



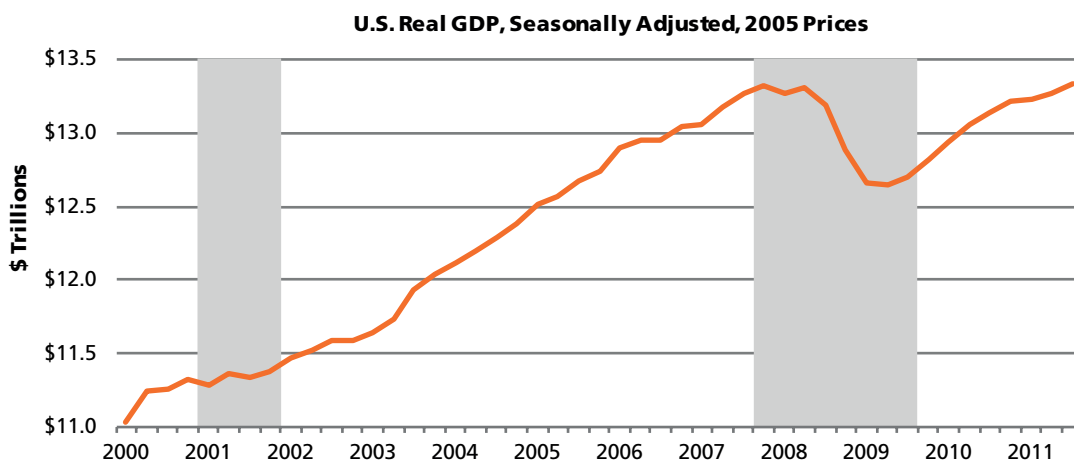
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Understanding Financial Fragility and Ensuring Stability

Financial stability and prosperity are desirable goals for modern capitalist economies. The global financial crisis has aptly demonstrated the harmful effects of financial fragility on the common good. From peak to trough, real GDP in the U.S. declined by

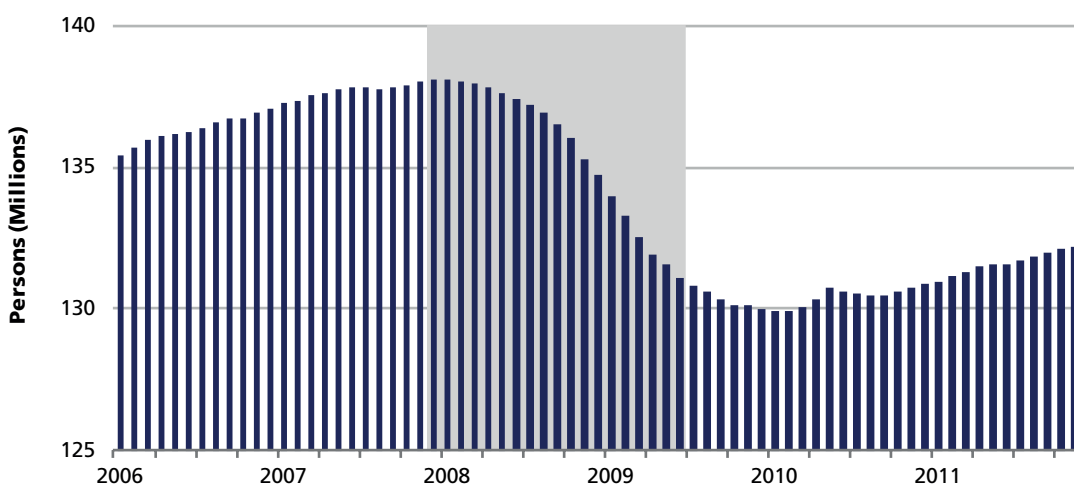
nearly 5% during the crisis (see Figure 1), while the economy shed nearly 8 million nonfarm jobs during the recession that followed (see Figure 2), driving the unemployment rate up more than five percentage points.

Figure 1. U.S. Real GDP Declined Nearly 5% During the Global Financial Crisis...



Source: Reuters EcoWin

Figure 2. ... While The U.S. Economy Lost Nearly 8 Million Jobs



Source: Reuters EcoWin

The harmful impact that the bursting of real estate and other asset bubbles can have on the overall economy reinforces the need for understanding financial fragility and prudently regulating the financial system in order to ensure stability.

