

William C Dudley: The US economic outlook

Remarks by Mr William C Dudley, President and Chief Executive Officer of the Federal Reserve Bank of New York, at the Washington and Lee University H Parker Willis Lecture in Political Economics, Lexington, Virginia, 1 April 2010.

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Thank you for that kind introduction and the opportunity to speak here today. The past few years have been an extraordinary time for policymakers. We have been very aggressive in providing support to the economy, and it now appears that a sustainable recovery is underway. However, given the headwinds created by the collapse of the U.S. real estate market and its consequent damage to the financial system and household balance sheets, it seems unlikely that the recovery will be as strong as we would desire. As a result, the substantial amount of slack in productive capacity that exists today will likely only be absorbed gradually. Consequently, trend inflation, at least over the near term, should remain very low. This is why the Federal Open Market Committee (FOMC) concluded at its March meeting that "... economic conditions, including low rates of resource utilization, subdued inflation trends, and stable inflation expectations, are likely to warrant exceptionally low levels of the federal funds rate for an extended period".

What I would like to do today is to explain in some detail the logic underlying this expectation that economic conditions will warrant exceptionally low levels of the federal funds rate for an extended period. This conclusion stems from the observation that the current economic environment is qualitatively different from previous post-World War II business cycles. Most post-war recessions were preceded by high rates of resource utilization and rising trend inflation. This prompted a tightening of monetary policy, which, in turn, dampened interest-rate sensitive spending, particularly on housing and consumer durable goods. Then, as underlying inflation pressures subsided, monetary policy was eased and interest-rate sensitive spending rebounded, often quite sharply.

The current business cycle is different in one key respect. It was preceded by a global financial crisis. The financial crisis was due, in large part, to excessive leverage and excessive investment in real estate assets. It will take time to unwind these excesses.

Today, I will offer a framework for assessing the forces that have shaped the recent performance of the U.S. economy. This framework will provide context to the fiscal and monetary policy responses to what is now being called the "Great Recession." Then, I will discuss the economic outlook for the United States over the next year. Before I proceed, I want to emphasize that these views are my own and do not necessarily reflect the views of the FOMC or the Federal Reserve System.

Building an analytical framework

Say's law – named after the French economist Jean-Baptiste Say – states that the aggregate value of incomes earned in an economy over some period of time must by definition equal the value of all goods and services produced over that same time period. Or, put somewhat differently, on an ex post (i.e., realized) basis, saving must equal investment. Investment in this case means current spending on new physical, human and intangible capital. This insight is the conceptual basis for national income accounting and the gross domestic product (GDP) statistics that we follow so carefully.

Even so, economists have been debating the implications of Say's Law since it was first expounded. Classical economists argued that this ex post balance would occur in a way that kept the economy quite stable at full employment. If there were shocks to saving or investment spending that pushed the economy away from full employment, prices and wages

would adjust quickly, providing the market signals needed to bring about the reallocation of resources required to restore full employment.

The global depression of the 1930s raised serious questions about this classical theory. Although saving must equal investment on an ex post basis, the two can diverge ex ante, potentially sharply. For example, when ex ante (i.e., desired) saving exceeds ex ante (desired) investment spending, inventories rise above desired levels. If prices of the products in question do not fall sufficiently rapidly so that this unwanted build-up of inventories is sold quickly, then production and employment must fall. Perhaps most famously, Keynes, in *The General Theory of Employment, Interest and Money*, argued that there are institutional rigidities that inhibit price and wage flexibility. This means that periods in which ex ante saving exceeds desired investment might lead to periods of persistent unemployment.

In this respect, the financial system plays an important role. Financial intermediaries match borrowers and savers. If the financial system is under stress and lending standards are being tightened, ex ante investment is likely to decline relative to saving, all else being equal.

The financial intermediation process and the creation of credit is the primary channel through which monetary policy affects the economy. By influencing the volume of credit creation, monetary policy strives to keep ex ante saving and investment – alternatively, aggregate demand and aggregate supply – in rough balance. Too rapid a pace of credit creation would overstimulate investment relative to saving, potentially increasing the rate of inflation and this, in turn, could damage the economy's long-run performance. Too slow of a pace of credit creation would likely lead to an ex ante shortfall of investment relative to saving, causing unemployment to increase.

This analytical framework also applies to the global economy, but with an added level of complexity. At the global level, income equals output and saving equals investment on an ex post basis. However, for an individual country, saving can exceed investment or, alternatively, production can exceed domestic demand to the extent that a country's exports exceed its imports. This requires that, for some other economy or group of economies, investment must exceed saving, or alternatively, domestic demand must exceed production and imports must exceed exports. This means that what happens abroad in terms of desired saving and investment also influences the performance of our domestic economy.

This framework provides a simple way to evaluate the recent economic environment and the current economic outlook. When desired investment rises relative to saving on an ex ante basis, then an economy tends to strengthen. If the strengthening persists, inflation may rise to levels above what is regarded as consistent with maximum sustainable growth and full employment. This was the story for much of the 2004–06 period. The Federal Reserve responded to rising trend inflation by tightening monetary policy to keep the economy from overheating.

In contrast, when investment falls relative to saving on an ex ante basis, an economy weakens and may slip into recession, as was the case between 2007 and mid-2009. During this period, the Federal Reserve tried to support employment by cutting its federal funds rate target nearly to zero; by creating a number of special liquidity facilities to support the extension of credit; and by engaging in a large scale asset purchase program, buying Treasuries, agency debt and agency mortgage-backed securities.

An economic recovery requires that desired investment must rise relative to saving. This has happened recently as fiscal stimulus and an inventory cycle have led to a fall in ex ante saving relative to investment. But for the recovery to strengthen further, this process must continue. There has to be a further demand impulse – be it a decline in household saving rates, a rise in business investment relative to profits, a further expansion of fiscal stimulus or an improvement in the net trade balance via an increase in exports relative to imports.

Let's now apply this framework to evaluate what happened over the past decade and what it implies for the economic outlook.

The last three decades have been marked by a shortage of U.S. domestic saving relative to investment. The United States has almost continuously run a current account deficit since the early 1980s (Chart 1). In 2005 and 2006 that current account deficit averaged around 6 percent of GDP. Yet, the real exchange value of the dollar today is not terribly different from what it was in the early 1990s (Chart 2). A massive flow of saving into the United States from around the world offset forces that otherwise would have driven the exchange value of the dollar lower.

In addition to its sheer size, this inflow of saving into the United States is significant in several respects. First, note the direction of the flow. One might expect that capital would flow from the developed world to the developing world, but just the opposite has been the case. In addition, foreign savers have been willing to lend to the United States in the U.S. currency. This means that foreign savers are exposed to the exchange rate risk that the dollar's value might change relative to their own currencies. Finally, one might expect that over time, as their holdings of dollar-denominated assets increased, foreign savers would demand higher interest rates, but, in fact, U.S. interest rates – in both nominal and real terms – have been generally declining over the past three decades¹ (Chart 3).

