



After the Mortgage Boom and Bust, A Way to Stabilize Financial Markets

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After the Mortgage Boom and Bust, A Way to Stabilize Financial Markets

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Abstract

Between 2001 and 2007, the US economy experienced a mortgage boom and bust that spilled over into the real economy. The mortgage boom was fuelled in part by new, less regulated products and institutions. To improve the stability of US financial markets, federal regulators could use asset-based reserve requirements (ABRRs). ABRRs have several features that may have helped to smooth the large financial market swings after 2001. For one, ABRRs increase the tools at the Federal Reserve's disposal to conduct monetary policy. Second, ABRRs directly influence lenders' asset allocation decisions and thus could provide strong incentives to engage in less risky lending strategies. In this regard, they may prove superior to the existing system of reserve requirements on deposits, which they could possibly replace. Third, ABRRs would impact a much larger share of the credit market than reserve requirements on deposits, not just loans by deposit-taking institutions that fall under the Federal Reserve's regulatory regime. Fourth, ABRRs could offset the procyclical bias of new capital adequacy standards and thus help to stave off too much credit tightening in an economic downturn.

Keywords: Asset price inflation; financial stability; credit constraints, monetary policy; capital adequacy standards.

I. Introduction

After 1995, the US experienced an unprecedented house price boom, fuelled by ever increasing mortgages, which were in turn rationalized with the growth in house prices. By early 2006, though, the boom had turned to bane. Mortgage foreclosures mounted, banks in the U.S. and abroad failed, credit tightened, home sales decreased, economic growth slowed, and job growth waned. Thus, the most recent boom and bust cycle spilled over into the real economy as less wealth reduced consumption and financial turmoil lead lenders to tighten their credit standards.

Such boom and bust cycles tend to recur with some regularity. To address them, regulators could implement asset-based reserve requirements (ABRRs). Specifically, ABRRs would require all lenders to place with the Federal Reserve a specified percentage of loans as low or no interest bearing reserves. Reserves would be larger for riskier loans and could be adjusted according to economic needs. In addition, the level of ABRRs for each asset class could be varied in response to economic changes.

ABRRs would address three critical macroeconomic challenges. First, they would give the Federal Reserve the means to intervene in boom and bust financial cycles. Second, ABRRs would broaden the monetary policy tools at the disposal of the Federal Reserve in an increasingly complex and globally integrated financial market. Third, ABRRs would impact a larger share of the financial market and thus serve better as a tool of monetary policy than the current approach of reserve requirements on deposits. Fourth, ABRRs could complement capital requirements and offset their pro-cyclical bias.

The idea of ABRRs has been around for some time. The original intent, however, was not to use them as a stabilization tool, but as a credit allocation mechanism, so that underserved market segments could gain easier access to credit. Only recently have researchers emphasized the value of ABRRs as an additional tool for monetary policy. Yet these proposals still lack many specifics that seem necessary to illustrate the value of ABRRs as stabilization tools. For instance, it is unclear how ABRRs would apply to the securitization market or how they would interact with other regulatory tools, such as new capital adequacy standards. This paper uses the example of the mortgage market to illustrate what some of the specifics of a workable ABRR proposal would look like.

II. Background

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, which have recurred with some regularity, can have serious repercussions for growth.

II.1 Financial Deregulation and Financial and Economic Volatility

Underlying the recurrence of large boom and bust cycles has been, at least in part, a move towards financial deregulation that has not been matched by improved regulatory tools.¹ The link between financial liberalization and a greater chance of financial instability has

¹ Some researchers have used recent asset price boom and busts to call for new monetary policy tools (see Cecchetti 2006; Epstein, 2003; Palley, 2003).

been fairly well established. In particular, financial deregulation tends to result in systemic increases in default risk due to deregulation euphoria and a rise in speculative investments, causing and fuelled by temporary and unsustainable boosts in asset prices (Gabel, 1995; Kaminsky and Reinhart, 1999; Weller, 2001).

Financial deregulation in the U.S. started in the late 1970s with the rationale of greater efficiency and global competitiveness for US lenders as backdrop (Spong, 2000). Specifically, the *International Banking Act of 1978* was meant to equalize operations between foreign and U.S. commercial banks, including branching and reserve requirements. Among domestic institutions, *The Depository Institutions Deregulation and Monetary Control Act of 1980* required, among other things, the same deposit reserve requirements of all insured depository institutions. It also eased the constraints on savings and loans (S&Ls), broadening the scope of their lending capabilities, and opened up Federal Reserve services and credit facilities to a broader array of financial institutions.