Minsky's Analysis of Financial Instability

The works of American economist Hyman Minsky provide an analytical approach for assessing financial fragility based on careful analysis of funding practices and other vulnerabilities in modern capitalist economies. Minsky maintained that the financing of economic units can be classified into three sets: 1) hedge finance, 2) speculative finance and 3) Ponzi finance.¹ These funding practices can be understood in terms of cash flow and their balance sheet aspects, as articulated by Eric Tymoigne.² Hedge financing would entail that the economic unit's expected income would be greater than its expected debt service, which in turn would be greater than its expected interest payment. Under speculative financing, the economic unit's expected income is greater than its expected interest payment but less than its expected debt service. Under Ponzi financing, the expected income could not cover even the expected interest payment, let alone the expected debt services. Financial innovations that are likely to spur hedge financing practices can be generally deemed as safe and worthwhile, while those that promote speculative financing, Ponzi financing or both could prove unsafe and perhaps damaging to overall financial stability.

The financial system can shift over time between these forms of financing, according to Minsky. The shift to riskier forms of financing reduces the stability of the financial system and the economy, as investment and aggregate demand are likely to fall sharply once the inevitable bubble bursts. Changes in the financial system and financial regimes — induced by competitive pressures, profit motive, herding mentality, technological innovations and ever-so-clever financial engineering — can cause instability, which can be exacerbated by incentives to take risks and by the relaxation of prudential usages. Moreover, regulatory institutions often devolve into ineffectiveness and are unable to deter the increase in the fragility of the financial system.

The internal dynamics of capitalism can be destabilizing as an economy evolves. However, surveillance of the flow of funds and balance sheets can enable the identification of fragilities as they emerge. Policymakers can — and should — take measures to discourage speculative and Ponzi financing, thus reducing the likelihood of a sharp drop in investment, aggregate demand and employment.

A Paradigm Shift

The harmful consequences of the real estate boom and subsequent crash have led to a profound change in how policymakers think about asset bubbles. Prior to the most recent crisis, the conventional wisdom — as reflected in the opinions of the two most recent Fed chairs Alan Greenspan and Ben Bernanke — revolved around the concept of “benign neglect” and the belief that the authorities (and the central bank, in particular) should deal only with the *aftermath*

of a burst bubble, through accommodative monetary policy. Today, however, a more proactive approach prevails.

Asset booms may not in themselves be pernicious. However, the way in which an asset boom is funded may determine the consequences once it busts. Busts that follow booms fueled by credit and leverage and/or those that are collateral-based rather than income-based can have large and long-lasting effects on the financial system.

For example, the evolution of house prices in various states and metro areas of the U.S. following the financial crisis shows that the bigger housing bubbles — largely funded by leverage and imprudent funding practices — led to greater numbers of delinquencies, defaults and foreclosures. Cross-country evidence also seems to suggest that the severity of the crisis depends on the extent of house price run-up and the amount of leverage in the system. This supports a case for policy measures that restrain excessive private sector leverage, as well as stricter rules about funding practices. In contrast, the case for intervening in booms fueled by restrained leverage and prudent financing is much more limited.

Funding Practices and Monitoring the Emergence of Fragility

The rich history of financial crises — including the subprime debt and housing busts, as well as the problems recently seen in microcredit lending — underscore the points made by Minsky and the scholars in his tradition (including Tymoigne); namely, that funding practices and the quality of indebtedness can help determine the severity of the aftermath once the bubble bursts.

Hence, financing practices and financial innovations that purport to offer improvements should be examined quite carefully. It would be very dangerous for policymakers, regulators and investors to “sign off” on new financial innovations without thoroughly understanding overall funding practices and asset positions that such innovations entail. What are the underwriting processes under new financial practices and innovations? Do financial innovations promote collateral-based lending with little regard for income? What is the amount of refinancing and cash-out refinancing involved? What is the cash flow? Do financial innovations reduce or mitigate financial fragilities and risks?

While a proper analysis of underwriting and funding practices are absolutely crucial, other issues — including asset prices — also have to be carefully examined. Is the rise in asset prices higher than historical trends? Is the rise higher than the growth in nominal incomes, inflation and rent? Is the asset boom concentrated geographically or in a few industries and sectors? Are there signs of overheating in other sectors and throughout the economy? Is household and business leverage rising? Are banks and other financial institutions highly exposed? Are they highly interconnected?