These facts are at odds with the prevailing view that spendthrift U.S. consumers and governments are pulling those savings into the United States. Indeed, for some time the “twin deficits” view held that large fiscal deficits in the United States were causing large U.S. current account deficits. However, even when the federal government ran surpluses in the late 1990s, our current account deficit continued to increase. Subsequent research at the Federal Reserve Bank of New York indicates that the link between fiscal deficits and capital inflows is not as strong as commonly suggested.²

Before proceeding, a few important qualifications are in order. First, despite the large flow of foreign saving into the United States, our international financial position does not appear precarious at the present time. The United States still has substantial investments in foreign countries, and income from U.S. investments abroad still exceeds the income generated by U.S. assets owned by foreigners. Part of the reason is that U.S. firms operating abroad earn higher rates of profit than foreign firms operating here. In addition, low interest rates minimize the cost to the United States of our substantial negative net debt position.

In addition, the fact that our foreign indebtedness is for the most part denominated in our own currency is a huge advantage in the event the dollar were to come under significant downward pressure. That is because a decline in the dollar would raise the value of the income earned on our foreign direct investment and foreign-currency denominated assets, relative to the income that foreigners earned on their dollar-denominated investments in the United States. All else being equal, this would boost our net investment income balance.

Note that borrowing per se is not necessarily a bad thing. The key is what the borrowing is used for – to finance consumption or investment. And, if it is used to fund investment, it is also important how productive that investment turns out to be over time.

So what did we do with this inflow of foreign saving? We invested in a substantial volume of physical capital, particularly residential and nonresidential real estate (Chart 4). It seems clear that one important factor behind this investment was the decline in long-term interest rates. For example, from 2003 through 2005 mortgage rates declined to just under 6 percent on average, the lowest level since the first half of the 1960s. These lower mortgage interest rates were capitalized into asset prices. Rising prices for residential and nonresidential real

¹ Brender, Anton and Florence Pisani. 2007. “Global Imbalances: Is the World Economy Really at Risk?” Dexia SA.

² Bartolini, Leonardo and Amartya Lahiri. 2006. Twin Deficits, Twenty Years Later, Federal Reserve Bank of New York *Current Issues in Economics and Finance*, 12, no. 7 (October).

estate assets induced entrepreneurs to produce more of those assets. In the housing market, this increase in prices was helped along by the relaxation of loan underwriting standards, which made it easier to obtain a mortgage and become a homeowner. Credit growth was the strongest among households with relatively low credit scores (Chart 5). The homeownership rate rose after being relatively stagnant for two decades (Chart 6). The increased availability of credit to lower income borrowers and the sharp rise in housing values contributed to the rise of consumption as a share of GDP and the decline of the personal saving rate³ (Chart 7).

Now, with the aid of hindsight, it is clear that we built too many houses, invested in too much commercial real estate and overvalued both significantly. The market overshot for several reasons. First, there was rampant speculative behavior. The longer these asset prices continued to rise, the stronger the belief became that they would keep rising in the future. Second, the rise in prices reinforced the initial relaxation of underwriting standards. During the period of rising prices, defaults and loan losses were very low. A homeowner who had difficulty servicing the debt could typically sell the home for a profit and pay off the loan. Third, the boom was fueled by new financial products, such as collateralized debt obligations that were backed by subprime and Alt-A mortgages. Investors misunderstood how risky these products were and this resulted in lower mortgage rates for non-conforming residential mortgages and lower funding costs for commercial real estate borrowing.

In the housing sector, these factors interacted to create a strong reinforcing dynamic. The relaxation of underwriting standards that made it easier to become a homeowner and the low mortgage rates – supported in part by the new financial products – made it easier to speculate in real estate. Moreover, as home prices rose, household net worth increased, making households more willing to consume a greater share of their current income.

Not surprisingly, this bout of speculative fever ended badly. Eventually, the supply of houses caught up with and then vastly overshot demand. Easing underwriting standards to support demand could only go on for so long. Prices turned down. At the national level, home prices peaked in late 2005 to early 2006 with commercial real estate prices peaking about one year later (Chart 8). From those peaks, home prices have fallen by about 30 percent on average, with much larger declines in some areas, while commercial real estate prices have fallen by about 40 percent on average.

As price declines intensified, the number of serious mortgage delinquencies surged and, in fact, continue to rise (Chart 9). Research indicates that by 2007 the percentage of nonprime mortgages that went into default within their first year rose to 10 percent compared with 3 percent of such loans originated in 2003. While falling home prices appear to be the primary factor explaining this sharp increase in early defaults, most of the increase cannot be explained by traditional risk factors.⁴ A potential explanation is that individual home buyers often falsely indicated on their mortgage applications that the property they were buying would be their primary residence. Using an extensive set of data on loan performance that we have developed with Equifax, we find that multiple first mortgage lien holders – that is, people owning more than one home – account for about 40 percent of the dollar volume of seriously delinquent mortgage balances, up from about 5 percent in 2004 (Chart 10).

³ There are a few caveats to note about this trend. First, there are several categories of spending by households that are lumped into the personal consumption expenditures category in our official GDP statistics that can fairly be counted as investment. These include spending on consumer durable goods, education, and, possibly, medical care, and their combined share of total personal consumption expenditures (PCE) rose over the period in which the saving rate declined. Second, other forces were at work to push down the personal saving rate. Prominent among these is a secular decline in the share of health care expenditures paid out-of-pocket by consumers, lessening the motivation for precautionary savings.

⁴ Haughwout, Andrew, Richard Peach, and Joe Tracy. 2008. "Juvenile Delinquent Mortgages: Bad Credit or Bad Economy.," *Journal of Urban Economics*, 64, no. 2 (September): 246–57.

As delinquency and foreclosure rates rose, structured finance products backed by riskier mortgage loans performed particularly poorly. The securitization market for non-conforming mortgages collapsed. Credit availability tightened as underwriting practices became much more restrictive, even for plain vanilla mortgages.

The cascading effect of the sharp increase in mortgage delinquencies and the resulting steep decline in the market value of mortgage assets was a key contributing factor to the financial crisis. As the financial crisis intensified and the economic outlook deteriorated, equity prices eventually declined by 50 percent from their late 2007 peak before bottoming out about one year ago.

But while the value of real estate and equities plunged, the debt incurred to acquire those assets remained, leaving households very highly leveraged. According to the Flow of Funds Accounts, the ratio of household liabilities to net worth rose from around 20 percent to nearly 30 percent in just three years (Chart 11).