Additional 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.

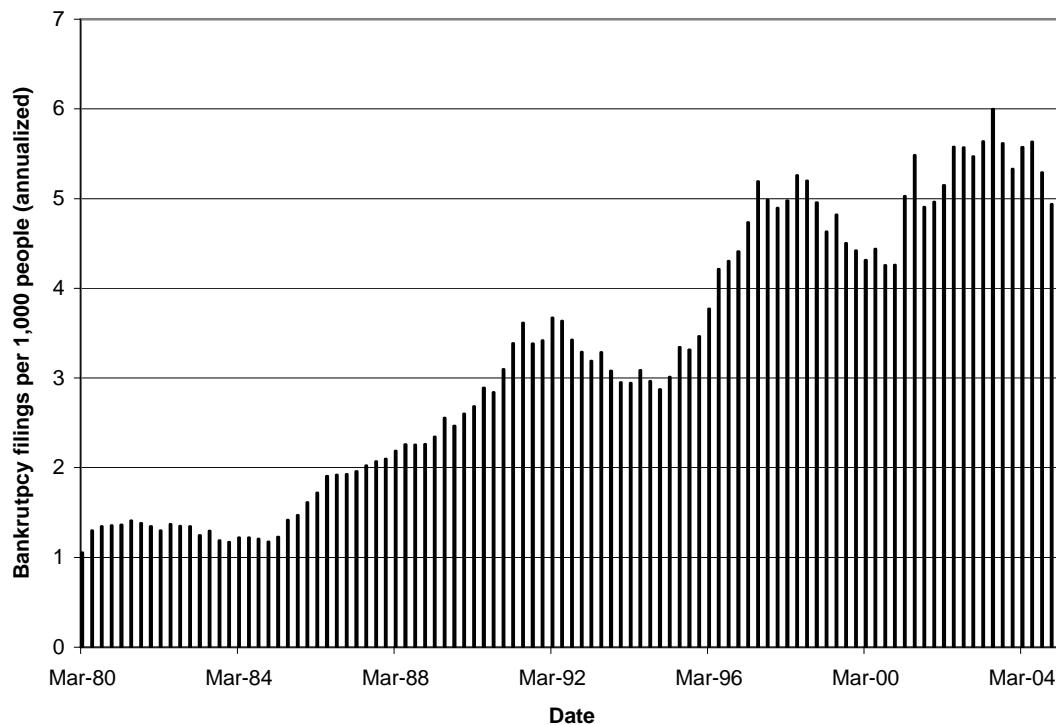
These deregulations went hand-in-hand with other policy changes that increased demand for mortgages over other forms of credit. First, the standardization of mortgages and the introduction of mortgage-backed securities reduced the costs of consumer debt. These changes took shape in the 1960s with the creation of Ginnie Mae under the Housing and Urban Development Act of 1968, the creation of Freddie Mac, the engagement of Fannie Mae in the pass-through market under the Emergency Home Finance Act of 1970, and tax advantages for mortgages under the 1986 Tax Reform Act (Vandell, 2000). These innovations helped to reduce the risks for mortgage lenders and lowered the costs of mortgages (Van Order, 2001). Second, the Tax Reform Act of 1986 phased out the deductibility of most non-mortgage interest, leading to a shift of consumer debt towards mortgages, including home equity lines (Dunsky & Follain, 2000; Stango, 1999).

Increasingly money for loans originated from less regulated institutions (Goodhart et al., 2006). For instance, much of the recent mortgage boom was fuelled by hedge funds, which channeled funds from domestic and global institutional investors and wealthy individuals into the market for collateralized debt obligations. It was estimated that in 2006 the vast majority, about \$1.9 trillion, or 76% of all new mortgages was securitized. Securitization seemed to be somewhat larger in the subprime mortgage sector, which accounted for an estimated 20% of mortgage originations and 25% of securitizations (Kornfeld, 2007).

