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Macroprudential Oversight: Monitoring the Financial System

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Summary

Recent innovations in finance, while increasing the capacity to borrow and lend, resulted in a large volume of banking transactions occurring outside of traditional banking institutions. Also, even though existing regulatory efforts supervise individual institutions for safety and soundness, there are risks that do not reside with those institutions but may still adversely affect the system as a whole. Macroprudential policy refers to a variety of tasks designed to defend the broad financial system against threats to its stability. Such responsibilities include monitoring the system for systemic risk vulnerabilities; developing early warning systems of financial distress; conducting stress-testing exercises; and advising other regulatory agencies on matters related to financial stability. This report provides background and discusses the benefits and limitations of macroprudential policy.

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Introduction

On August 22, 2008, Federal Reserve Board Chairman Ben S. Bernanke spoke about systemic risk and raised the issue of having the authority to conduct macroprudential oversight.[1] Similarly, Timothy F. Geithner, while president of the Federal Reserve Bank of New York, also spoke about the need for expanding current prudential supervision of individual financial institutions.[2] Both Federal Reserve officials spoke in the context of growing discussions among academics and central bankers concerning the adoption of a macroprudential policy perspective.

Macroprudential policy refers to the monitoring of the entire financial system and its vulnerability to systemic risk. Systemic risk may be defined as risk that can not be avoided through diversification. Systemic risk may also be defined in a similar manner to contagion, in which liquidity and payment problems that affect one or a few financial entities will spread and disrupt financial activity more widely in the system.[3] Systemic risk can arise as a result of financial innovation, which makes it possible to increase capital mobility and access additional sources of capital. Financial innovation has also made it possible for many financial transactions to occur outside of the confines of financial institutions that are regulated for safety and soundness. If a panic, liquidity disruption, or decline in asset prices were to affect the financial markets, regulated financial institutions may still be affected despite having sound risk management practices. Consequently, macroprudential oversight of risks that can affect the overall financial system may be desirable to complement the current regulatory structure for individual financial institutions.

In addition to monitoring for systemic risk, other tasks fall under the scope of macroprudential oversight. Administrators would be responsible for the development of early warning systems of financial distress, such as a composite index of leading indicators. Stress-testing exercises, which involve introducing some extreme financial disruption into a model of the financial system to evaluate the impact on asset portfolios, would be conducted. Finally, macroprudential policy administrators would also be able to provide advice to other regulatory agencies on matters related to financial stability.

This report begins by briefly summarizing how recent innovations in finance, while increasing the capacity to borrower and lend, resulted in a large volume of banking transactions occurring outside of traditional banking institutions. Monitoring these institutions for safety and soundness, which is referred as microprudential oversight, does not directly address the challenges posed by systemic risk. Hence, the benefits and limitations of macroprudential policy will be discussed.

Intermediation and Financial Innovation

Financial intermediation is the process of matching borrowers with lenders. The typical intermediation transaction made by banks consists of providing loans to borrowers at higher rates

[1] See speech by Chairman Ben S. Bernanke entitled *Reducing Systemic Risk* at http://www.federalreserve.gov/newsevents/speech/bernanke20080822a.htm.

[2] See speech by Timothy F. Geithner entitled *Reducing Systemic Risk in a Dynamic Financial System* at http://www.newyorkfed.org/newsevents/speeches/2008/tfg080609.html

[3] See Steven L. Schwarcz, "Systemic Risk," *Georgetown Law Journal*, vol. 97, no. 1 (November 2008), pp. 193-249.

than it costs banks to borrow the funds from savers, who are the ultimate lenders. In other words, long-term loans that banks originate to borrowers are funded by short term loans made to banks, usually in the form of savings deposits. Banks profit from the spread between the rates they receive and the rates they pay. Banks also earn income from various fees and service charges.

The intermediation transaction carries a variety of risks. Banks face the risk of borrower default on the long-term loans. Banks face liquidity and interest rate risks on the short term funding side of the transaction. Until the long-term loan is fully repaid, banks must continue to attract short term savers. A bank must continuously be able to roll over or renew its short term funding (loans) because the funds used to originate the long-term loan have been disbursed to the borrower. It is possible that banks could find themselves low on deposits, perhaps due to a sudden demand for cash or changes in economic conditions. Financial market conditions could also change such that short term rates rise higher than long term rates, and continued funding of long term loans becomes costly. Given the default and funding liquidity risks associated with the intermediation transaction, banks and other financial institutions are always looking for innovative ways to reduce risk, which ultimately facilitates the expansion of intermediation and credit availability.[4]

