

Integrating the Economic Accounts: Lessons from the Crisis

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In recent times, we have benefitted from a wealth of interesting articles and research on the institutional changes and other innovations within the financial system that contributed to the 2008-09 crisis. Unfortunately, nearly all of that work postdates the crisis itself. It is disappointing and puzzling that so little evaluation of those changes was undertaken in earlier years. Our profession did not perform well in anticipating the risks created by many of the financial innovations. Yet, with the benefit of hindsight, many economists have written very lucid descriptions that suggest that the dangers were obvious. Many of us will comfort ourselves with the phrase, “If only I had known what they were doing ...” Hence the topic of this conference on what can be done to provide a better flow of information to help prevent similar crises in the future.

However, the crisis was not so much a failure of information as it was an analytical failure to draw the appropriate conclusions. We knew what the individual agents were doing, but did not understand the linkages and the chain of reactions that would lead the system to spiral out of control. Policymakers became excessive advocates for financial innovation and placed far too much confidence in the incentives and discipline of private markets to restrain participants from excessive risk taking. Our ability with hindsight to identify the failures that led to the past crises can also create a false optimism about our ability to prevent future crises. In effect, the inability to conduct laboratory experiments to explore directly the implications of various reforms to the system leads to an over-emphasis on explaining the past rather than thinking about how various innovations might affect the future.

The focus of this conference is on designing a flexible and robust statistical framework that could monitor an evolving financial system and assist regulators in controlling the risks. While that is an important objective, let me begin with some doubts that a new regulatory process can reduce the risks to an acceptable level; perhaps we should also consider the alternative of moving further in the direction of a plain-vanilla financial system that forgoes some of the gains from financial innovation in return for reduced risk. James Tobin was fond of observing that “It takes a heap of Harberger triangles to fill one Okun Gap.” (Tobin 1977, p.468).

His perspective seems particularly appropriate in the present context when we try to balance the gains from financial innovations in the U.S. and Europe against the costs of a mistake to an even wider global economy. Our neighbor, Canada, is an example of that alternative: while the menu of financial products is more restricted and the prices for some services are higher, Canada did avoid the direct effects of the financial crisis. It suffered only through the channel of reduced trade and its position as a major trading partner of the United States.

For too long, the financial sector has been a poor cousin within the statistical system. Just as the national accounts provide the macroeconomic framework for a variety of real sector analyses, the flow of funds should be the starting point for analysis of financial developments. Traditionally, the Federal Reserve has had the major responsibility for the collection of financial statistics and construction of the flow of funds accounts; but for many years the flow-of-funds was a neglected element, and the Federal Reserve was reluctant to devote a significant amount of resources to developing the accounts. More recently, the Bureau of Economic Analysis and the Federal Reserve have made a major effort to expand the financial accounts and integrate them with the sector income and outlay statements of the national accounts.² The integrated macroeconomic accounts bring the United States more in line with the international System of National Accounts (SNA) in which economic agents are organized into five major sectors (nonfinancial corporations, financial corporations, government, nonprofit institutions serving households and households). There is also a consistent set of accounts that flow from production, income and outlay, capital, financial, and ultimately a net balance sheet for each sector.

The flow of funds accounts played a more significant role in financial analysis during the 1960s and 1970s, relative to recent decades. In part, the reasons might reflect the more restricted nature of the earlier financial system where various interest-rate ceilings and other restrictions created some nonlinearities in the system that created a need to observe changes in different types of credit. As those restrictions were eliminated, financial markets seemed more homogeneous, and many credit instruments were viewed as highly substitutable for one another. Interest shifted away from the composition of credit toward a greater focus on aggregates on the price of credit. There may be some shift back toward an interest in the composition of credit

² Additional details are available in Bond and others (2007). There are still some significant inconsistencies because the national accounts rely on information from tax returns and firms are classified on the basis of principle line of business. In the flow of funds, financial subsidiaries are split off from nonfinancial parent companies.

because of the severity of the disruptions of the past few years and a realization that they did not impact on forms of credit equally.

The integrated accounts are an advance in providing an improved system-wide framework for analyzing macroeconomic flows and the links between the real and financial sectors, but it provides surprisingly little insight into the causes of financial crises. The traditional view of financial institutions emphasized their role in intermediating the flow of resources between savers and investors. While it is true that financial institutions continue to fulfill that function, a modern interpretation places greater emphasis on their activities in transforming financial claims in the dimensions of liquidity, maturity, and credit risk. These dimensions are not captured in the aggregate accounts because the accounts rely on purely deterministic measures of value and cannot reflect the accumulation and transmission of risk exposures. Thus, the system needs to be expanded to incorporate measures of the risk and volatility of key balance sheet items. There is also too little integration of prices and quantities in the financial accounts. At the same time, the emphasis on balance sheets at the sector level is highly desirable because it highlights the role of counterparty risk in a system in which the assets of one sector are the liabilities of others. As conventionally presented, however, the accounts are too deterministic and too aggregated to serve that goal.

The primary purpose of this paper is to review the need for new types of economic statistics in the light of the financial crisis. There has been—and will be even more—discussion of the need for an expanded reporting system to meet the needs of the financial regulators. The focus herein is more on the public side of the statistical system. It reflects a nervousness about relying on internal confidential channels of information between private firms and their regulators. While, there is a need to balance the needs for a public information flow and legitimate private concerns about confidential business strategies, the system also needs the analysis of outside scholars. They need the access to the kind of data that would permit the analysis and construction of indicators that will provide realistic evaluations of the consequences of future financial innovations. Part of the argument is that the statistical system of the federal government has not evolved at a pace that matches the changes in the economy and the new technologies that can be used to monitor it. It is most apparent with respect to the financial system where the reporting structure has remained largely frozen in time despite a drastic change of financial structure. The later portions of the paper also examine the effects of financial crises

on the real economy and whether there are major gaps in the reporting system outside of the financial accounts.