The result was a sharp decline in desired investment relative to saving. The number of housing starts plunged, commercial real estate investment fell and households cut back on their spending as their net worth plummeted. The economy slumped into what is now called the “Great Recession”.

The dimensions of the downturn

According to the Business Cycle Dating Committee of the National Bureau of Economic Research (NBER), the U.S. economy has experienced 10 recessions since 1950. The duration of those previous recessions averaged slightly less than a year during which real GDP fell an average of 1.75 percent and the unemployment rate increased an average of 2.3 percentage points.

The Great Recession was far worse. From its peak, real GDP declined 3.8 percent – more than double the average decline of prior downturns (Chart 12). The unemployment rate began to increase in the second half of 2007. Over the next two years, it increased 5.5 percentage points. The rise would have been even more pronounced except that the average workweek and the labor force participation rate declined unusually sharply (Charts 13 and 14). Overall, total hours worked in the nonfarm business sector declined a staggering 10.6 percent (Chart 15). In addition to the decline in demand for labor, the manufacturing capacity utilization rate declined to 65.1 in June of 2009, the lowest level of the post-World War II period.

The result is that the “output gap” – that is, the difference between actual output and the output achieved at the highest resource utilization rate consistent with price stability – has climbed sharply. This, in turn, has put downward pressure on trend inflation. For example, on a year-over-year basis, the core inflation rate declined to 1.5 percent in January 2010 from nearly 3 percent in the fall of 2006 (Chart 16).

The road ahead

Fortunately, the U.S. economy is very flexible and resilient. Although it does not adjust as fast as classical economists envisioned, in the United States prices and wages respond relatively quickly. Moreover, policymakers have been aggressive in supporting the economy by easing monetary policy and by implementing a large fiscal-stimulus program.

As a result, although the unemployment rate remains unacceptably high, output has begun to expand again, and we appear to be on the verge of seeing sustained growth in employment. We’ll know more about this tomorrow when the March employment figures are released. Equity prices have recovered sharply and home prices and commercial real estate prices appear to be stabilizing. Household indebtedness is declining, due to a combination of debt

repayment and credit that has been written off by lenders. After falling off a cliff during the first half of 2009, global trade has rebounded. Both U.S. exports and U.S. manufacturing output have expanded rapidly over the past six months (Chart 17).

Although these are encouraging developments, I believe that the recovery is likely to be quite muted compared with past recoveries. This comes back to the framework discussed earlier. For faster growth, we need ex ante investment to rise relative to saving and ex ante spending to rise relative to the current trend of income. But it is difficult to see where this impulse will come from in the near term.

The early stages of past recoveries have been led by consumer spending, particularly for durable goods and residential investment. For example, in the first year of recovery following the deep recessions of 1973–1975 and 1981–1982, real consumer spending increased an average of 6.5 percent and residential investment rose an average of 38 percent. It is unlikely that we will experience this type of strength this time. Households have suffered unusually large shocks to both income and wealth and many remain highly leveraged (Chart 18). Although the household debt to net worth ratio has declined considerably from its peak, it is still around 26 percent, well above the already elevated average of the past decade (Chart 19). Moreover, even if consumers wanted to borrow, credit availability is still constrained and underwriting standards remain relatively tight. Real consumer spending increased at a 2.25 percent annual rate over the second half of 2009 and looks to be growing at about that rate in the first quarter of 2010.

Given that the personal saving rate is still relatively low, it will be hard for consumer spending to grow more quickly without large increases in real labor income. But big increases in real labor income won't be possible without a much stronger recovery in output. And a much stronger recovery in output is unlikely without stronger consumption.

Residential investment did increase over the second half of 2009, boosted by relatively low mortgage interest rates, lower home prices and the first-time home buyer tax credit. But recent data on the housing sector indicates that the recovery has stalled (Chart 20). As with consumption, we are unlikely to see the typical surge of housing starts and residential investment that was a key feature of most past recoveries. There is already an unusually large volume of vacant homes for rent and for sale (Chart 21). More are likely to come onto the market in the months ahead due to the large volume of mortgage loans currently in the foreclosure process.

For the government sector, large federal budget deficits are a constraint and fiscal policy is slowly shifting from an expansive policy back toward restraint. At the state and local level, the constraints are even more binding, as budgetary gaps will need to be addressed by spending cuts and tax increases (Chart 22).

Exports rebounded sharply over the second half of 2009, particularly to the emerging world (Chart 23). However, domestic demand in Europe and Japan – important export markets for the United States – remains very weak. This suggests that the U.S. trade balance is likely to change little over the next year or two, and, thus, will be relatively neutral in terms of its impact on growth.

Only business fixed investment is in a position to be a true locomotive of growth. Profits have stayed high relative to investment, and corporate balance sheets are awash with cash (Charts 24 and 25). However, even here, the growth impulse is likely to be weak. Prospective startup businesses are going to find it difficult to obtain funding. And larger businesses will unlikely increase investment spending sharply at a time when capacity utilization rates remain unusually depressed (Chart 26).

Relatively sluggish growth implies that the output gap will be closed very gradually. This suggests that inflation pressures will stay subdued. The excess supply of housing is putting downward pressure on rents, which represent a large share of the consumer price index (CPI) (Chart 27). In addition, unit labor costs have declined sharply over the past year due to

the combination of unusually rapid productivity growth and slowing labor compensation growth (Chart 28). Fortunately, longer term inflation expectations remain well anchored. These expectations have not declined and are broadly consistent with my views on the appropriate inflation goal (Chart 29). This is actually a welcome development right now because it will likely help to keep the trend inflation rate from falling too much.

Lessons to be learned

We have just lived through a period in which rapid increases in asset prices led to a serious misallocation of resources and a severe financial crisis. What do we need to do to minimize the likelihood of avoiding this type of experience in the future?

As I noted in a recent speech, we face three major challenges that will determine how smooth this economic expansion turns out to be.⁵ First, we need regulatory reform that makes our financial system more stable and resilient. This requires many steps, including systemic risk oversight and solving the so-called too-big-to-fail problem. In this respect, we need to think hard about what we can do to prevent the type of speculative bubbles that occurred from causing so much damage in the future. In particular, are there macro prudential tools that the Federal Reserve and other regulators can use to limit leverage and speculation and thus prevent the type of asset price booms and busts that have proved so troublesome?

Second, we need viable exit strategies from this recent period of monetary and fiscal policy stimulus. On the monetary policy side, we have been working hard to ensure that we have the tools in place so that we can be effective in tightening monetary policy when the time is right, even with an enlarged balance sheet. Third, we need a rebalancing of global economic growth. That means a smaller share of consumption relative to GDP in the United States and offsetting shifts in Asia.