This increasing availability of money for securitization of assets, such as mortgages, had two consequences. Lenders faced fewer risks on their own balance sheets and thus were more willing to extend loans than otherwise would have been the case. Second, a growing share of the mortgage market was handled by less regulated entities. Investments in hedge funds were estimated to have growth from \$211 billion in 1999 to \$1,223 billion in late 2006 (Dodd, 2006).

Recent trends suggest that default risk in the US has indeed increased over time. One indicator of rising default risk is the personal bankruptcy rate (figure 2). There is clearly a long-term upward trend going back to March of 1980. Although the new bankruptcy law had a dramatic impact on the data beginning in the middle of 2005, the data since the first quarter of 2006 also show 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%.²

Figure 1: 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).

Under large boom and bust cycles, companies will likely invest less than they otherwise would. Under tight credit constraints, investment is pro-cyclical. Firms invest more during good times and pull back during bad times because they cannot get the necessary financing (Aghion et al., 2005). Importantly, the value of financial institutions' assets may be overstated and default risk may be underestimated during good times.

² Other measures of default risk, such as foreclosure rates, credit card default rates, and share of non-current residential loans, also exhibit an increasing trend through 2006 (FDIC, 2007; MBAA, 2007; BOG, 2007d).

Consequently, when economic growth slows, borrower default increases and financial institutions may find that they may have insufficient reserves to provide additional liquidity to the economy, thus tightening credit (Schwartz, 2003; Jaeger and Schuknecht, 2004). The 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.

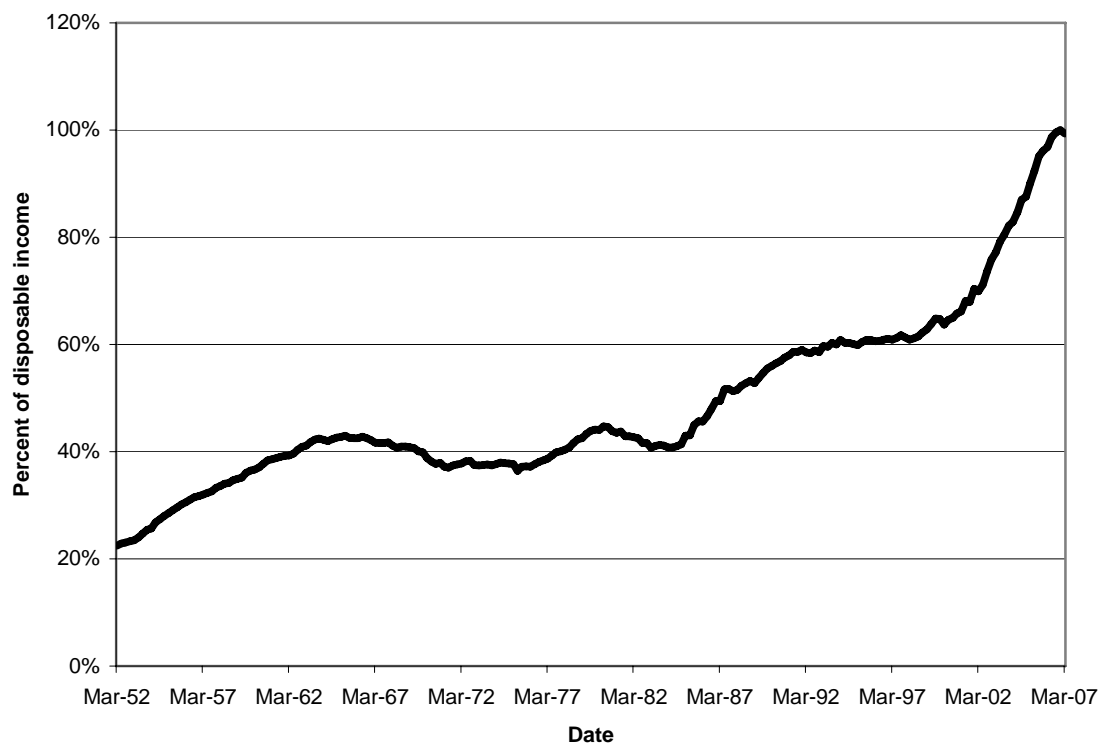
The problem of boom and bust cycles, though, is further exacerbated by financial institutions undervaluing the risks associated with certain activities due to past public interventions. This may create a moral hazard problem, by which financial institutions take on more risks than they otherwise would (Stiglitz, 1994). Over the past few decades, the U.S. government came to the rescue of the financial sector during the S&L crisis of the 1980s, the Mexican crisis in 1994, the Asian 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 estimated that the final resolution costs were more than \$160 billion (Ennis and Malek, 2005). There is some evidence to suggest that the moral hazard problem worsened 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 (Stern and Feldman, 2004).