Although the intermediation transaction remains the same conceptually over time, its means of execution has evolved and diversified, which is considered financial innovation. Financial innovations include securitization, growth of the commercial paper market, automated underwriting, derivative markets, and non-traditional mortgage products, which allow the long-term borrower and lender to share the risk of fluctuating long rates. These developments arguably facilitated intermediation in terms of reducing or managing the risks associated with supplying credit, which increased lending capacity. In fact, financial innovation in the mortgage market during the 1990s arguably enhanced homeownership by reducing loan origination costs and increasing the array of mortgage products that could be better paired to fit the demographic characteristics and financial needs of borrowers.[5]

Such financial innovation also allowed aspects of the intermediation transactions to occur outside of what is considered traditional banking institutions. For example, some businesses, rather than obtaining traditional short term loans from depository institutions, may issue their own debt in the form of commercial paper. Commercial paper issuances are typically unsecured, short-term promissory notes or bonds that investors (savers) can hold in their portfolios and, upon maturity, roll the proceeds into newer commercial paper issuances. Hedge funds, pension funds, and other financial entities may decide to purchase long-term, less liquid assets with funds obtained from their issuances of commercial paper. The commercial paper is the liability of the issuing firms, and the long-term assets (loans) acquired were not funded by liabilities (deposits) of a traditional depository institution. Securitization is another example of a financial innovation that allowed aspects of the intermediation transaction to occur off bank balance sheets. Securitizers are entities that purchase long-term loans, then use the payment streams to create short term securities (similar in nature to commercial paper with a variety of risk-return options) to investors, which fund the loan purchases. During the 2000s, many subprime loans were originated by non-bank lenders that did not hold deposits. These loans were then funded via the securitization process

[4] For a more in-depth understanding of intermediation theory, see Franklin Allen and Anthony M. Santomero, *The Theory of Financial Intermediation*, Wharton School, University of Pennsylvania, Financial Institutions Center 96-32, Philadelphia, PA, August 31, 1996, http://fic.wharton.upenn.edu/fic/papers/96/9632.pdf.

[5] See Mark Doms and John Krainer, *Innovations in Mortgage Markets and Increased Spending on Housing*, Federal Reserve Bank of San Francisco, Working Paper 2007-05, San Francisco, CA, July 2007, http://www.frbsf.org/publications/economics/papers/2007/wp07-05bk.pdf.

with funds raised from commercial paper or similar issuances .[6] Consequently, intermediation transactions were no longer limited to taking place inside traditional banks; they could now occur in the broader financial markets.

Microprudential Oversight and Limitations

A microprudential regulatory approach focuses on the safety and soundness of individual financial institutions. This regulatory approach monitors lending by supervised institutions and attempts to encourage prudent behavior.[7] Microprudential regulators evaluate bank data against Basel I and II capital ratios and CAMELS rating criteria.[8] The objective of microprudential oversight is to increase the protection of the deposits in these institutions.[9]

The microprudential approach to regulation, however, can not completely prevent bank failures. The market value of bank assets or loans can suddenly decline with sudden increases in unemployment, which is indicative of future repayment problems, even though the loans were prudently originated before the shift in local financial conditions. This vulnerability applies especially to small banks whose loans are tied to the local economy.

Larger banks may be less susceptible to regional economic conditions if they are geographically diversified, but they remain vulnerable to systemic risk, which falls outside the scope of microprudential regulation. Financial innovation may expand the financial system such that more intermediation transactions can take place outside of more traditional banking institutions, but the risks have not disappeared. The risks, rather than being borne by a particular institution, are spread among a multitude of financial market participants. Furthermore, the transfer of risk to financial markets may increase the interconnectivity among all financial market participants, causing the entire financial system to be vulnerable to unanticipated payments disruptions or sudden declines in asset values.

For example, suppose banking institutions used derivatives instruments to reduce the default and interest rate risks associated with the intermediation transaction. These instruments would have transferred these risks to another counterparty, perhaps outside of the banking system, willing to sell protection against such risks. If, however, the counterparty finds itself having to make *higher than anticipated* payments following some unforeseen event, all financial market participants

[6] Many subprime originations were not subject to federal safety and soundness banking guidances. These loans were not originated by depository institutions that would have a federal charter or federal deposit insurance; these loans were insured by FHA or sold directly to GSEs. Hence, these loans were not covered by any federal guidance. See CRS Report RS22722, *Securitization and Federal Regulation of Mortgages for Safety and Soundness*, by Edward V. Murphy.

[7] For information on the U.S. regulators of financial institutions, see CRS Report RL33036, *Federal Financial Services Regulatory Consolidation: An Overview*, by Walter W. Eubanks.