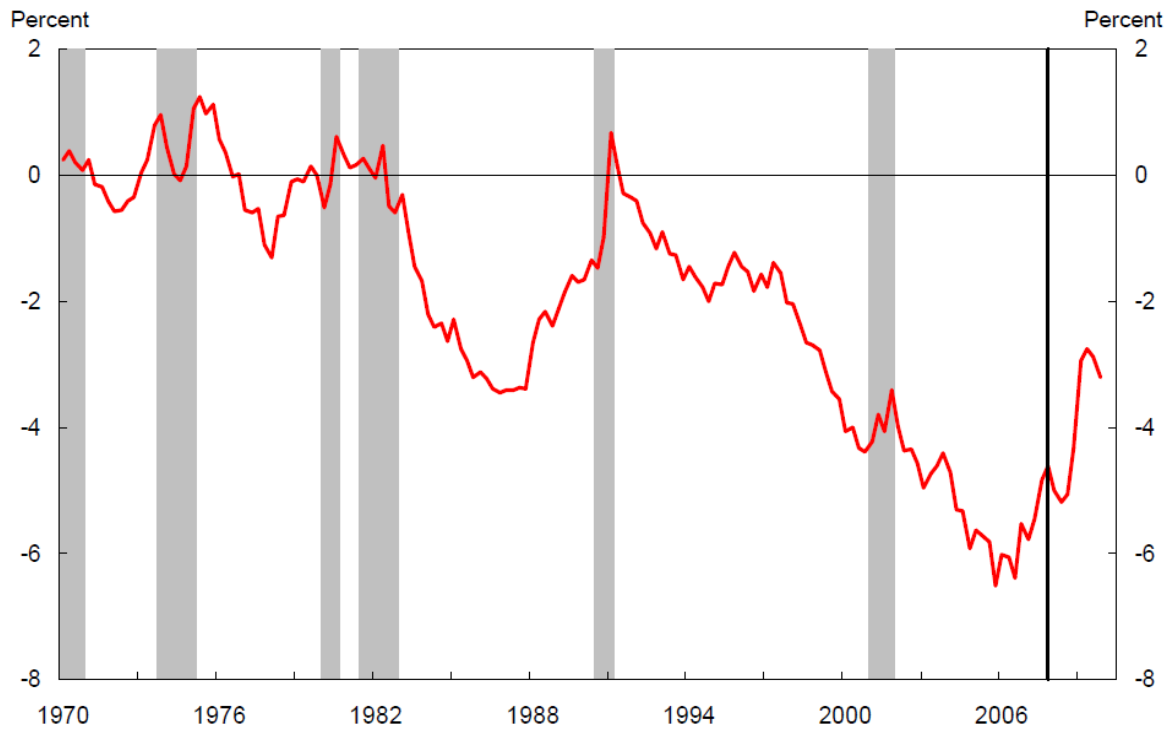
Circumstances have improved considerably from what they were a year ago. But job creation is still much too slow and we have much to do on the regulatory side to make our financial system more resilient and robust.

Thank you very much for your kind attention. I would be happy to take a few questions.

⁵ Financial Market Turmoil: The Federal Reserve and the Challenges Ahead, William C. Dudley. Federal Reserve Bank of New York, March 6, 2010.

Chart 1

Current Account Balance as a Percent of GDP

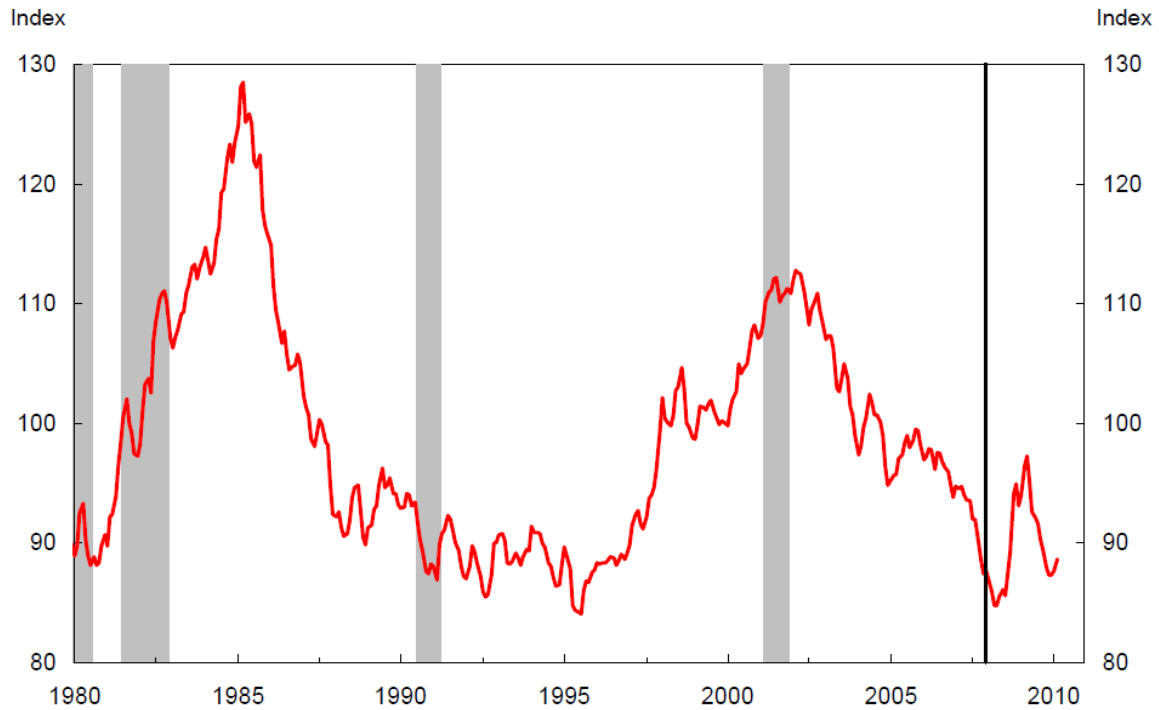


Source: Bureau of Economic Analysis

Note: Shading represents NBER recessions, vertical line represents 2007Q4 business cycle peak. ¹