II.2 The Mortgage Boom and Bust Cycle

Starting in 2001, mortgages accelerated at an unprecedented rate. From March 2001 to March 2007, the ratio of mortgages to disposable income grew from 66.2% to 99.3% - an increase of 1.4 percentage points each quarter. In comparison, the quarterly gain during the 1990s was 0.2 percentage points (figure 2).

Much of the mortgage growth occurred in the subprime market and in non-traditional products, which can embody greater default risk. These products, such as ARMs, interest only (IO) mortgages and payment-option ARMs, proliferated. For instance, the use of these products grew rapidly between 2003 and 2005 – from 10% of all mortgage originations in 2003 to 30% in 2005 (GAO, 2006). Together, IOs and ARMs totaled \$575 billion in originations in 2005 (Inside Mortgage Finance, 2006). Also, the share of variable interest rate debt out of total mortgage debt from 16% in 2001 to 25% in 2004 and the share of home owning families with ARMs and home equity lines in excess of 50% of income rose from 8% in 2001 to 12.3% in 2004 (Weller, 2006). These mortgage products exposed borrowers to greater interest rate risk and ultimately larger default risk, if borrowers could not make the larger payments.

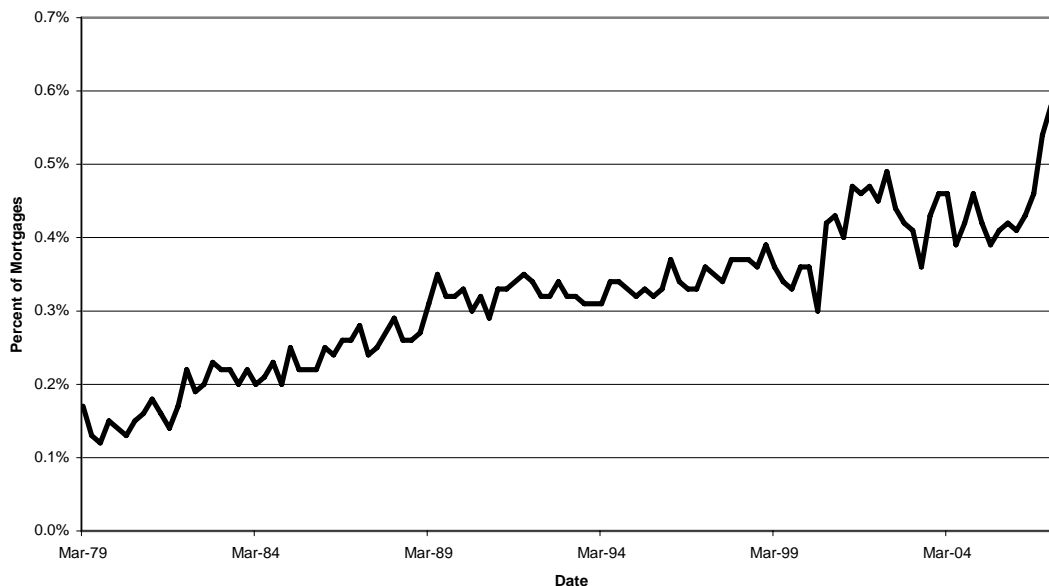
Figure 2: Mortgages Relative to Disposable Income



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

Starting in the early 2006, foreclosures increased sharply. There was a relatively long-term upward trend in the share of mortgages, on which foreclosures have started in any given quarter (figure 3). 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%, a historic high, coming after an unprecedented four-quarter increase.

Figure 3: Share of mortgages, where foreclosure has started, 1979 to 2006



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

At the subprime level, the data show even more turmoil. Close to one fifth of loans, 19.4%, originated in the sub-prime market from 1998 through the third quarter of 2006 were estimated to fail – with 2.2 million homeowners slated to lose their homes and as much as \$164 billion of mortgages going into foreclosure (Ernst et al., 2006).