1. Data Challenges in the Financial Sector

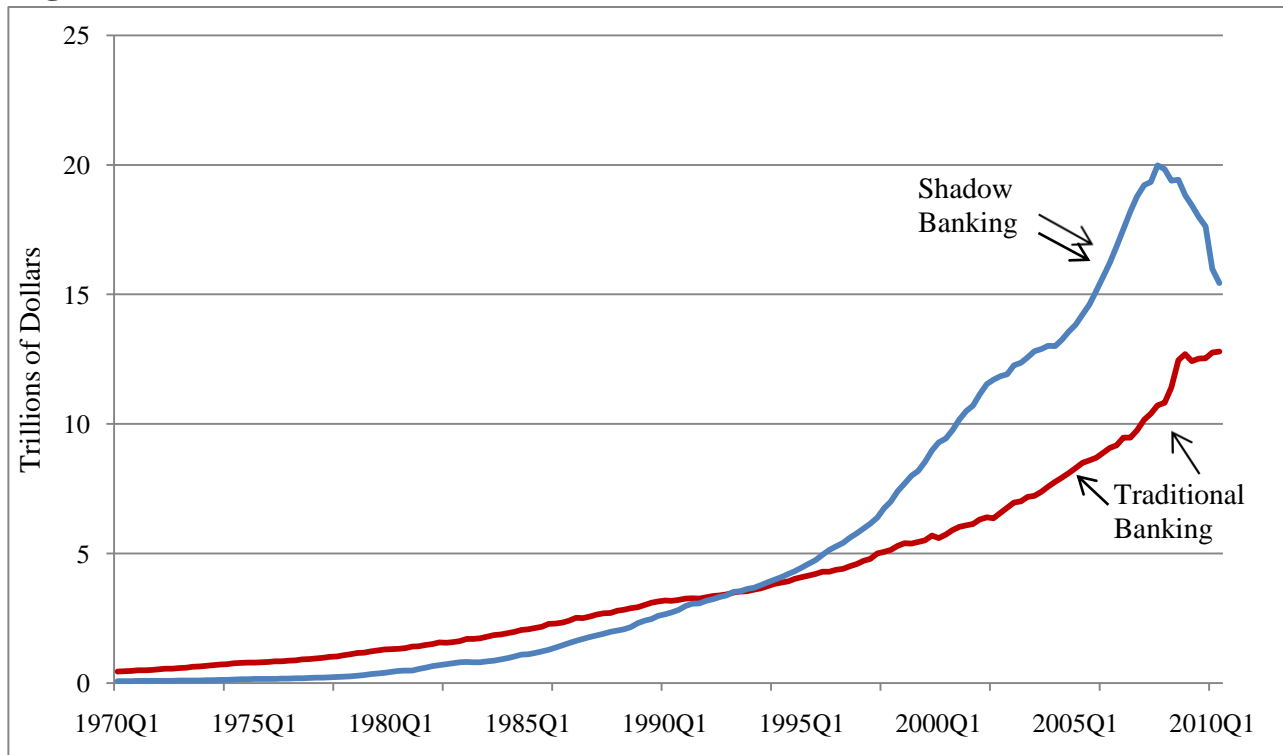
The flow of funds accounts (the financial side of the integrated accounts) have the appearance of a well-defined system that facilitates tracing out the flow of credit, and the distribution of financial assets and liabilities throughout the economy; but they are not particularly useful to identify the distribution of financial risks, and in some respects they describe a system that no longer exists. The U.S. system has been complicated by the emergence of a shadow banking system that operates in parallel with the traditional system of commercial banks. Problems within the shadow banking system during the crisis highlighted three specific areas in which information was lacking and limited the usefulness of the aggregate financial accounts: the maturity structure of the underlying financial claims (liquidity), the lack of information on the use of leverage to support the claim structure, and the shifting of returns and risks away from the reported holders of the claims through the growth of credit derivatives. They all relate to establishing some measure of the underlying quality or risk of the financial assets and institutions. Either the economic accounts need to be expanded to incorporate increased detail or the individual entries need to be accompanied by some index or alternative measure of their risk and volatility.

a. Shadow Banking

The shadow banking system is essentially the collection of financial companies who don't have access to central bank liquidity or the government guarantees of normal banks, but who provide bank-like services. It includes money market funds, investment banks, finance companies, hedge funds, and various asset guarantors. The major funding instruments include commercial paper, repurchase agreements, and various derivatives. A significant portion of the system's growth is motivated by regulatory arbitrage, but there may be some broader economic benefits in the form of gains from specialization (Pozsar and others, 2010). The bulk of their funds are provided through short-term lenders, such as money market funds, which expect their funds to be available on demand and at par. Despite its similarity to commercial banking, the shadow banking lacks deposit insurance and the ultimate backing of the state to protect itself against a run. Absent such a backstop, a general crisis of confidence can be expected to trigger a

run on the system. That is what happened in the recent crisis and it resulted in a near complete, albeit temporary, government guarantee.

Figure 1. Shadow Bank Liabilities vs. Traditional Bank Liabilities. 1970-2010



Source: Flow of Funds L.109, L.121, L.126, L.130, L.207, L.208

The official statistics have failed to adapt in the face of this change in the structure of the financial system. They maintained a focus on the commercial banking system, while an increasing proportion of the activity was being conducted through other venues. Surveys of non-regulated institutions, such as finance companies, are of questionable quality—relying on voluntary participation. Information on pension funds is incomplete and subject to large revisions. The basic elements of the shadow banking system are included within the flow-of-funds and the integrated economic accounts. One study (Pozsar and others, 2010) used that data to estimate the size of the shadow banking system, and suggested that it exceeded the commercial banking system beginning in 1995 and peaked at \$20 trillion in 2008 (figure 1).³ However, the individual elements are not grouped in a fashion that emphasizes their

³ They provide a listing of the included elements of the flow of funds accounts, but by combining information from the accounts by instrument and by sector, they may have introduced some double-counting.

interrelationships. In addition, the accounts do not directly measure the activities of hedge funds which are largely allocated to the residual household sector. The hedge funds have a big impact on the market for liquidity because they rely on short-term credit to enhance their investment strategies.

b. Maturity Structure

A major feature of the buildup to the crisis was a heavy reliance on short-term borrowing to finance long-term lending. It has also been a key element in the majority of past financial crises and is always listed among the major lessons of every postmortem; yet, somehow those lessons are quickly forgotten. Maturity mismatches in the collapse of commercial banks in the 1930s led to the introduction of deposit insurance and an expanded regulatory system. Yet, a similar crisis emerged within the saving and loan industry in the 1980s and ultimately led to the bankruptcy of that industry. The growth of the S&L industry was a reflection of efforts to avoid the constraints of the regulated sector. In the current episode, the problem began within the shadow banking system with its emphasis on repos, but it ultimately spread to the larger commercial banks through the interbank markets.⁴

The statistics can be expanded to differentiate among financial liabilities of varying maturity, but in the absence of explicit insurance, this form of maturity transformation is inherently unstable and subject to runs. Thus, liquidity can vanish overnight. It is particularly true when so much of the short-term lending is dependent on high-frequency repo agreements. It would help if the statistical system could measure the magnitude of the maturity mismatches and the exposures, but information is not a solution to the fundamental instability.

c. Leverage

Extensive reliance on leverage, particularly within the shadow banking system, was another important contributor to the liquidity crisis that developed in late 2008. Some firms were financing their activities with liabilities more than fifty times their own capital. Doubts about the quality of the assets being put up as collateral for short-term financing forced the sale of assets at distressed prices and quickly wiped out the firms' net worth.

⁴ Repos are asset sales in which the seller agrees to repurchase the asset at a fixed future date. It is effectively a collateralized loan.

A traditional measure of leverage focused on the extent to which a firm uses fixed debt to finance its activities because the highly-leveraged firm would in the absence of other factors have a more volatile stream of income after deducting its interest expenses. In notional accounting, leverage is simply total assets divided by total assets less liabilities (net worth). In an economic context, however, the concern is more with the volatility of net worth relative to the volatility in the underlying asset values. Thus, economic leverage might be much lower than the notional level because the valuations of the assets and liabilities share a positive covariance. These computed leverage measures, however, depend upon the accuracy of the underlying model assumptions. In a regulatory context, leverage became a particularly ambiguous concept when regulators attempted to place different risk ratings on various asset classes and use those ratings in the computation of an overall leverage rate.⁵

As pointed out in Greenlaw and others (2008), many of the examples of excessive leverage were outside the regulated commercial banking sector. The leverage rate for commercial banks was about 10, compared to 24 for the government sponsored enterprises, 25 for brokers and hedge funds, 19 for Citibank, and over 50 for some foreign banks like Deutsche Bank and UBS.