Chart 2

Real Broad Trade Weighted Value of the US Dollar

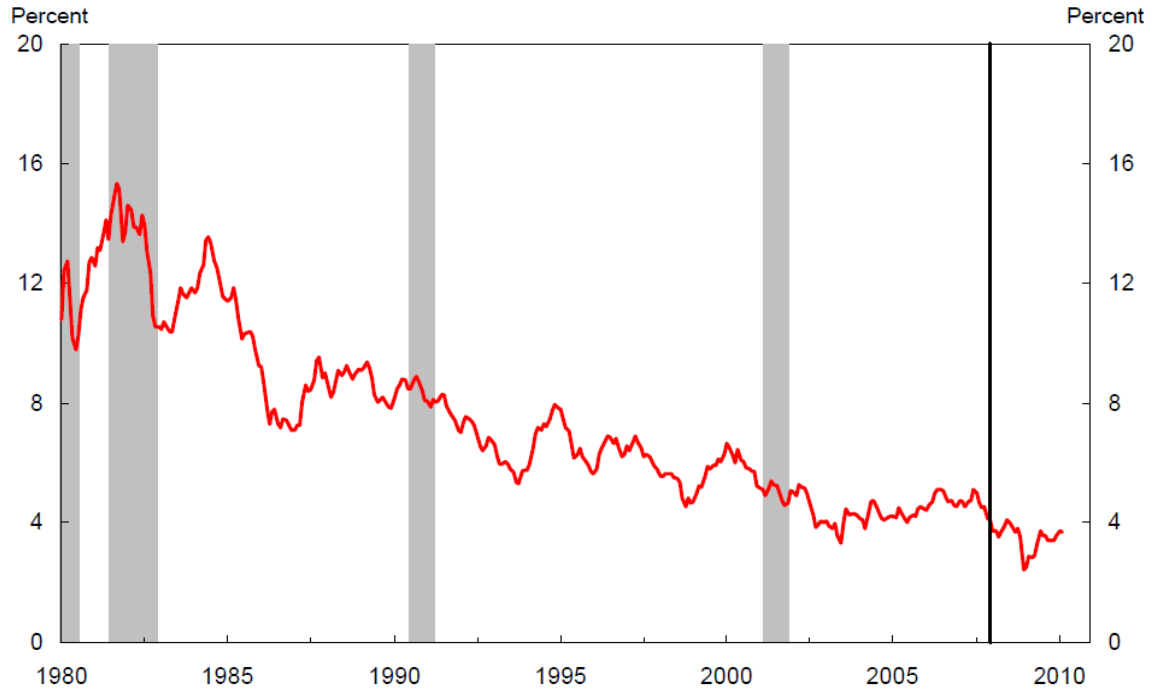


Source: Federal Reserve Board

Note: Shading represents NBER recessions, vertical line represents 2007Q4 business cycle peak. ²

Chart 3

10-Year Treasury Note Yield at Constant Maturity

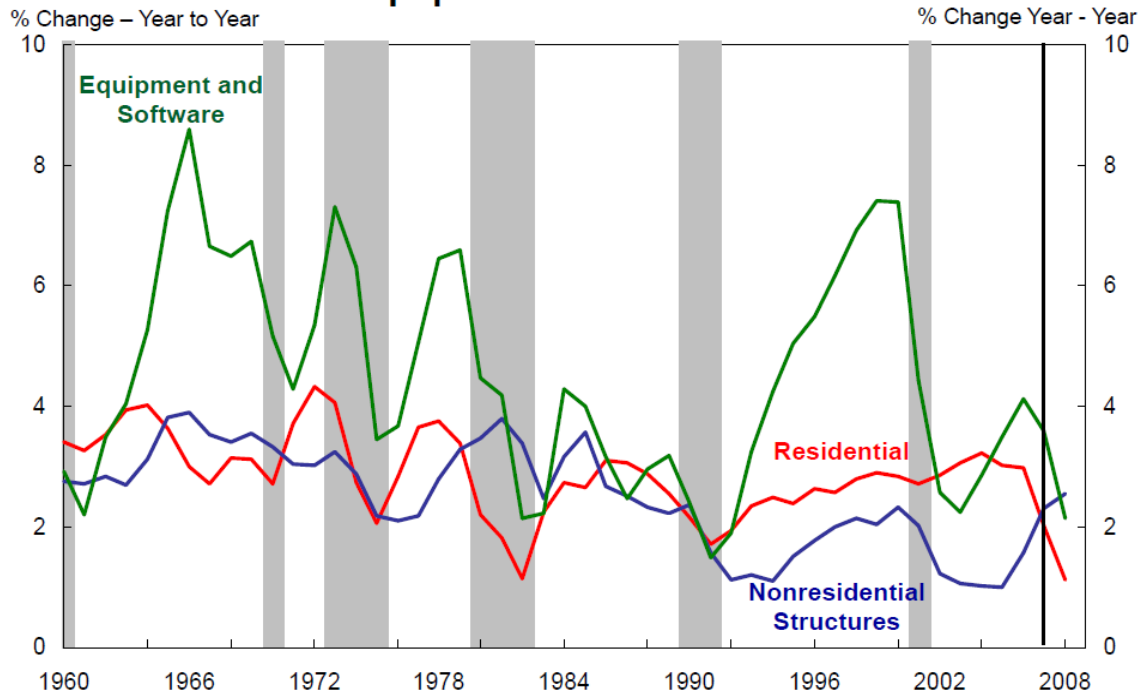


Source: Federal Reserve Board

Note: Shading represents NBER recessions, vertical line ³ represents 2007Q4 business cycle peak.

Chart 4

Net Stock: Private Residential, Nonresidential Structures, and Equipment and Software



Source: Bureau of Economic Analysis

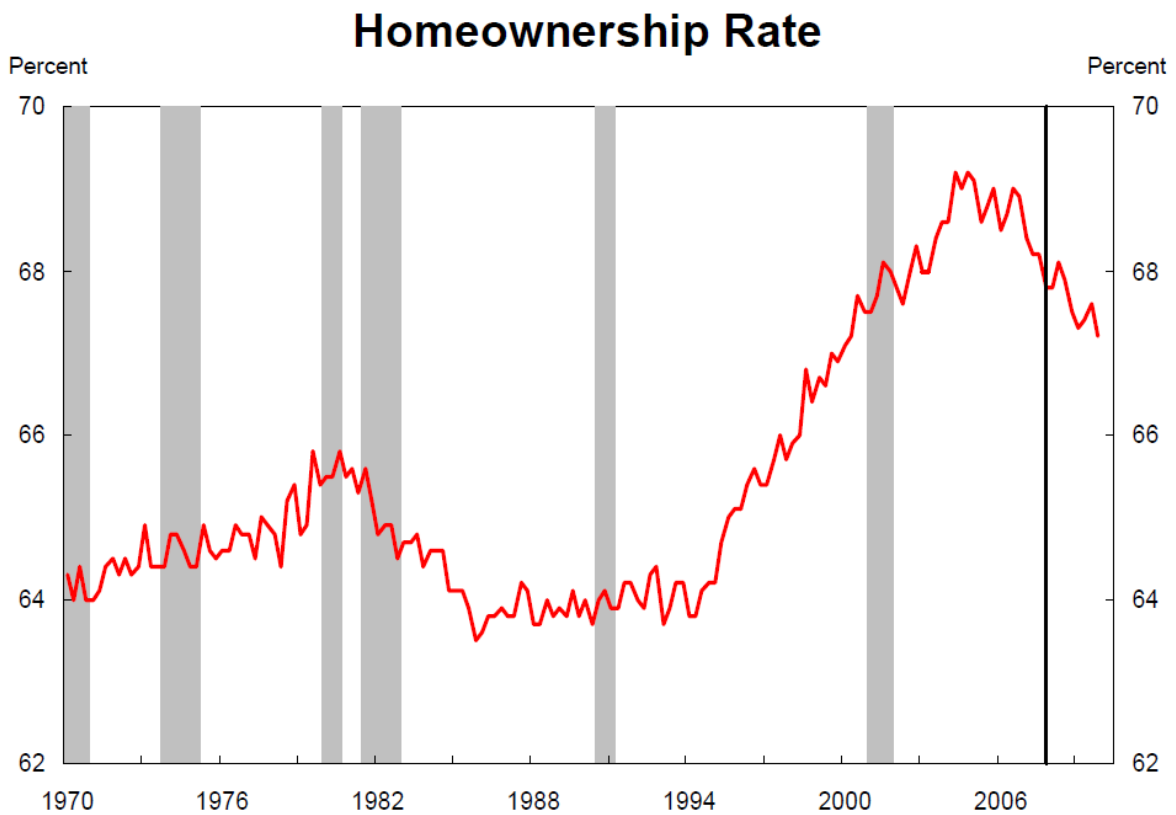
Note: Shading represents NBER recessions, vertical line ⁴ represents 2007Q4 business cycle peak.