It must be emphasized that the assessment of funding practices and financial innovations is something quite different from detecting bubbles and fraud or assessing the profitability of an enterprise; though, of course, it is entirely possible that the emergence of fragile funding practices precedes financial crisis and can reveal financial system fragility. While it may be useful to try to identify and devise tools to mitigate the effects of asset price bubbles generated by unhealthy funding practices, it is best to prevent unhealthy funding practices in the first place.

¹ See Minsky, Hyman (1992). “The Financial Instability Hypothesis,” Levy Institute Working Paper No 74. <http://www.levyinstitute.org/pubs/wp74.pdf>

² See Tymoigne, Eric (2011). “Measuring Macroprudential Risk: Financial Fragility Indexes,” Levy Institute's 20th Annual Minsky Conference (April). <http://www.levyinstitute.org/conferences/minsky2011/presentations/Tymoigne.pdf>

It should also be noted that fragile funding practices need not be illegal; while widespread fraud can make the system even more vulnerable, fraud is not typically the main cause of fragility. Legal funding practices — such as the type of lending that occurred in the U.S. in the heyday of the housing bubble — may be extremely fragile if they are wholly collateral-based. Further, rising business profitability, increasing household net worth and declining default rates are not necessarily signs of a robust financial system.

Policies to Mitigate Financial Fragility

Besides strengthening underwriting and funding practices, other policies and regulations, both traditional and non-traditional, can be used to help mitigate the risks of financial fragility. Most of these policies and regulations fall into one of three categories.

- *Monetary policy* generally consists of setting the policy rate, which determines the overnight interest rate and influences various short-term rates. Central banks can also set and influence long-term rates if they choose to do so. Some central banks — such as the People's Bank of China and Central Bank of Turkey — still use reserve requirements, although this has not proven to be an effective tool for controlling either monetary aggregates or bank lending, let alone economic activity.

In terms of mitigating financial fragility, monetary policy is a fairly blunt instrument. The large hikes in policy rates needed to stop asset booms can be costly. Long-term interest rates do not necessarily rise even as the central bank hikes its policy rate and short-term interest rates begin to rise. Tight monetary policy may be appropriate when real estate, financial asset and credit booms occur while the broad economy is overheating.

- *Fiscal and administrative tools* — such as transaction taxes, property taxes, mortgage interest tax deduction, margin requirements and administrative measures — can sometimes be effective in reducing financial fragility by lowering demand for financial assets and real estate. However, fiscal measures may cause distortions. There are also limits in the countercyclical use of these tools.
- *Macroprudential regulations* — such as higher capital requirements and risk weights, dynamic provisioning, limits on credit growth, limits on depository financial institutions' lending to the real estate sector, and limits on loan-to-value and debt-to-income ratios — hold much promise. A macroprudential approach tries to identify emerging risks and structural weaknesses in the financial system and calls for the co-evolution of appropriate regulations with innovations and markets. As Ben Bernanke stated, it is “an approach that supplements traditional supervision and regulation of individual firms or markets with explicit consideration of threats to the stability of the financial system as a whole” under which “regulators are enjoined not only to look for emerging financial risks but also to try to identify structural weaknesses or gaps in the regulatory system, thereby helping the regulatory framework keep pace with financial innovation and other market developments.”³

Macroprudential tools tend to have a narrow focus. Capital ratio, risk weights, provisioning and profit distribution restrictions affect the composition of bank balance sheets, for example, while limits on loan-to-value, debt-service-to-income and maturity impact lending contracts and credit growth. Margin or haircut limits influence the degree of leverage in the securities market.

We believe a combination of macroprudential and traditional policies may be the top option. Though macroprudential oversight has a limited track record, these tools may have the best shot at reducing the risk of financial fragility, dampening bubbles and mitigating the impact of asset busts.

The Evolution of Financial System and Fragility

The financial system has evolved substantially in the last half century. In the 1960s, the role of large financial institutions in the overall financial system was limited; however, a half-century of expansion and bailouts has led to big finance with increased concentration of banking assets among the top banks (see Figures 3 and 4 on the next page).