Currently, the flow of funds accounts have an incomplete treatment of leverage in that the notional measure is available for only a few sectors, such as households and nonfinancial corporations. In the integrated macroeconomic accounts, the balance sheet framework is extended to the total of all financial institutions, but we still have no balance sheet with net worth measures for subsectors of financial business.⁶ In any case, the flow of funds does not include the measures of volatility that would be needed to compute an aggregate measure of economic leverage.

d. Credit Derivatives

Much of the puzzlement about financial developments in 2006-09 centered on the role of credit derivatives, especially the mortgage-related credit derivatives that were developed early in

⁵ Internationally, Basel I was an example of such an approach to measuring risk. Basel II was to rely on the internal risk management systems of large banks that were largely untested. The role of capital requirements in an international context is elaborated on in Tarullo (2008).

⁶ It is not evident that the net worth of the total financial sector is a particularly useful measure since it was usually negative even before the crisis. The balance sheets are largely an aggregate of financial instruments, rather than individual firms. Thus, many nonconventional claims are excluded.

the 2000s. Derivatives were initially designed to reduce price-related risks of financial instruments (asset prices, the price of foreign currencies and interest rates.) The pricing of those derivatives is relatively transparent and they are marketable. The extension of these instruments to hedge other risks, such as credit default swaps (CDS) and other more qualitative outcomes, are harder to price and have thinner markets or are traded Over the Counter (OTC).⁷ The contracts were designed by the participants to avoid the oversight of the various regulatory agencies, and, until recently, CDS trades were neither reported to, nor effectively overseen by any public authority. The fundamental problem with these risk markets is that the risks are only redistributed, not eliminated; and it is not clear that all participants understand that. What began as a tool for hedging risks has spread to become an important market for speculation. Many of the OTC contracts are very complex and it can become nearly impossible to measure the net exposure of an individual firm or group of firms. They are often a means of transferring risk off of a bank's balance sheet, enabling it to expand its loan portfolio.

Despite their heightened role, credit derivatives are largely excluded from the flow of funds accounts. At the global level, the notional value of CDS contracts was reported by the Bank for International Settlements at \$32 trillion at the end of 2009 (down from 58 trillion at the end of 2007), but the gross market value was a far smaller \$1.8 trillion.⁸ Because of their volume, often far exceeding the magnitude of the underlying reference asset, their inclusion on a gross notional basis seems inappropriate, but they do have a major effect on the actual distribution of the risks and returns in contrast to an accounting system that focuses only on holders of the underlying securities. And though they were created to manage risk in primary markets, as OTC instruments, they can create their own liquidity and settlement risks. The Federal Reserve is in the process of expanding its survey of derivatives, but it does not publically divulge the results.

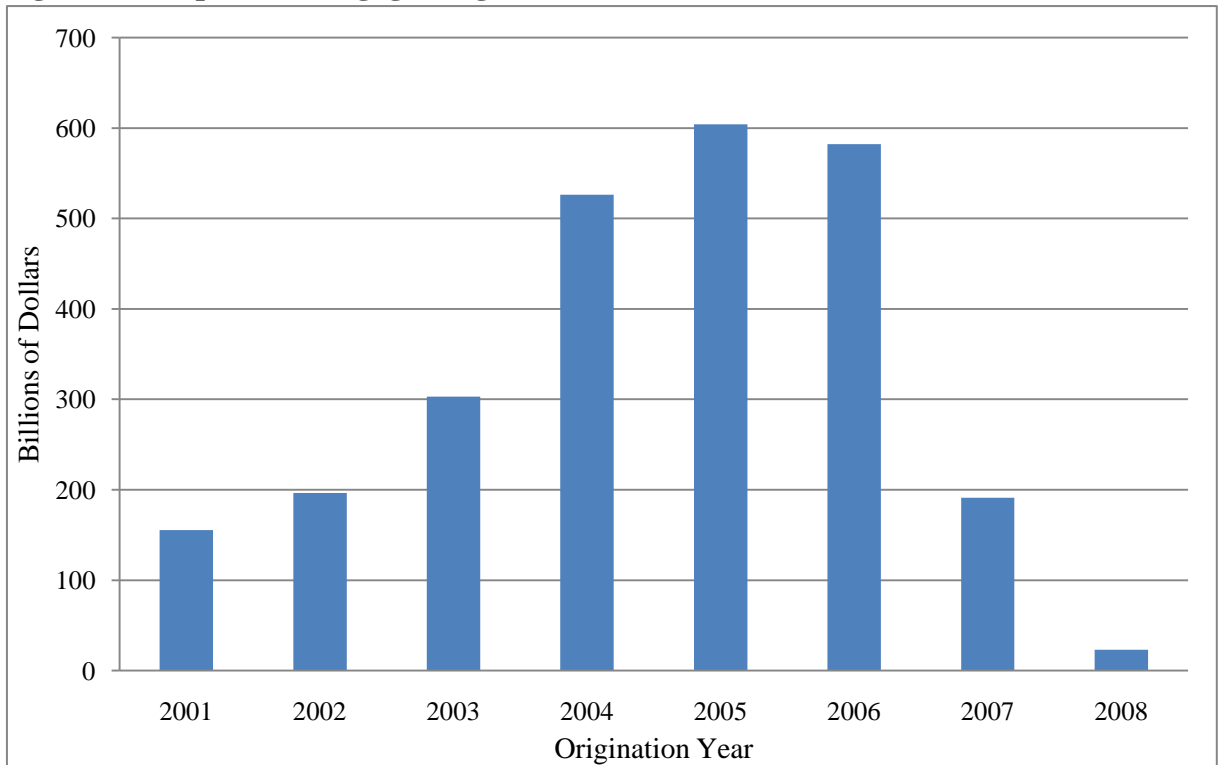
⁷ The two dominate forms of credit derivatives are credit default swaps and total return swaps. The former is equivalent to an insurance contract against default. In a total return swap one party contracts to receive any income inclusive of the capital gain/loss without actually owning the asset.

⁸ Notional value is a measure of the value of the underlying asset for which insurance is purchased. Market value is the price at which the contract could be exchanged in a market or an estimate of its value if no market exists.

2. Sub-prime Mortgage Crisis

The collapse of the subprime mortgage market was an important initiating force behind the crisis in the broader financial system. Subprime mortgages were loans made to borrowers who were perceived to have high credit risk, often because they lacked a strong credit history or had other characteristics that are associated with high probabilities of default. At least initially, the risks were offset by a higher interest rate and were manageable within a diversified portfolio. Subprime mortgage lending grew to become a significant activity in the late 1990s, spurred in large part by innovations that reduced the costs of assessing and pricing risks. Technological advances made it easier to collect and disseminate information on the creditworthiness of prospective borrowers (credit scoring), and lenders developed new techniques for using this information to establish underwriting standards, set interest rates, and manage their risks. Loan standards were significantly easier than for conforming loans of the government sponsored agencies (GSEs). About half of subprime mortgages were used for refinancing and the rest for home purchase. The phenomena had a relatively short life as originations of subprime mortgages grew very rapidly after 2000, peaked in 2006, and largely disappeared by 2008 (see figure 2).

