited to addressing an asset boom, due to timing lags, a loosening connection between short-term and long-term interest rates, and unintended consequences. ABRRs would provide the Fed with another tool to achieve its goals. Targeted ABRRs, for example, could have been applied during the recent stock market and housing booms to increase the costs of particular loans to reduce the run-up in asset prices without affecting the entire economy indiscriminately.

The use of ABRRs would require some amount of policy coordination. For instance, if the Fed decides to tighten monetary policy to prevent the economy from overheating, ABRRs may have to remain stable or perhaps be increased to complement the Fed’s interest rate policies. However, there is no expectation of an automatic link between the Fed’s open market operations and ABRRs.

To avoid the proliferation of too many regulatory tools, though, we would envision eliminating liability-based reserve requirements (LBRRs) as they have been used less and less to stabilize financial markets. The United States has long had LBRRs to ensure stability and solvency of the banking system. Under LBRRs, deposit-taking institutions, such as commer-

cial financial institutions and savings banks, are required to hold a certain percentage of their deposit in non-interest bearing or low-interest bearing accounts, generally with the Federal Reserve, as safeguards of the deposits taken in. Not only is this system meant to provide some security for bank depositors, it also is meant to provide the monetary authority, in this case the Federal Reserve, with a tool to manipulate the liquidity that the banking system can provide to the economy. If the reserve requirement is increased, then financial institutions have less money available to lend as loans and the liquidity declines, while lower reserve requirements should have the opposite effect.

The role of LBRRs in determining liquidity in the United States is fairly limited, largely because deposit-taking banking institutions play a small roll in the U.S. economy.⁴⁸ With loans from deposit-taking institutions financing a limited portion of the credit market, an LBRR system can only apply to that limited portion. This limits the reach of LBRRs in determining liquidity and thus reduces its usefulness as a tool of monetary policy.

In addition, because LBRRs are restricted to deposit-taking institutions and since many lenders are not deposit-taking institutions, the goal of using LBRRs as a stabilizing tool is also hard to reach. While, for example, some mortgages are offered directly from a deposit-taking institution to the borrower, many are not. In the subprime market, many mortgage loans are offered directly to consumers through mortgage brokers and are originated by lenders such as New Century Financial Corporation or Countrywide Home Loans. As neither is considered a deposit-taking institution, none is affected by LBRRs.

Conclusion

The economy has been taken on a roller coaster ride for the past few years due to an unprecedented mortgage boom that has come quickly to a halt. Volatile financial markets can have serious ramifications for the economy. Qualified borrowers and businesses may get swamped with easily available credit one minute and struggle to get adequate financing the next.

Because financial market risks can spill over into the rest of the economy and because these boom-and-bust cycles have recurred with some regularity, it may be time to consider changes in the U.S. regulatory structure that could help to avoid such large swings. One possible idea to achieve this may be asset-based reserve requirements.

First, ABRRs would tie reserves more closely to risk, allowing regulators to restrict funds available for risky activities and ease them for less risky loans. Varying degrees of risk embedded in each asset class would determine the relative differences in reserve requirements at any given point in time, with regulators able to change each asset class's reserve ratio depending on economic circumstances. Financial institutions thus may receive an incentive to extend less risky loan products over riskier ones.

Second, all financial institutions that issue loans—not just those that collect deposits—would face these reserve requirements. Consequently, the proposal could affect all forms of loans and possibly help to reduce the chance of volatile credit and asset booms and busts.

Third, ABRRs could be eased during an economic slowdown and thus used as a countercyclical measure to stimulate economic activity during a downturn, acting as a complement to capital requirements. Importantly, because capital requirements are static and do not change over time, they have a pro-cyclical effect on bank loans. An economic downturn increases the default risk across a lender's entire portfolio, necessitating additional capital requirements, which would further restrict lending in a slowing economy. In comparison, ABRRs can be altered in response to a changing economy, thus allowing policymakers to affect lending in a countercyclical fashion, so that ABRRs would be lower when the economy slows.

A new system of reserve requirements for all lenders could increase the costs for lenders, lower the supply of these types of loans and shift the balance toward less risky lending behavior, ultimately helping to put the economy on a more stable path. More economic stability, though, will support faster growth and create more economic opportunities, especially for low- and moderate-income families.