The fallout from the end of the mortgage boom affected the real economy. For example, from March 2001 through December 2005, new home sales grew at an annual rate of 5.8%. In sharp contrast, over the course of 2006, the sale of new homes fell by 17.8% and by another 10.0% in the first five months of 2007 (Census, 2007a).

This up and down movement was reflected in economic growth trends. From March 2001 through the end of 2005, 13.7% 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 with 29.8%.³ Economic growth in the first quarter of 2007 fell to its lowest level in almost seven years with 0.6%, in the wake of six quarters of real nonresidential fixed investment growth (BEA, 2007).

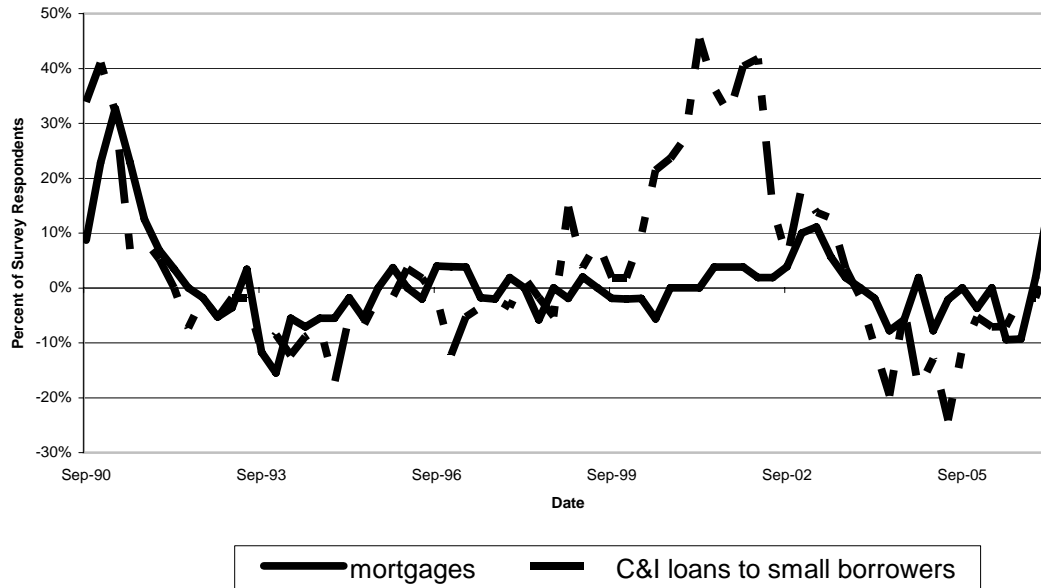
Labor market trends mirrored the large swings as well. From March 2001 through the end of 2003, residential construction added 13,500 new jobs each month. During the boom years of 2004 and 2005, residential construction employment expanded at a rate of 20,600 per month. In contrast, from the end of 2005 through March 2007, residential construction employment declined on average by 5,200 jobs per month.⁴

³ Calculations based on BEA (2007).

⁴ Calculations based on BLS (2007).

The slowdown in the economy and the labor market fuelled the rise in foreclosures and other economic distress measures. Rising household economic distress in turn, though, lead to tighter credit standards (figure 2).⁵ The tightening in the mortgage market in late 2006 was more pronounced than the tightening for small business loans. Tightening for both mortgages and small business loans, though, would affect small businesses since the majority of their loans are mortgages.⁶

Figure 4: Net Percentage of Senior Loan Officers Reporting Tightening Loan Standards, Mortgages and Small C&I Loans



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

III. Asset Based Reserve Requirements

To better manage financial stability, we propose a new regulatory tool, asset-based reserve requirements (ABRRs).

ABRRs have a substantial history. Much of the original focus was to steer lending towards projects that were deemed socially worthwhile. Early advocates included former Federal Reserve governors Andrew Brimmer and Sherman Maisel and Massachusetts Institute of Technology economist Lester Thurow (Pollin, 1993). Brimmer in particular lobbied his fellow governors throughout the 1970s to adopt a supplemental system of ABRRs, with the primary goal of channeling credit to priority borrowers. In the wake of more recent financial crises, a number of researchers (Palley, 2003, 2004; Epstein, 2003; Cecchetti, 2006) argued that the Federal Reserve required additional tools, including ABRRs. These previous studies, though, left numerous issues unanswered. Specifically,

⁵ The Federal Reserve has redesigned its survey question for senior loan officers, so that data starting in the first quarter of 2007 are not comparable to data for prior years.