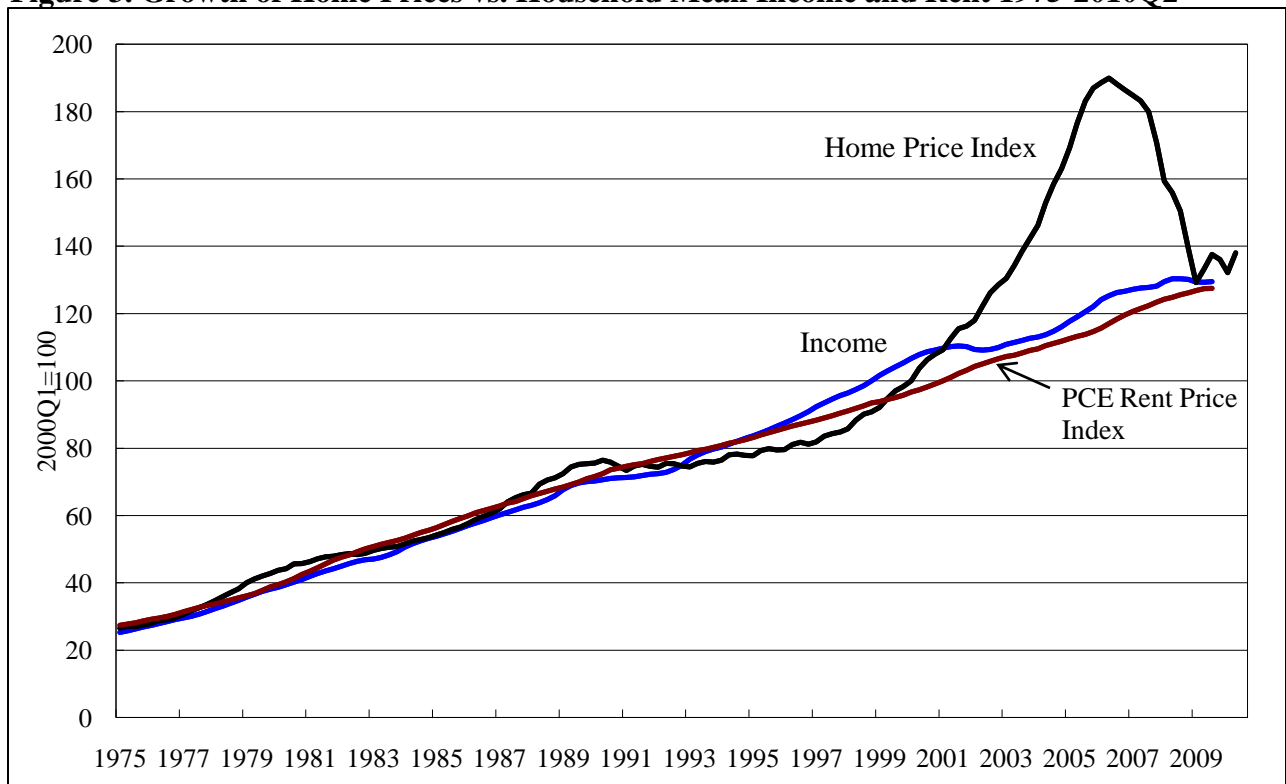
Figure 2. Subprime Mortgage Originations 2001-2008



Source: Inside Mortgage Finance, 2008 Mortgage Market Statistical Annual and 2008 HMDA data

The emergence of a subprime crisis can be traced to a combination of factors. The loosening of lending standards within the subprime market greatly expanded the pool of potential borrowers, and together with low borrowing rates it fueled a major run-up of housing prices that far exceeded the growth in income and other measures of affordability. The extent of the bubble in housing prices seems obvious in figure 3 ,which compares an index of home prices with the growth in average family incomes; yet, its existence was controversial among real estate economists as late as 2005 (Himmelberg and others, 2005, and Shiller, 2005). There was a further deterioration of loan standards after the boom in refinancing ended in 2004, as originators sought to maintain volume by lowering loan standards. They were relatively unconcerned about loan defaults as long as home prices continue to rise, since owners could always refinance or sell the property.

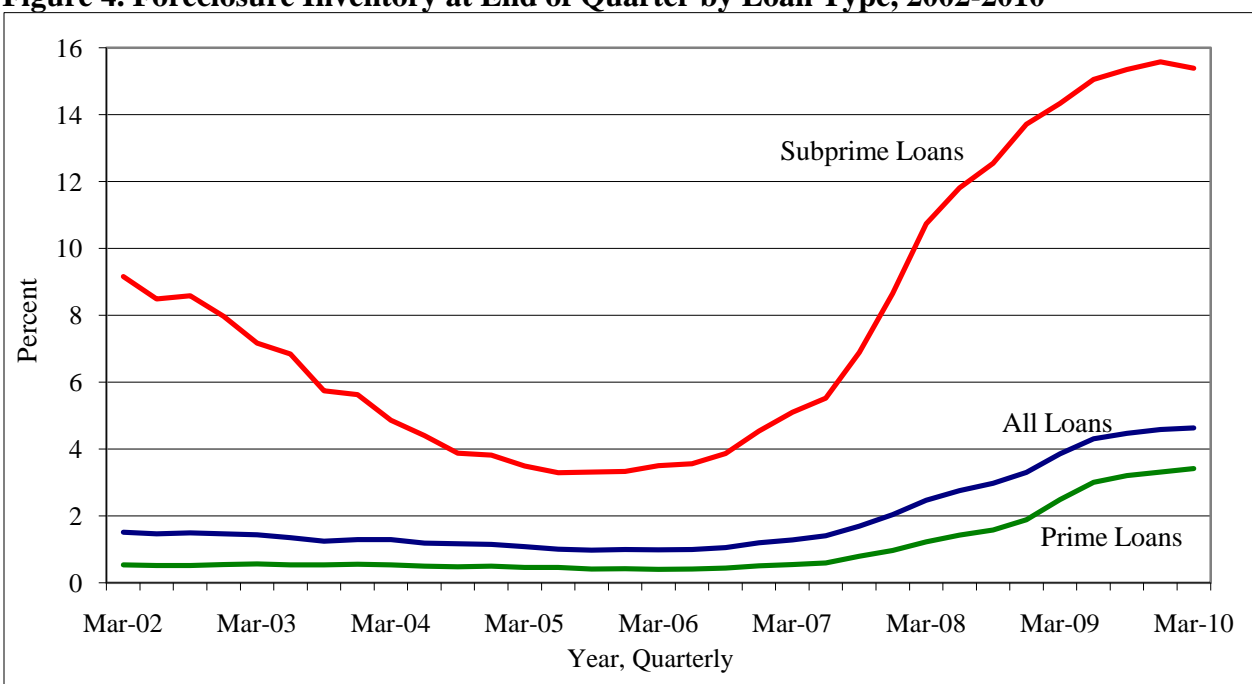
Figure 3. Growth of Home Prices vs. Household Mean Income and Rent 1975-2010Q2



Note: The Home Price index extends the Case-Shiller national price index backwards from 1986 to 1975 using the OFHEO home price index. Quarterly mean HH income is linearly interpolated from Census annual data and then adjusted so that the average over four quarters equals annual income. Indexes of income and rent are created and then adjusted so that ratio of housing prices to income and to rent averages 1.0. over the years 1975 - 2001. The PCE "rent" is rent of owner-occupied dwellings from BEA.