Chart 5

Median Credit Score of Quintile (2005-Q1)	<u>2005-Q1</u>		<u>2008-Q3</u>		Percent Change from Previous Period	<u>2009-Q3</u>		Percent Change from Previous Period
	Total Debt	Percent of Total	Total Debt	Percent of Total		Total Debt	Percent of Total	
	807	2020.0	22.2%	2290.0		18.7%	13.4%	
767	2330.0	25.6%	3110.0	25.5%	33.5%	3010.0	25.8%	-3.2%
708	2360.0	26.0%	3450.0	28.2%	46.2%	3300.0	28.3%	-4.3%
631	1450.0	16.0%	2280.0	18.7%	57.2%	2130.0	18.3%	-6.6%
538	928.0	10.2%	1090.0	8.9%	17.5%	1040.0	8.9%	-4.6%
Total	9088.0	100.0%	12220.0	100.0%	34.5%	11670.0	100.0%	-4.5%

Source: FRBNY Equifax Panel Dataset

Chart 6

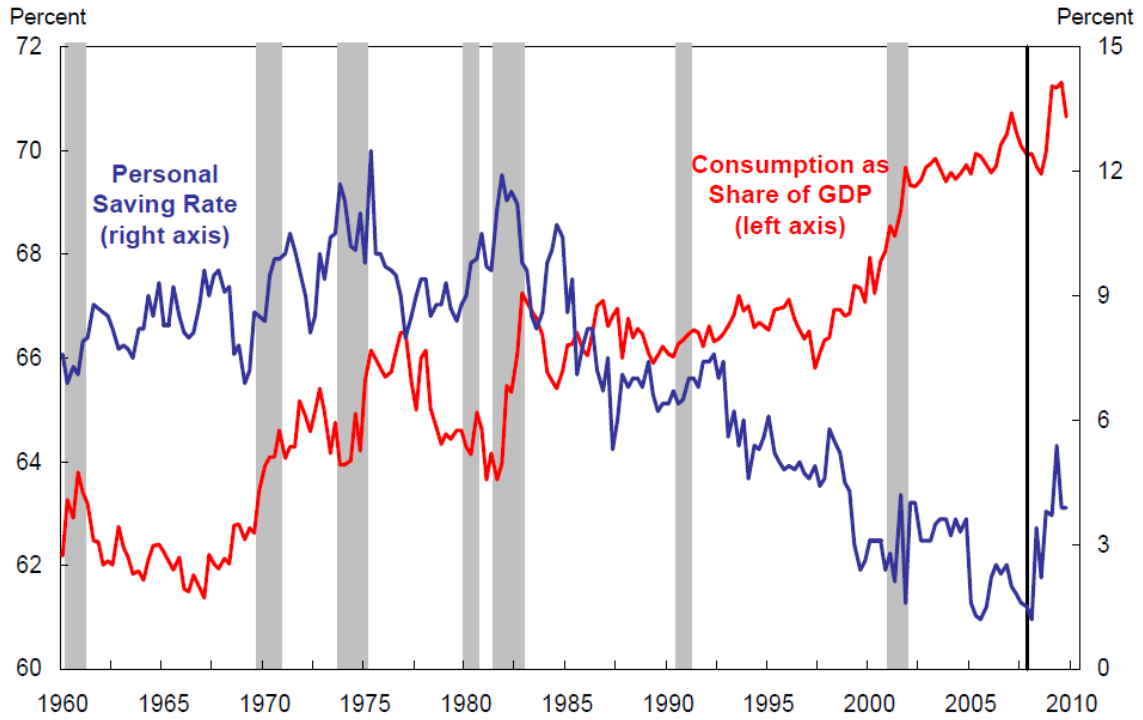


Source: Census Bureau

Note: Shading represents NBER recessions, vertical line represents 2007Q4 business cycle peak.