[8] Basel I and II refer to recommendations for banking laws and regulations with the objective of achieving uniform international standards with respect to capitalization. CAMELS refers to the uniform rating standards adopted to monitor the safety and soundness of regulated banks. See CRS Report R40249, *Who Regulates Whom? An Overview of U.S. Financial Supervision*, by Mark Jickling and Edward V. Murphy; CRS Report RL34485, *Basel II in the United States: Progress Toward a Workable Framework*, by Walter W. Eubanks; and CRS Report RL33036, *Federal Financial Services Regulatory Consolidation: An Overview*, by Walter W. Eubanks.

[9] See Claudio Borio, *The Macroprudential Approach to Regulation and Supervision: Where Do We Stand?*, Kredittilsynet, Kapittel 7, Norway, September 13, 2006, pp. 108-120, http://www.kredittilsynet.no/archive/stab_pdf/01/03/7Kapi013.pdf.

may question the ability of other market participants to repay commitments. Such erosion of confidence may be considered systemic and have harmful consequences on other participants even though only one counterparty was late or completely defaulted on a payment.[10] Hence, the transfer of risk led to an increase in the interconnectivity of financial market participants. Moreover, microprudential oversight, which is limited to the regulation of the risk management practices of individual institutions, would not eliminate the systemic risk in this scenario largely because financial market expectations are impossible to regulate.

Macroprudential Oversight and Limitations

Central banks are generally tasked with "lender-of-last-resort" responsibilities to ensure that regulated depository institutions reliably have access to short-term loans. This access ensures that healthy but illiquid banks continue funding long-term loans without disruption. Under a traditional banking model where regulated institutions originate long term loans and fund them with short term deposits, a central bank may assist banks in a short-term funding crunch, perhaps due to a bank run, as part of its normal course of activities. Consequently, central banks may be considered systemic risk managers for supervised banks, and they have typically been involved in macroprudential policy oversight, even if that role has not been formalized by legislation.[11] Macroprudential oversight structures have typically been set up inside of central banks.[12] The following discussion, however, refers to a designated regulator with explicit authority to conduct macroprudential oversight without necessarily having to rely upon any central bank policy tools.[13]

A formal approach to macroprudential oversight arguably complements existing microprudential oversight to reduce systemic risks. Suppose an agency conducting macroprudential oversight were to ask microprudential supervisors to require increased transparency for a specific intermediation activity from their supervised institutions. Disclosure of such information to the entire financial system may increase overall confidence.[14] Furthermore, if such policy actions were taken under normal conditions when financial markets are not in distress, then implementation may be more likely to boost rather than erode the confidence of financial market participants.

A regulatory body specifically tasked with macroprudential oversight would try to guard against bubbles and over-leveraging. The regulator would also monitor stress-testing activities as well as the extent to which financial market participants are becoming more interconnected by risks.

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[10] See CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*, by Marc Labonte.

[11] After drawing upon its emergency powers in the lender-of-last-resort clause, the Federal Reserve assumed the responsibility for managing the disruption in the financial system. See CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*, by Marc Labonte. The Federal Reserve does not officially have authority to take preventative actions to reduce systemic risk, and it may only respond to systemic risk problems, in particular those that impact non-supervised institutions, only after such disruptions have occurred.

[12] For some descriptions of various macroprudential oversight structures, see http://www.bof.fi/en/rahoitusmarkkinat/vakausvalvonta/index.htm, http://www.snb.ch/en/iabout/finstab/id/finstab_report, and http://www.bankofengland.co.uk/financialstability/overseeing_fs/.

[13] The Federal Financial Institutions Examination Council (FFIEC) in the United States, for example, is an interagency body that promotes uniform regulations among the various regulators of financial institutions. This agency has some rule-making powers, but it typically makes recommendations and allows other regulators to implement final rules.

[14] See Sebastian Schich, "Financial Crisis: Deposit Insurance and Related Financial Safety Net," *Financial Market Trends*, vol. 2, no. 95 (November 2008).

When asset values are rising, the balance sheets of financial institutions are likely to appear healthier. Financial institutions may decide to increase their lending in such an environment.[15] As long as financial institutions maintain capital risk ratios at or above safety thresholds, the increase in lending activity would still fall within the guidelines of safety and soundness set by microprudential oversight. A rise in asset market prices, however, may be indicative of a speculative bubble. An agency responsible for macroprudential oversight may warn or even attempt to curtail the level of risk taking activity when related asset prices appear to rise rapidly at what may be considered an unsustainable pace. The macroprudential objective would be to build up safety buffers during good times that can be used as a cushion during unstable times.