Home prices began to level out and decline in early 2006. Lower prices quickly wiped out the limited equity of many borrowers and the percent of loans in foreclosure began to rise rapidly, from 3.6 percent in mid-2006 to 8.7 percent by the end of 2007, and 15.4 percent in early 2010 (figure 4). Foreclosure rates for conforming mortgages have remained far below those of subprimes, but they too accelerated as the overall market worsened. The effects of declining home values were compounded in the later years by rising rates of unemployment. According to the data in figure 3, home values have now declined back to a historical norm, but there is still a large inventory of homes awaiting sale or foreclosure.

Figure 4. Foreclosure Inventory at End of Quarter by Loan Type, 2002-2010



Source: Mortgage Bankers Association

While the reasons for the collapse of the subprime market now seem evident, it is surprising that the breakdown of a portion of the mortgage market could trigger a wider financial crisis of such magnitude and global consequence. The explanation must include the development of a private securitization industry, paralleling that of the GSEs in conforming mortgages but based on subprime mortgages.⁹ Private securitization of mortgages and other

⁹ While the GSEs did not directly participate in the securitization of subprime mortgages, they did purchase large volumes of such assets to hold on their own balance sheet. They arbitrated their position as a near-government entity to take advantage of their low borrowing rate and leverage to invest in assets that were riskier than those that would qualify for their own securitization programs.

consumer loans fueled much of the growth in the shadow banking system.¹⁰ Pools of subprime mortgages were securitized through mortgage-backed securities (MBSs) and divided into tranches in which the most senior tranches are paid first, and each tranche was assigned a credit rating by rating agencies. Through this credit enhancement process, a large proportion of the MBSs could obtain investment grade status even though the underlying collateral was of poor quality.

In the early years of private securitization, loan standards and risk were kept under control by the active role of bond insurers and institutional investors who focused on the characteristics of the underlying loans. In 2004-05, however, subprime MBSs emerged as a principle asset backing for collateralized debt obligations (CDOs). Off-balance sheet entities of commercial and investment banks repackaged the lower tranches of MBSs into (CDOs) and tranced them again to obtain higher ratings for the senior portions. What emerged was a highly complex set of investments that were very difficult to value and an environment in which CDO managers were less concerned with the underlying loan quality. As CDOs came to dominate the market for sub-prime MBSs in 2006 and 2007, the discipline on primary market originators was lost with a consequent large reduction in loan quality.

Table 1. Price Indexes of Markit ABX.HE (CDS Based on Subprime Residential Mortgage-Backed Securities) (by tranche, vintage, and date)

TRANCHE	VINTAGE	Jan. 2006	Jan. 2007	Dec. 2007	Sep. 18, 2008	Nov. 20, 2008	Mar.3, 2009	Oct. 27, 2010
AAA	06-1	100	100	94	89	66	85	87
	06-2		100	89	70	40	61	80
	07-1		100	79	47	28	36	60
	07-2			78	46	28	31	50
AA	06-1	100	100	88	52	26	22	50
	06-2			70	24	11	11	18
	07-1			51	11	5	5	6
	07-2			48	12	5	5	6

Source: Compiled by Charles Schultze from periodic press releases of Markit.com.

Note: Four vintages were issued by Markit, Each vintage was based on RMBSs assembled over the prior six months. The price was 100 on the day of issue

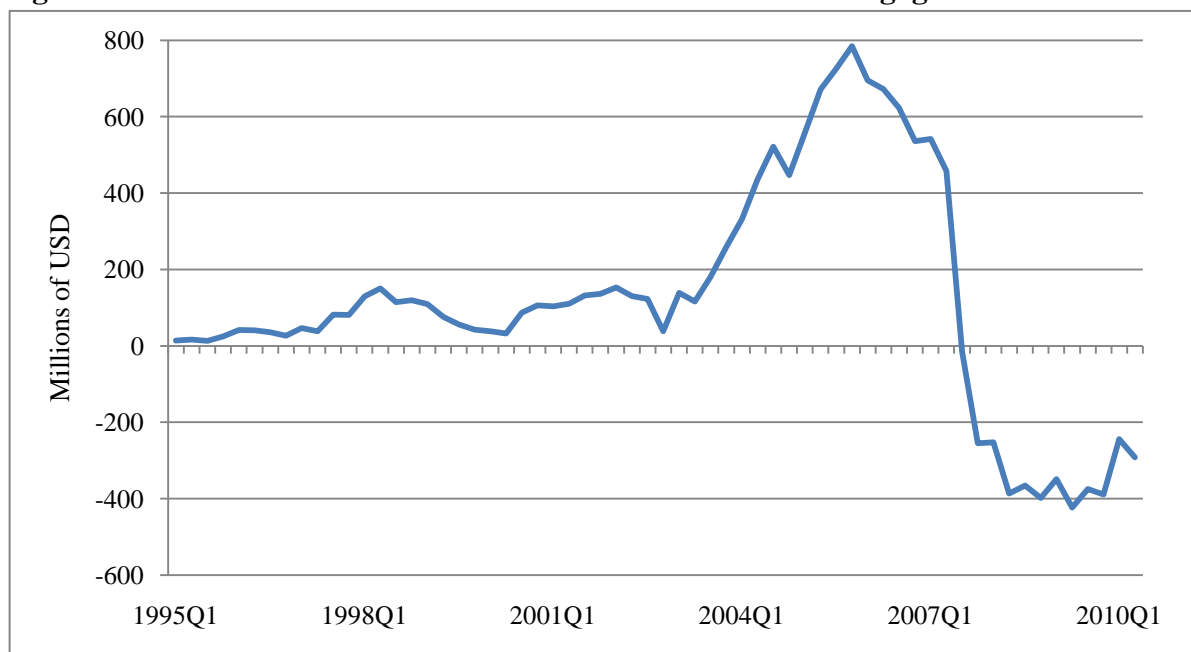
¹⁰ Growth in the market for subprime loans and their use in structured assets are explained in Ascraft and Schuerman (2008) and Gorton (2008). See, in particular, Gorton's summary of the chain of subprime risk in his table 19.

In addition, the complexity of the CDO market created enormous uncertainty about their dependency on subprime valuations and questions about the distribution of the CDs and their associated risk exposure. It was no longer possible to work backwards from a specific CDO to the underlying bonds to determine the extent of subprime exposure. In early 2006, the introduction of traded ABX indexes made it possible for participants to express their view of the value of the underlying assets, but it did not answer the question of who held them.¹¹ The deterioration of the subprime securitization market during 2007 is evident in table 1. In some respect, the ABX indexes worsened that crisis by making clear the extent of the collapse of subprime mortgage value, but without any knowledge about the location of the risk—who was exposed to the loss. The uncertainty drastically curtailed the market for all CDOs and other structured products, and without a measure of market value, the repo market collapsed. Ultimately, the whole episode reflected a dramatic failure by regulators, analysts, and participants in the CDO market to appreciate the sensitivity of the whole chain of value to changes in home prices. When home prices began to decline in 2006, the whole structure unraveled.