A shadow (or market-based) banking system has emerged in recent years alongside the traditional banking system; in fact, the modern financial sector in countries such as the U.S. and U.K. is characterized by a combination of financial institutions that are deemed too big to fail and a large shadow banking system. The shadow banking system was fostered by financial innovation and a more supportive policy environment, mainly as non-bank entities were created to circumvent capital and regulatory requirements.

Though the shadow banking system's role has lessened in the aftermath of the financial crisis, it is still larger than the traditional banking system. As of late 2011, the total liabilities of the shadow banking system exceed the total liabilities of the traditional banking system. As a share of nominal GDP, the shadow banking system is nearly 100% while the traditional banking system is about 90% (see Figure 3). The shadow banking system has nearly \$15 trillion of liabilities, well above \$13 trillion of liabilities of the traditional banking system.⁴ As the financial system continues to evolve the perimeters of regulations must change to prevent fragilities that effect financial and macroeconomic stability.

³ Bernanke, Ben (2011). Testimony before the Committee on Banking, Housing and Urban Affairs, U.S. Senate (July 21).

⁴ Estimates of the size of the shadow banking system vary. According to a recent study, the size of the shadow banking system in the U.S. was \$18 trillion at year-end 2010, higher than earlier estimates. See Pozsar, Zoltan (2011), “The Nonbank-Bank Nexus and the Shadow Banking System,” <http://www.imf.org/external/pubs/ft/wp/2011/wp11289.pdf>

Conclusion

There was much too much complacency in the financial services industry and in residential mortgages in the recent past. As the economy continues to recover from the global financial crisis, it would be quite foolish to ignore Minsky’s ideas about how

financial fragility develops amid prosperity as investors gradually shift to higher-risk funding practices. Financial innovations and new modalities of funding, based on safe practices, can promote individual well-being and the common good by fueling enterprise, job growth and technical progress. However, financial innovations

Figure 3. Top 10 U.S. Banks in 1960

Institution	Total assets (\$ bil)	Assets as a % of GDP	Assets as a % of total bank assets
Bank of America	11.2	2.1	4.4
Chase Manhattan Bank	8.4	1.6	3.3
First National City Bank of New York	8.2	1.6	3.2
Manufacturer’s Hanover Trust Company	5.9	1.1	2.3
Morgan Guaranty Trust Company	4.1	0.8	1.6
Chemical Bank New York Trust Company	4.1	0.8	1.6
Security First National Bank	3.4	0.7	1.3
Bankers Trust Company	3.1	0.6	1.2
First National Bank of Chicago	3.0	0.6	1.2
Bank of California	0.7	0.1	0.3
Total	52.1	10	20.4