Chart 7

Consumption and Personal Saving

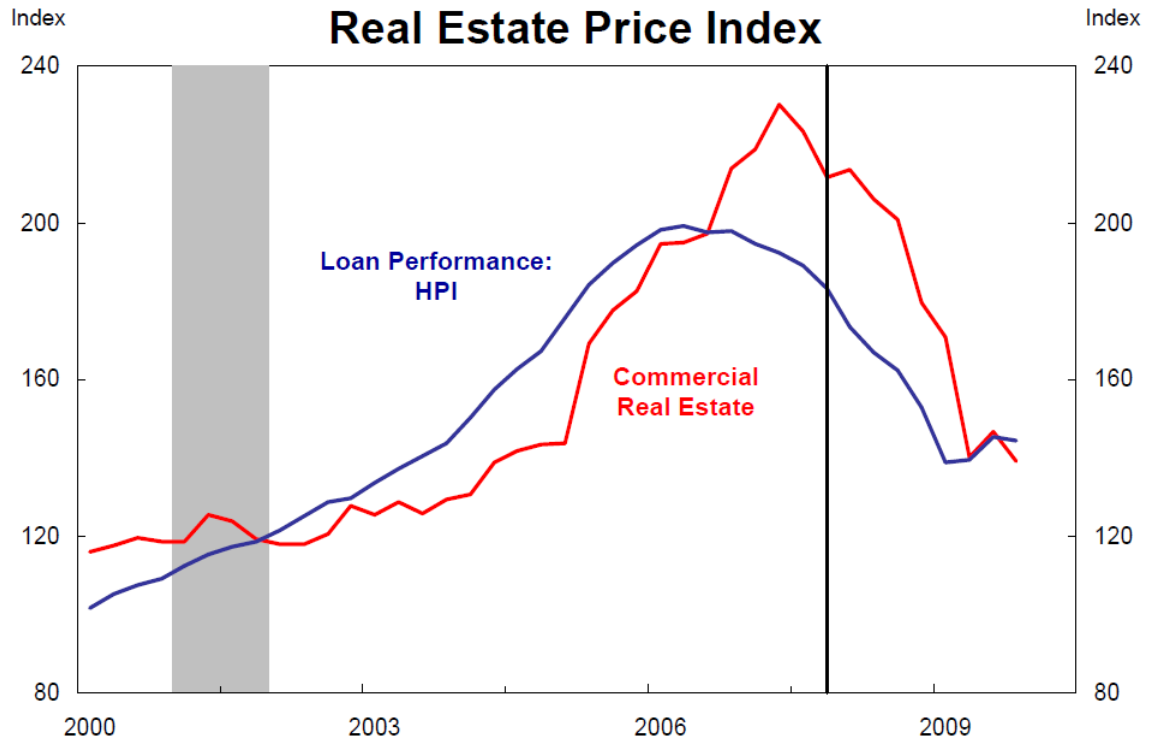


Source: Bureau of Economic Activity

Note: Shading represents NBER recessions, vertical line ⁷ represents 2007Q4 business cycle peak.

Chart 8

Loan Performance House Price Index & Commercial Real Estate Price Index



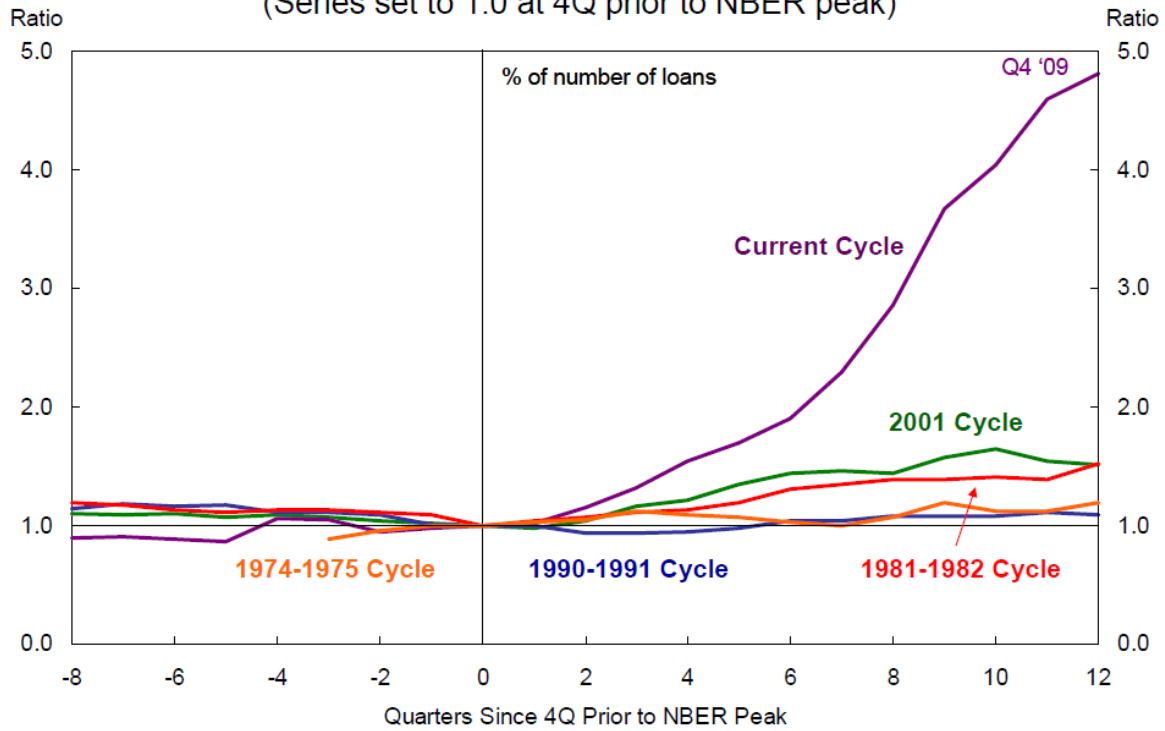
Source: Loan Performance and MIT Real Estate Center

Note: Shading represents NBER recessions, vertical line ⁸ represents 2007Q4 business cycle peak.

Chart 9

First Mortgages: 90+ Day Delinquency Rates

(Series set to 1.0 at 4Q prior to NBER peak)