The subprime debacle is probably a one-time event and many parts of the process have disappeared. However, it is interesting to note that most of the episode was invisible within the government statistical system. In the flow-of-funds, all mortgages are equal with no distinctions by quality. Some elements of the subprime network are reflected in the flow-of-funds table on issuers of asset-backed securities (figure 5), but the vast bulk of their liabilities were simply classified in the general category of corporate bonds, with no information on ownership of the ABSs. There was also far too little available information on the prices of the new financial instruments. Most were traded over the counter and only a few firms were aware of how prices were changing over time. With the introduction of the ABX indices, there was a much wider—perhaps exaggerated—awareness of the problems in the subprime markets.

¹¹ The ABX index was a credit derivative based on an underlying set of MBS tranches. Individual sub-indexes were created for bonds of different risk levels from AAA to BBB-. Four vintages of the ABX were created at 6-month intervals covering issues of the prior six months, beginning in January of 2006. There is no new index after 2007.

Figure 5. Issuers of Asset-Backed Securities: Flow of Total Mortgages 1995-2010



Source: Flow of Funds F.126

Substantial amounts of data were available from private sources but at prices that can be afforded only by the government regulators, the large private-market players, and experts connected with them. Information on subprime mortgage originations, default rates, and ABX indices are all collected and sold by private firms. Such a system excludes large numbers of smaller players like academic researchers and the general public. Particularly within the financial sector, nearly all of the recent growth in statistical information has been generated by for-profit private firms. Perhaps a wider dissemination of the underlying information about the growth in the shadow banking system and the new products that were being innovated would not have made a difference, but a larger forum has been helpful in understanding and evaluating other issues of public economic policy. A system that relies on an expanded flow of information to the regulatory agencies may not be adequate: there have been too many examples of regulators being captured by those that they were meant to regulate.

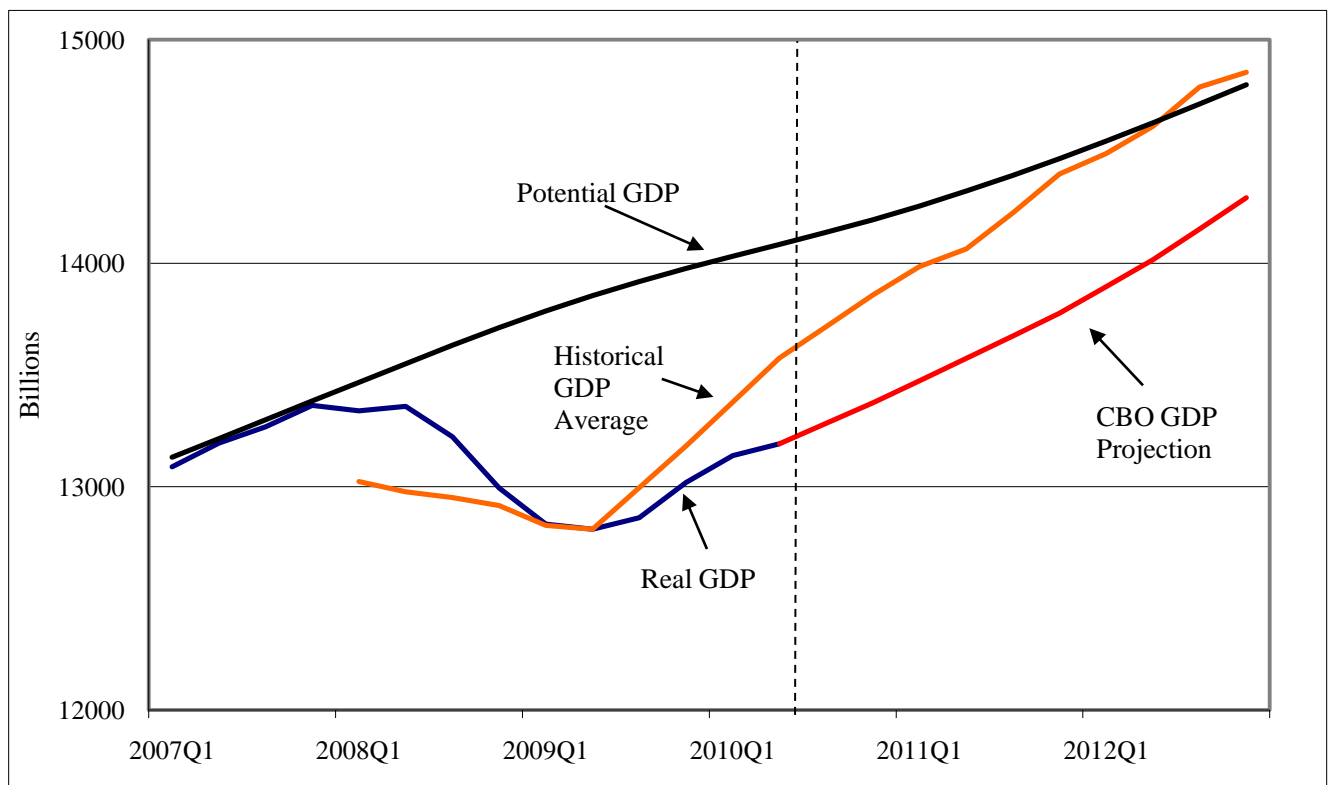
3. Impacts on the Real Economy

The historical experience is that the U.S. economy recovers very rapidly from recessions, and to some extent, the deeper the recession the faster the recovery. However, there is also evidence, as reported in a recent IMF study involving a number of advanced economies, that financial crises are not like other recessions and that the recovery phase is much longer and

drawn out (IMF, 2009, p. 109-19). The primary reason given for such outcomes is the extent of deleveraging that takes place within the financial system and the need for private sector actors to rebuild their balance sheets.

Thus far, the United States appears to be following the path of past financial crises (figure 6). The top line of the chart shows the projected growth in potential output as estimated by the CBO. They incorporate a pronounced slowing in the contribution of capital due to lower rates of investment and a small negative effect on total factor productivity. The result is a projected annual growth in potential output of only 2.1 percent over the next five years. The second line reports the average rate of GDP growth from the trough of the past eight recessions. On that basis, the United States would expect to be back at full employment by the end of 2012. The third line shows the actual growth in GDP to date and a projection based on the forecast of the CBO. There is only a modest closing of the gap between actual and potential by the end of 2012.

Figure 6. Alternative Paths to Recovery, 2007-2012



Source: CBO and authors' calculations as explained in text.