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- 2 Christian E. Weller, "Access Denied: Low-Income and Minority Families Face More Borrowing Constraints and Higher Borrowing Costs" (Washington, DC: Center for American Progress, 2007).
- 3 This proposal is not an attempt to present a thorough regulatory roadmap for an entire new system but rather to highlight that a new regulatory tool might be needed due to turmoil in the marketplace.
- 4 Calculation based on U.S. Bureau of the Census, *New Residential Sales* (Department of Commerce, 2007).
- 5 Calculations based on Bureau of Economic Analysis, *National Income and Product Accounts*, (Department of Commerce, 2007).
- 6 Bureau of Economic Analysis, *National Income and Product Accounts*.
- 7 Residential construction employment encompasses specialty contractors and other construction workers. Calculations based on Bureau of Labor Statistics, *Current Employment Statistics*, (Department of Labor, 2007).
- 8 Calculations based on Board of Governors of the Federal Reserve System, *Flow of Funds Accounts of the United States*, (Department of the Treasury, 2007a).
- 9 For details, see Mortgage Bankers Association, *National Delinquency Survey* (Washington, DC: MBAA, 2007).
- 10 Calculations based on Board of Governors, Flow of Funds Accounts, show that mortgages constituted 55 percent of all loans of nonfarm, noncorporate businesses at the end of 2006 and that 13 percent of their loans were bank loans, constituting their second largest credit category.
- 11 Instead of requiring each financial institution to apply the reserve ratios, financial institutions could be allowed to trade certificates through an auction system. As a result, the preset reserve requirement ratio would apply to all loan-originating institutions on average, while some banks may hold higher and others may hold lower reserves (see S. Maisel, "Improving Our System of Credit Allocation," *Credit Allocation Techniques and Monetary Policy* (Federal Reserve Bank of Boston, 1973, Proceedings of a conference held at Melvin Village, New Hampshire, pp. 15–30 as cited in Robert Pollin). Public Credit Allocation through the Federal Reserve: Why it is Needed; How it Should be Done" In G. Dymski, G. Epstein, and R. Pollin, eds., *Transforming the U.S. Financial System: Equity and Efficiency for the 21st Century*, (Washington, DC: M.E. Sharpe, 1993).
- 12 While much of the rationale for ABRR is based on the recent experience in the mortgage market, the logic obviously extends to other asset classes as well. Previous proponents of ABRR were particularly interested in using this tool to promote sustainable, socially desirable investments (Pollin, "Public Credit Allocation through the Federal Reserve").
- 13 See sidebar on page 7 for a discussion of the Basel II accord.
- 14 Basel II also makes the case that there may be value in increased disclosure of bank assets and activities. Pillar III of Basel II discusses the role of market signals and market discipline by establishing a set of public information disclosure requirements that a bank must make of itself. By providing creditors and investors with a clearer picture of a particular bank's risk situation, the market will provide banks with additional incentive to avoid riskier activities. Further disclosure in the marketplace could potentially have a profound impact on the secondary market for mortgage loans. With such a high percentage of non-traditional loans being sold off on the secondary market, there is often little understanding in the investor community as to where these loans go and who ultimately pays the price if and when they fail. Requiring banks to disclose on a basic level what portion of their assets is occupied by non-traditional, subprime, or potentially risky loans would elevate and enlighten the discussion surrounding these loan problems. Individual brokers and small fly-by-night shops would likely be joined by many large banks in bearing their portion of the responsibility for a risky and volatile portion of the mortgage loan industry.
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- 18 Another loan type that would fall under ABRRs is margin loans issued by brokers for the purpose of buying securities. Importantly, ABRRs would supplement the existing regulatory authority of the Federal Reserve over these loans but not replace it.

- 19 Several points should be kept in mind. First, the U.S. regulatory system is a mix of regulations affecting institutions and those affecting products. For instance, mutual funds are regulated as well as stocks that mutual funds buy. The issue is that regulation of lenders does not interfere with regulations of particular products, such as mortgages. One current debate that focuses on regulating a product is "assignee liability: for the mortgage market." For details, see Center for Responsible Lending, "Assignee Liability: Protecting Homeowners, Strengthening the Market," *CRL Issue Brief No. 20* (Durham, NC: CRL, October 18, 2004). Second, by regulating only institutions that are identified as lenders, some parts of the market will not be affected, notably individuals, but possibly others. This is similar to other regulatory approaches. Future discussions of this proposal would have to exactly define what constitutes a lender. Third, because the Federal Reserve can set ABRRs at its discretion, it can lower those on collateralized loan obligations enough to maintain sufficient liquidity in the market.
- 20 For details, see Center for Responsible Lending, 2004b, "Yield Spread Premiums: A Powerful Incentive for Equity Theft," *CRL Issue Brief No. 11* (Durham, NC: CRL, June 2004b).
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- 24 For details, see Alan Greenspan, Testimony before the Committee on Financial Services, U.S. House of Representatives, July 20, 2005.
- 25 Lenders' reactions to ABRRs, although intended, may require supplementary policies. The use of ABRRs would likely reduce access to costly and often risky forms of credit for many borrowers, for example, borrowers who are currently in the subprime mortgage market. This is partly offset by more access to lower-risk loans for qualified borrowers. However, this may not be enough. Given the continued obstacles for many borrowers, especially low-income and minority ones, in getting adequate credit access, additional policy steps may be necessary to level the playing field among borrowers and increase credit access for currently underserved borrowers.
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- 31 For details, see Philippe Aghion, Philippe, George-Marios; Angeletos, Abhijit Banerjee, and Kalina Manova, "Volatility and Growth: Credit Constraints and Productivity-Enhancing Investment." Working Paper (NBER, 2005).
- 32 The evidence suggests that the rise in financial volatility in the United States has been a result of financial deregulation since the 1970s (see sidebar on page 13).
- 33 Goodhart, Hofmann, and Segoviano, "Bank Regulation and Monetary Policy."
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Center for American Progress
1333 H Street, NW, 10th Floor
Washington, DC 20005
Tel: 202.682.1611 • Fax: 202.682.1867
www.americanprogress.org