⁶ Calculations based on BOG (2007b) show that mortgages constituted 55% of all loans of nonfarm noncorporate businesses in early 2007 and that 13% of their loans were bank loans.

it was unclear how ABRRs would interact with the new capital adequacy standards and how ABRRs would affect the secondary market.

Under our proposal, all lenders would be required to set aside low or no interest-bearing reserves at the Federal Reserve on all of their loan products. All lenders, be they deposit-taking, such as commercial banks and savings banks, or non-deposit-taking, such as many mortgage banks, brokers, and industrial loan banks, would have to maintain ABRRs on all of their loans, from mortgages and small business loans to corporate credit facilities, auto loans, credit cards and margin loans.

The levels of ABRRs for each loan type would differ based on risk.⁷ The greater the risk of the asset is, the larger the reserve requirement would be.

The Federal Reserve could adjust ABRRs depending on market conditions. By adjusting ABRR levels, the Fed could slow asset market run-ups and thus help forestall asset bubbles. This could smooth out economic cycles and protect financial institutions from over-extending themselves in suddenly hot markets. ABRRs, for instance, could be raised in response to a lending boom or lowered to stave off a credit crunch, which would make ABRRs an important counter-cyclical policy tool.

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

If, however, the original mortgages are sold to another regulated lender, that regulated lender would have to set aside ABRRs on the collateralized debt obligation. The important point to keep in mind is that ABRRs affect lenders and not products. Some purchasers of CDOs, for instance, would not be considered regulated lenders, in particular individuals, and thus would not be impacted by ABRRs.

Our proposal would not change existing regulatory authority. 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.

IV. Additional Considerations

A number of important issues need to be addressed further. These include risk measurement and the interaction of ABRRs with other regulatory tools, specifically with risk based capital adequacy standards and reserve requirements on deposits, and the role of ABRRs in monetary policy decisions.

⁷ 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 Maisel, S., 1973, as cited in Pollin, 1993).

IV.1 Measuring Risk

The introduction of ABRRs depends on the ability to measure risk. This discussion is already central to regulatory changes occurring in the US. 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 reached under the aegis of the Bank for International Settlements.

The initial Basel accord (Basel I), first adopted in 1988, set minimum international capital adequacy standards 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.

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 (Basel II) in the fall of 2005 (Dugan, 2006). The primary change of Basel II was to make capital requirements sensitive to the risk embodied in a financial institution's assets (Tarullo, 2006).

Basel II addressed mortgage assets in particular. Rather than the one-size-fits-all 4% 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.

The Basel II accord designed three possibilities to measure asset risks. The simplest of these approaches extends and modifies the way Basel I measured asset risk, e.g. by adding more risk categories. In essence, regulators impose risk weights to different risk categories and banks need to allocate their assets to these categories. The other two methods rely on banks' own internal methods to rate credit risk to generate risk weights. One approach is called the Foundation Internal Ratings Based Approach (FIRB) and the other is called the Advanced Internal Ratings Based Approach (AIRB). US regulators have been leaning towards AIRB (SFRC, 2006; Tarullo, 2007). After years of negotiations, US banking regulators announced in July 2007 that they would issue a set of guidelines for the largest 11 US banks as to the implementation of AIRB with some additional safeguards, in case banks' capital declines unexpectedly (Sloan, 2007).

Thus, new financial market regulations are already establishing the tools necessary for the Federal Reserve to establish ABRRs, especially with respect to mortgage assets.

IV.2 Capital Adequacy

The manner, in which Basel II would function, however, highlights why ABRRs would complement the new capital-adequacy standards. 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 risk based capital.

Capital grows faster during periods of economic growth, but capital may even decline during an economic slowdown (Goodhart et al., 2006). Consequently, a financial institution would find it easier 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 capital growth slowed.