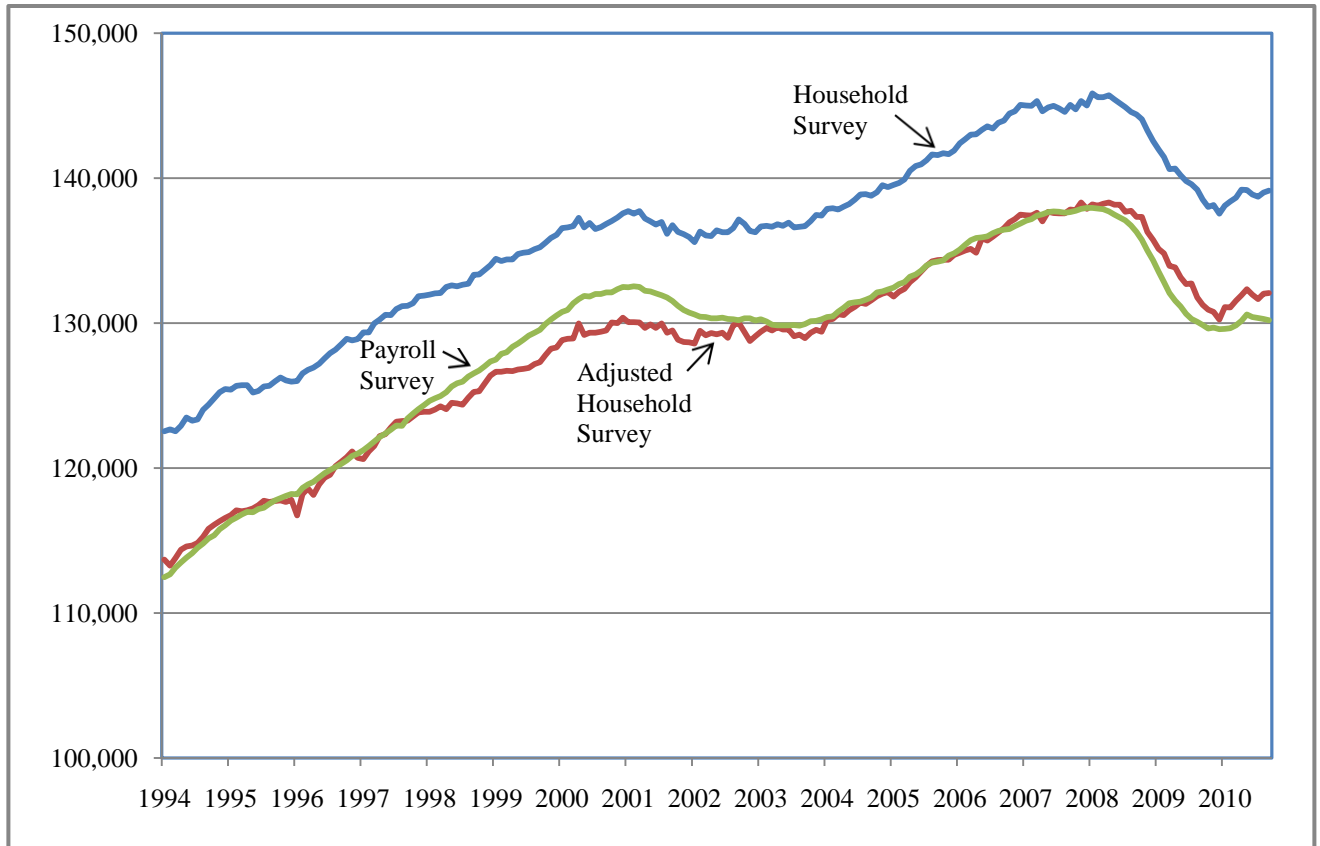
At present, the United States has an output gap of about six percent of potential output, and it is increasingly evident that recovery will be very slow and it will require a rebalancing of the economy away from its recent reliance on domestic consumption toward a greater effort to expand exports to the rest of the world. The effort to rebuild household balance sheets will lead to increased saving and lower consumption and the government cannot afford to support household disposable income indefinitely through deficit financing. On the investment side, the collapse of the real estate sector suggests that private investment will remain well below prior rates for several years.

a. Excess Unemployment

One early puzzle about the recession phase of the crisis involved the speed and magnitude of the rise in unemployment. It appeared to be much larger than would have been anticipated from an application of Okun's law to the reported decline in GDP. Past experience suggested that that unemployment rate would peak in the neighborhood of 8-8½ percent, rather than the observed 10 percent that it reached in the household survey in late 2009. The employment losses are even more striking in the payroll survey; payroll employment fell by 8 million between December of 2007 and September 2009, compared with 6.5 million in the household survey. A discrepancy between the two major employment surveys also emerged a decade earlier (figure 7), but in that case, the payroll survey showed a faster rate of growth in the expansion of the late 1990s and then slowed relative to the household survey in 2002-03. Despite an extensive round of research, the BLS has been unable to identify the reason for the emergence of the discrepancy in the late 1990s. Using a linked micro data set, Abraham and others (2009) traced the discrepancies to differences in the reported employment status of individual workers in the two surveys, with the most serious problems in the reports for more marginal workers and jobs.

In the current episode, a large portion of the gap emerged after the March 2009 annual benchmark adjustment of the payroll employment to the state unemployment insurance records. The revision resulted in a downward revision of 900 thousand workers. An additional downward revision of 366 thousand will be implemented for the March 2010 reference month. The magnitude of the benchmark revision is a recurring problem because in some years it represents a major proportion of the annual change.

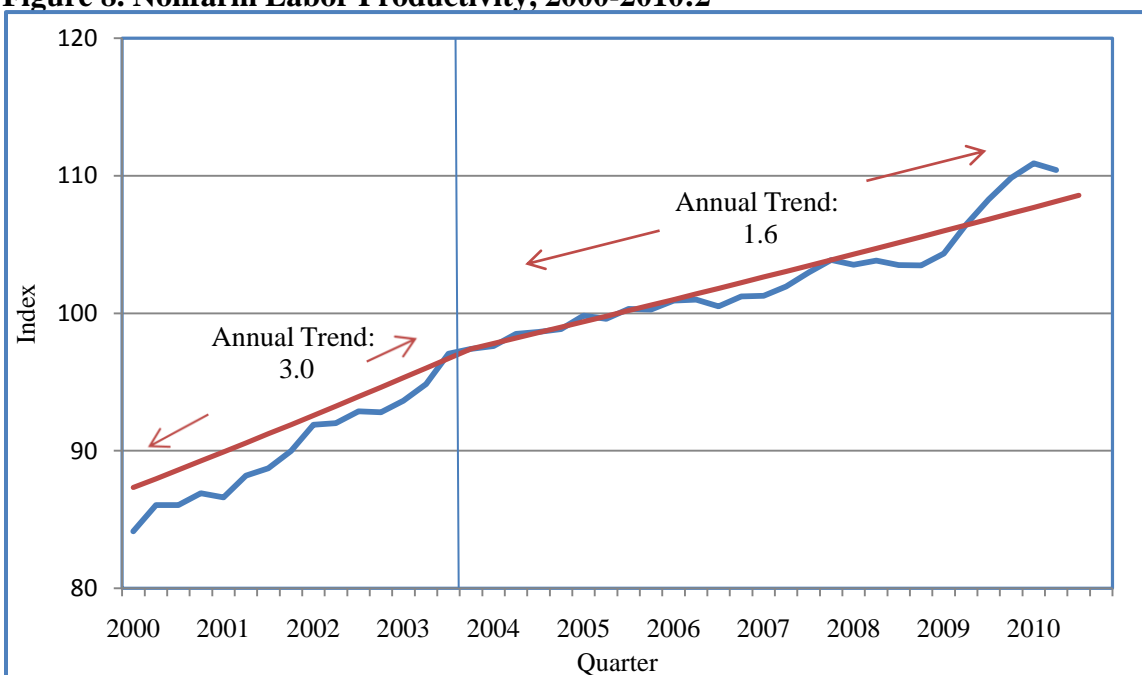
Figure 7. Household and Payroll Survey Employment, 1994-2010



Source: Bureau of Labor Statistics, October 8, 2010

The drop in employment has also translated into a surprising rise in labor productivity that contrast with much of the modern economic discussion, which emphasizes the procyclical behavior of productivity and attributes to it a major causal role in business cycles. As documented by Gordon (2010), it is difficult to find a consistent cyclical behavior in recent decades; but it is also apparent in figure 8 that the current recession actually had two phases. If we accept the NBER dating that the recession began in the 4th quarter of 2007, the recession was initially marked by small employment losses and a significant slowing of productivity, but the intensification of the recession in early 2009 led to an acceleration of the job losses that continued in the last half of the year. In that respect, the 2009 job losses look like the response to a panic.