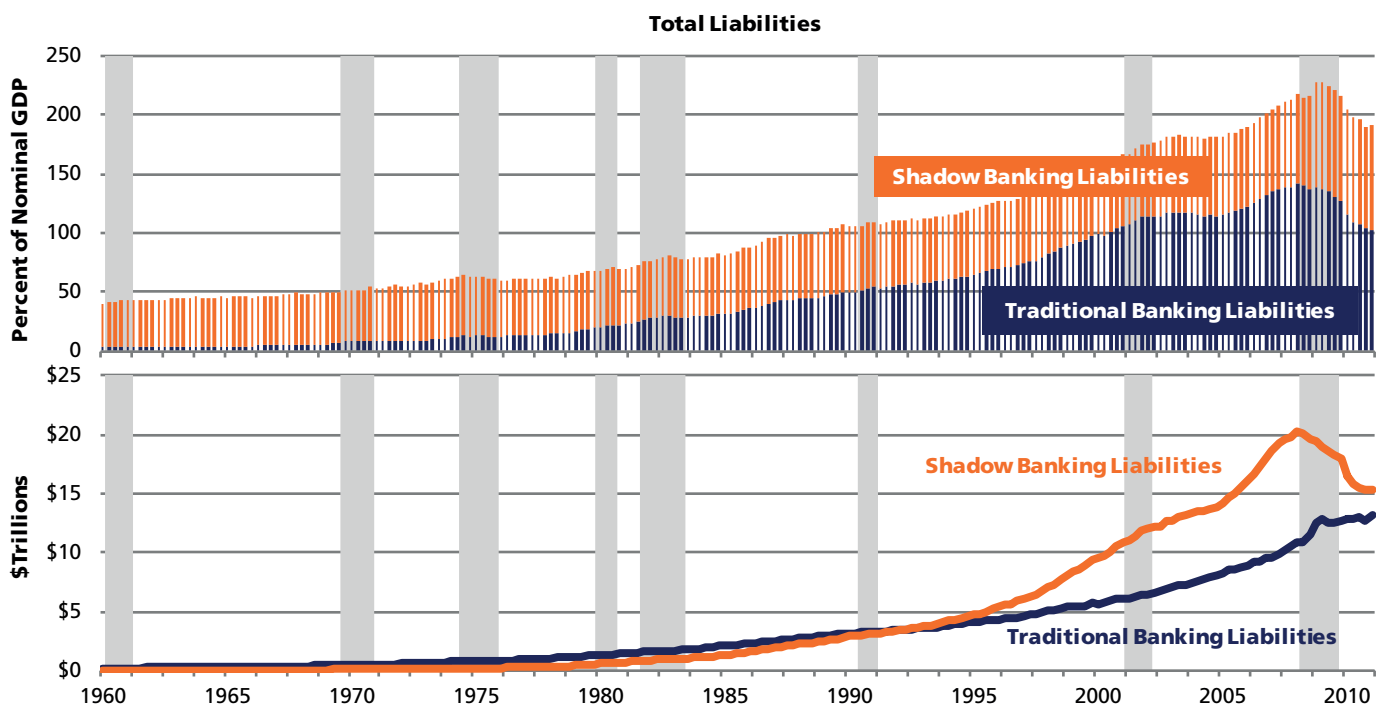
Source: The Bankers Almanac & Yearbook 1961-62, Federal Reserve System, Bureau of Economic Analysis, Janicki & Prescott (2006), King (2010)

Figure 4. Top 10 U.S. banks in 2010

Institution	Total assets (\$ bil)	Assets as a % of GDP	Assets as a % of total bank assets
Bank of America	2,363.9	16.7	19.7
JP Morgan	2,014.0	14.3	16.8
Citigroup	1,937.7	13.7	16.2
Wells Fargo	1,225.9	8.7	10.2
US Bancorp	283.2	2.0	2.4
PNC Financial Services	261.8	1.9	2.2
Bank of New York Mellon	235.9	1.7	2.0
SunTrust Banks	170.7	1.2	1.4
BB&T Corporation	155.1	1.1	1.3
State Street	160.7	1.1	1.3
Total	8,808.9	62.4	73.5

Source: Federal Reserve System, Bureau of Economic Analysis, Janicki & Prescott (2006), King (2010)

Figure 5. The Evolution of Traditional Banking and Shadow Banking in the U.S.



Source: Fed Flow of Funds, Reuters EcoWin

and funding practices can also lead to speculative and Ponzi financing; these should be recognized and limited well before damage is inflicted to both the economy and the common good.

There will always be uncertainty in ensuring financial stability. However, various policies can be used to prevent and cope with asset bubbles, even though these policies have their limitations. Though it has a limited track record, macroprudential policy — in combination with monetary policies and fiscal tools — may work best. In order to have meaningful effect, regulatory institutions and policies have to adapt to and keep pace with the development of financial practices and financial innovations and co-evolution of financial institutions.

Some lessons can be drawn from the global financial crisis with respect to minimizing financial fragility and ensuring stability. The system should be repaired by raising capital requirements for financial institutions, particularly banks, and by central banks establishing liquidity provisions for financial institutions against a wide set of collateral. But mere repairs won't suffice; there needs to be revolutionary changes, according to Paul Tucker, a member of the Bank of England's Monetary Policy Committee.⁵ These would include establishing resolution regimes, living wills for large financial institutions currently deemed too big to fail and, most important, macroprudential oversight.

The main challenge ahead is devising policies and regulations that encourage prudent risk-taking, entrepreneurship and innovation, while fostering financial stability, preventing excesses and stifling financial fragility. While most observers agree that this is a worthy goal, considerable differences remain about the best way to achieve it.

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⁵ See Tucker, Paul (2011), "Macro and Micro Prudential Supervision," BBA Annual International Banking Conference (June 29).

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