Similarly, the value of financial institutions' assets may become overvalued as default risk is underestimated during good times. This means that risks are valued too low during good times, possibly requiring large capital infusions, when greater default risk materializes during a slower economy (Schwartz, 2003; Jaeger & Schuknecht, 2004).

Movements in capital and financial institutions' assets can thus exacerbate business cycles. The value of capital may decline and the risk of assets may increase as the economy slows. Financial institutions would thus have to boost their capital during economic downturns. Credit constraints would increase, reducing investment and economic growth more than would otherwise have been the case.

ABRRs would partially offset this pro-cyclical effect of capital requirements without reducing the stability of financial systems. To offset the procyclicality of capital requirements, the Federal Reserve could lower ABRRs during economic contractions and increase them during economic expansions.

IV.3. ABRRs and Monetary Policy

The Federal Reserve theoretically pursues a number of policy 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 has currently only very few effective tools at its disposal to achieve these goals. The primary one is the target federal funds rate.

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 overinflating stock market and the term of "froth" to indicate his concerns over the housing and mortgage boom (Greenspan, 1996, 2005). 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 policymakers highlight perceived problems and the need for solutions and allow the market to react (Thornton, 2005). Yet, the reactions to public pronouncements are hard to control to either stimulate or slow the economy or financial markets.

ABRRs would provide the Fed with another tool to achieve its goals, but they would require some 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 even be increased, too, to complement the Fed's interest rate policies. However, there

should be no automatic link between the Fed's open market operations and ABRRs to preserve the maximum amount of flexibility for policymakers. In this regard, ABRRs would be similar to margin requirements, the maximum share of securities' values that can be leveraged at a brokerage through a margin loan (Weller, 2002).

IV.4 ABRRs and Deposit Reserve Requirements

To avoid the proliferation of too many regulatory tools, though, we would envision eliminating reserve requirements on deposits. They have been used less and less to impact financial markets. The U.S. has long had reserve requirements on deposits to ensure stability and solvency of the banking system (Feinman, 1993). Under deposit reserve requirements, deposit-taking institutions that are members of the Federal Reserve System are required to hold a certain percentage of their deposit in non-interest bearing accounts with the Federal Reserve, as safeguards of their deposits. These reserve requirements are also meant to provide the Federal Reserve with an additional monetary policy tool. If the reserve requirement is increased, 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 reserve requirements on deposits in determining liquidity in the U.S. is fairly limited, largely because deposit-taking banking institutions play a small roll in the U.S. economy and more and more institutions have chosen to not become members of the Federal Reserve system in an effort to avoid this regulation. Hence, reserve requirements have limited value as a tool of monetary policy.

This also means that reserve requirements on deposits are also hard to use as a stabilization tool. Take the example of the mortgage market again. While 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 reserve requirements on deposits. Consequently, replacing reserve requirements on deposits with ABRRs would increase the potential effectiveness of the Federal Reserve in creating more stable financial markets.

V. ABRRs and the Mortgage Market Boom and Bust

Typically, a mortgage involved a lender and a borrower. However, increasingly mortgages were securitized. Securitization involves several players. Specifically, a lender, either a bank or a non-bank, would issue a loan to a borrower, either directly or with the help of a mortgage broker. The lender then turned around and sold the loan – actually many of them – to the issuer of a securitized asset with the aid of a limited liability company or trust, which issued bonds that were sold to investors. These bonds were backed by the initial mortgages. Payments on the bonds to the investors were made out of interest and principle payments that the initial mortgage borrower made to the servicer, an institution that acted as intermediary 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 as ABRRs. This money would have been held with the Federal Reserve.

If the lender continued to hold the mortgage, part or all of the ABRRs would have been released as the mortgage borrowers made principle payments. The released reserves could then have been used again to make another loan. In comparison, if the lender made an interest-only mortgage, the amount held in reserve would not have changed until the borrower made payments on the mortgage principle. The lender would have had an incentive to issue a lower risk mortgage product since the lower risk product would have carried with it a lower ABRR. Also, the borrower would have made principle payments that would have automatically reduced the amount held as reserves with the Federal Reserves and thereby increased the amount that could have been lent out for new loans.

Under securitization, though, once the loan was bundled and sold off to the investor in a mortgage backed security, the reserve amount would have been released to the original lender. The lender would then have used the money to make another mortgage, for which the lender would have had to hold again ABRRs. In practical terms, the Federal Reserve would likely have averaged loans, for which ABRRs were due, over several weeks, so that lenders would have only received back portions of their original ABRRs or would have had to pay portions of what was due.