Figure 8. Nonfarm Labor Productivity, 2000-2010:2



Source: BLS. Trends are estimated for 1994:4-2003:4 and 2003:4-2007:4

Another study by Alan Krueger and others at the Treasury used data from the BLS Job Opening and Labor Turnover Survey (JOLTS) to examine differences in new hires and layoffs among large and small firms (Krueger, 2010). They found that the large firms were more likely to make the adjustment by freezing new hires, whereas the small firms responded with a more aggressive pattern of layoff of existing workers. They interpreted this evidence as suggesting that the small firms were more severely impacted by the curtailment of credit during the crisis. That is a much different explanation than that of Gordon (2010) who stressed the role of excessive cost cutting by corporate executives. Some of these puzzles in the employment data are long-standing, but they illustrate the value of having more employment and firm data that distinguishes small and medium size enterprises by industry.

b. External Sector

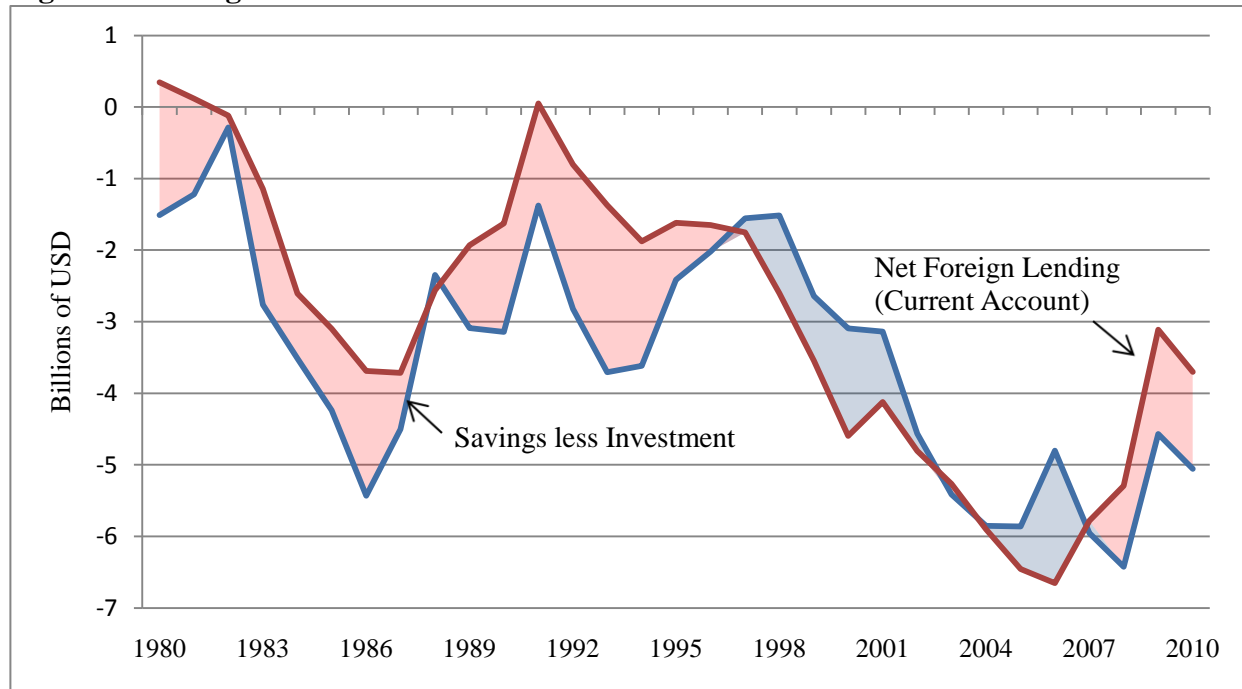
The economic crisis has had a strikingly large effect on global trade. A decline in global GDP of 2-2½ percent in 2009 was sufficient to reduce global merchandise trade flows by 23 percent from \$16 to \$12 trillion. It was the trade channel, as much as financial linkages, that was responsible for the global dimension of the crisis. The surprise for the United States, however, is

that the collapse of trade was recorded as having a stabilizing influence on the economy: initially goods imports were 165 percent of exports, but the percentage decline in merchandise imports was significantly larger than that for exports (-26 versus 18 percent). The current account deficit fell from a peak of 6.6 percent of national income to 3.1 percent in 2009, and gains in the net trade balance offset 40 percent of the decline in GDP. Unfortunately, the recovery of trade is now having an even larger negative effect on GDP growth in 2010— the net contribution of trade offset more than half of an otherwise robust 4.6 percent annual rate of domestic demand growth in the 2nd and 3rd quarters.

It is becoming increasingly evident that the external trade sector will occupy a major role in the recovery from the recession. The United States cannot continue to support a large external deficit. In partial recognition of this fact, the President established a goal of doubling U.S. exports over 5 years, and the G-20 has taken up a discussion of means for reducing global trade imbalances. All of this suggests the desirability of a close monitoring of the trade sector. While not a necessity in an economy of high unemployment, the United States will ultimately have to restructure its own economy by raising the level of saving to finance more of its investment out of domestic resources. There is an elementary accounting identity that relates the external balance (the current account) to the difference between domestic saving and investment. In that context, we would like to be able to trace out the domestic factors that led to the prior large imbalance, and how was the economy able to accommodate the large improvement in the current account in 2009.

Unfortunately, the statistical discrepancy has played a large role in the efforts to account on the domestic side for large adjustments in the external imbalance. As shown in figure 9, both the domestic and external measures capture the broad pattern of the changes over time, but statistical discrepancy is a large portion of the explanation in some periods of major change, such as 2005 to 2010. Thus, it is hard to account for the adjustment on the domestic side.

Figure 9. Saving Less Investment and the Current Account 1980-2010



Source: Bureau of Economic Analysis web site, national income accounts tables 1.7.5 and 5.1.

4. Conclusion

This paper has focused on the adequacy of the statistical system in light of the financial crisis. While I believe that the crisis was primarily reflective of a failure of analysis rather than a lack of data, there is evidence that the statistical system—particularly on the financial side—has failed to evolve to capture the implications of several major financial innovations. The emergence of the subprime mortgage industry took place within a surprisingly short period and many of its elements may only be of historical interest as it now fades away, but it was a major lesson about the failure to document and analyze large innovations within the financial system. To a lesser extent, we were also left with uncertainty about how the disruption of credit flows would affect the real economy.

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