A limitation or drawback of macroprudential policy is its counter cyclical nature, which means the policy impact will dampen current business cycle activity.[16] As stated in the previous example, procyclical microprudential policy would be less likely to curtail lending activities for banking institutions when collateral asset values are rising. Macroprudential administrators, however, may perceive rising asset prices as evidence of a bubble and call for banks to raise capital or reduce lending. Although this macroprudential response may reduce systemic risk, it may possibly restrain short run banking profits, economic activity, and economic growth.

Consider the debate about the existence of a housing market bubble. The substantial decline in mortgage interest rates during the 1990s, resulting in part from securitization reducing the funding costs of lending, helped lower the cost of homeownership relative to renting.[17] Changing demographic trends also affected changes in housing demand.[18] On the other hand, the rise in house prices and use of mortgage credit levels was interpreted by some as evidence of a bubble in the housing market. Consequently, it would have been problematic to determine with certainty whether the rise in the demand for homes, which would be reflected in house price increases, was due to a rise in underlying fundamentals or speculative behavior, since both occurred simultaneously. Even if the market is characterized by speculation, speculative trading provides liquidity for assets. Speculation increases the number of transactions, which makes it easier to price and sell assets. Hence, identifying bubbles would still present a challenge for macroprudential oversight. Not only would it be difficult to determine how much financial market activity would be the result of speculation, but it would also be difficult to determine how much speculation to reduce without compromising overall asset market liquidity.

Despite the problems of identifying and managing speculative behavior, macroprudential regulators would be tasked with responding to conditions that suggest the presence of a bubble given the systemic risks to financial markets when it deflates. A macroprudential response, however, may be at odds with other policy goals in which the primary focus is not safety and soundness. Some policy goals are aimed at increasing credit access to low and moderate income

[15] See David Greeenlaw, Jan Hatzius, and Anil K. Kashyap, et al., *Leveraged Losses: Lessons from the Mortgage Market Meltdown*, Rosenberg Institute, Brandeis International Business School and Initiative on Global Markets, University of Chicago Graduate School of Business, U.S. Monetary Policy Forum Report No. 2, 2008, http://research.chicagogsb.edu/igm/events/docs/USMPF-final.pdf.

[16] See Sharon K. Blei, "If Fed Becomes Super Regulator, Politicians Would Be Its Kryptonite," *The Regional Economist*, January 2009 at http://www.stlouisfed.org/publications/re/2009/a/pages/super_regulator.html.

[17] See Moorad Choudhry, *The Bond and Money Markets: Strategy, Trading, Analysis* (Butterworth-Heinemann, 2001), p. 545.

[18] See the discussion of various demographic trends and possible impact on housing demand at http://www.fdic.gov/bank/analytical/regional/ro20061q/na/2006_spring03.html.

households and households living in underserved areas.[19] It may be easier for financial institutions to facilitate more lending to those individuals covered by policy goals at times when collateral assets are rising and there is expanded lending capacity. Macroprudential oversight, however, might encourage a reduction of lending at a time when asset values are rising and financial conditions would be better suited to facilitate the achievement of other policy goals.

A macroprudential oversight regulator may also find itself in the middle of occasional conflicts between regulators. For example, consider a case that occurred in the mid-1990s.[20] A regulator concerned with the adequate capitalization of banks preferred that banks adopt conservative accounting practices that would result in the reporting of higher loan loss allowances. Higher loan loss allowances would indicate the ability of banks to avoid severe financial distress when unexpected loan losses occur. Another regulator, concerned with the accurate reporting of income to investors, preferred adoption of accounting practices that would reduce the reported amount of loan-loss allowances. Overstatement of loan loss allowances reduce bank net income and retained earnings on paper. Investors may interpret large loan loss allowances as evidence of high risk lending practices, which may reduce bank profitability, and that could translate into a decline in the bank's value or stock price. In addition, a reporting of higher loan loss allowances may result in an initial understatement of assets and overstatement of bank income in future periods, which would translate into overly optimistic information being reported to investors in subsequent periods. A macroprudential regulator may be more inclined to support regulations that foster increased safety and soundness. Given that regulators can always require banks to provide any critical information, disputes of this nature may be settled in favor of investor needs. If, in this particular case, a regulator responsible for macroprudential oversight combined efforts with the regulator in favor of more conservative accounting practices, the collective efforts possibly may have had a greater influence on the outcome.

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[19] See CRS Report RL34049, *Community Reinvestment Act: Regulation and Legislation*, by Walter W. Eubanks.

[20] See Larry D. Wall and Timothy W. Koch, "Bank Loan-Loss Accounting: A Review of Theoretical and Empirical Evidence," *Economic Review, Federal Reserve Bank of Atlanta*, Second Quarter 2000, at http://www.frbatlanta.org/filelegacydocs/wallkoch.pdf.

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