Even with securitization, ABRRs remain effective. If ABRRs had been in place during the mortgage boom, lenders would never have been able to lend the full amount of money available as long as they issue loans. Again, lenders would have had an incentive to move towards lower-risk loans to reduce their ABRRs. This would have been especially true for mortgages, where principle gets paid down more quickly, since those mortgages would have allowed lenders to more quickly 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 have applied to all loan products offered by a regulated lender, not just mortgages. Many regulated lenders, which could include, for example, hedge funds, will lend money in the forms of bonds, including those backed by mortgages. As long as lenders are regulated, collateralized debt obligations will also be affected by ABRRs.⁸ But, because the Federal Reserve can set ABRRs at its discretion, it can lower those on CDOs enough to maintain sufficient liquidity in the market.

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.

⁸ The U.S. regulatory system is a mix of regulations affecting institutions and those impacting products. For instance, mutual funds are regulated as well as stocks that mutual funds buy. Regulation of lenders does not interfere with regulations of particular products. One debate that focuses on regulating a product is “assignee liability” for the mortgage market (CRL, 2004a).

In addition, mortgage brokers earned a yield spread premium (YSP) that increased with the interest rate charged to the borrower. An estimated 90% of brokers in the subprime market received YSPs (CRL, 2004b). As a result, mortgage brokers often had no clear incentive to pursue the lowest cost option for borrowers. Yet mortgage brokers would likely not have been considered lenders and thus not been affected by ABRRs. Since ABRRs would regulate particular institutions and not products, it is not until the loan would have been handed over to the primary lender that ABRRs would have gone into effect. However, since lenders and not brokers would have sought refinancing in the capital market, the decision as to how much money and at what price could have been lent would likely have rested with the lender. Because the lenders, for which a broker would have originated a loan, would have been affected by ABRRs, the lender would have had an incentive to direct the broker toward lower-cost, lower-risk loan products.

To see the impact of ABRRs in the recent housing and mortgage boom, consider what the Federal Reserve may have done. As pointed out before, mortgages accelerated relative to disposable income after 2001. There may have come a point in time, 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 2005.⁹ At that point, the Fed may have raised ABRRs on mortgages and on mortgage backed securities.

Lenders would likely have responded in two 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.¹⁰ As a result, house prices would likely have risen more slowly and there would have been less fuel for the continuation of the mortgage boom in subsequent years.

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 (Keoun & Scinta, 2007). 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 was 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 (Vekshin, 2007).

⁹ See Greenspan (2005).

¹⁰ 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, e.g. for borrowers, who are currently in the subprime mortgage market. This is partly offset by more access to lower-risk loans for qualified borrowers. 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.

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 sub-prime borrowers. In an update released in February 2007, HSBC acknowledged that its charge for bad debts would be 20% higher for 2006 than analysts' average forecasts—bringing the total to approximately \$10.6 billion, as opposed to \$8.8 billion (HSBC, 2007).

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 and thereby helped to stave off more credit tightening without giving up financial stability.

VI. Conclusion

Between 2001 and 2007, the US economy experienced a boom and bust cycle in the mortgage market with serious ramifications for economic growth and job creation. Such large-scale financial market swings seem to recur with some regularity. Existing regulatory tools, though, have proven inadequate to address such large financial market swings. One possible alternative to achieve greater financial market stability may be asset-based reserve requirements (ABRRs).

ABRRs offer several attractive features, which could have helped to smooth the large financial market swings after 2001. For one, ABRRs increase the tools at the Federal Reserve's disposal to conduct monetary policy. Second, ABRRs directly influence lenders' asset allocation decisions and thus could provide strong incentives to engage in less risky lending strategies. In this regard, they may prove superior to the existing system of reserve requirements on deposits, which they could possibly replace. Third, if ABRRs replaced reserve requirements on deposits, they would impact a much larger share of the credit market, not just loans by deposit-taking institutions that fall under the Federal Reserve's regulatory regime. Fourth, ABRRs could offset the procyclical bias of new capital adequacy standards and thus help to stave off too much credit tightening in an economic downturn.

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