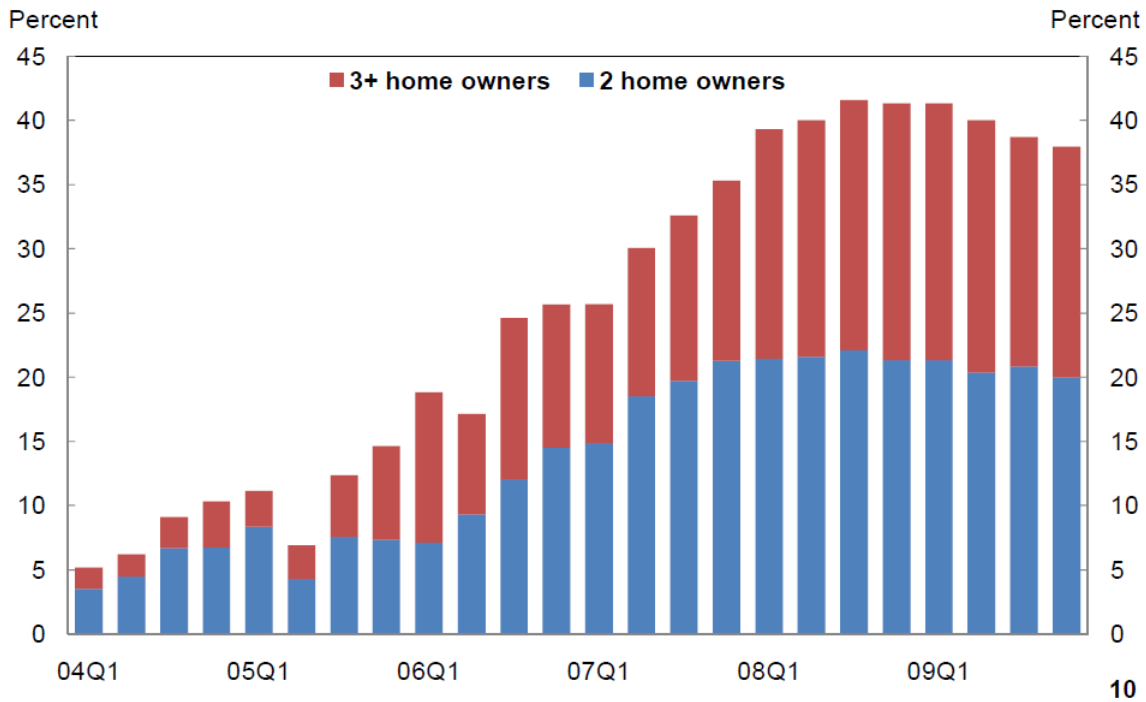


Source: Mortgage Bankers Association

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Chart 10

Percent of 90+ days Late Mortgage Balance Owned by Multiple Home Owners

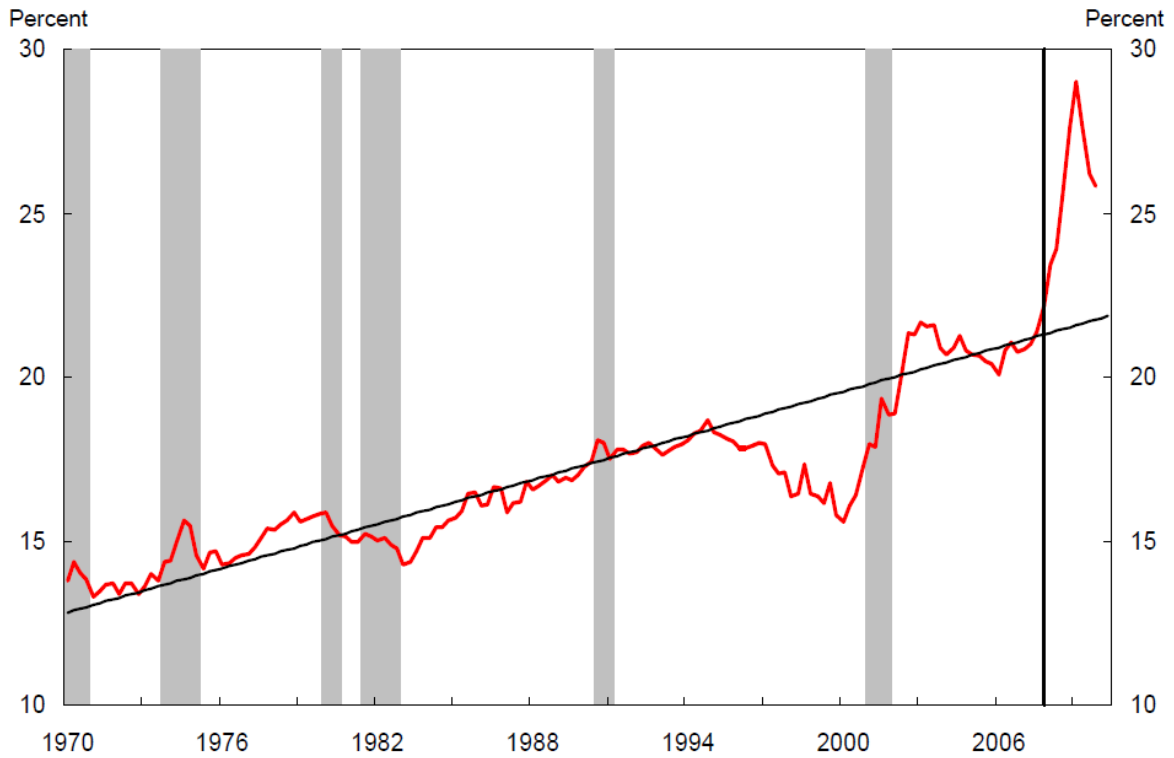


Source: Equifax, FRBNY

10

Chart 11

Household Liabilities as a Percent of Net Worth

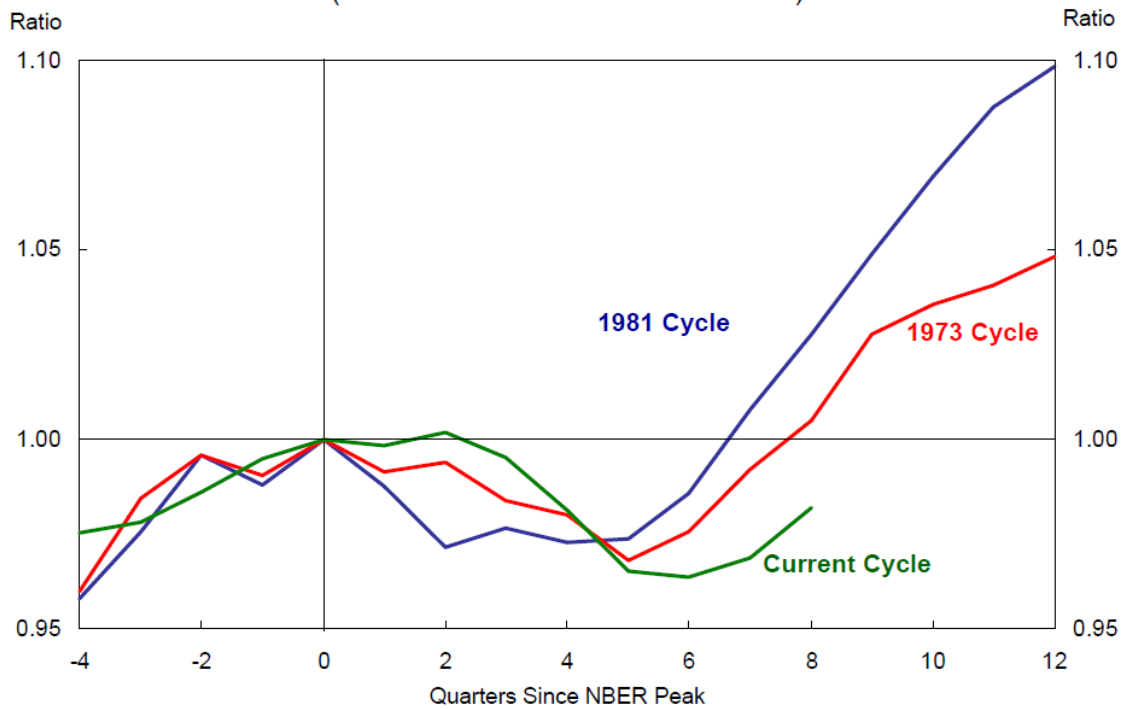


Source: Federal Reserve Board

Note: Shading represents NBER recessions, vertical line ¹¹ represents 2007Q4 business cycle peak.

Chart 12

Real GDP (Series Set to 1.0 at NBER Peak)

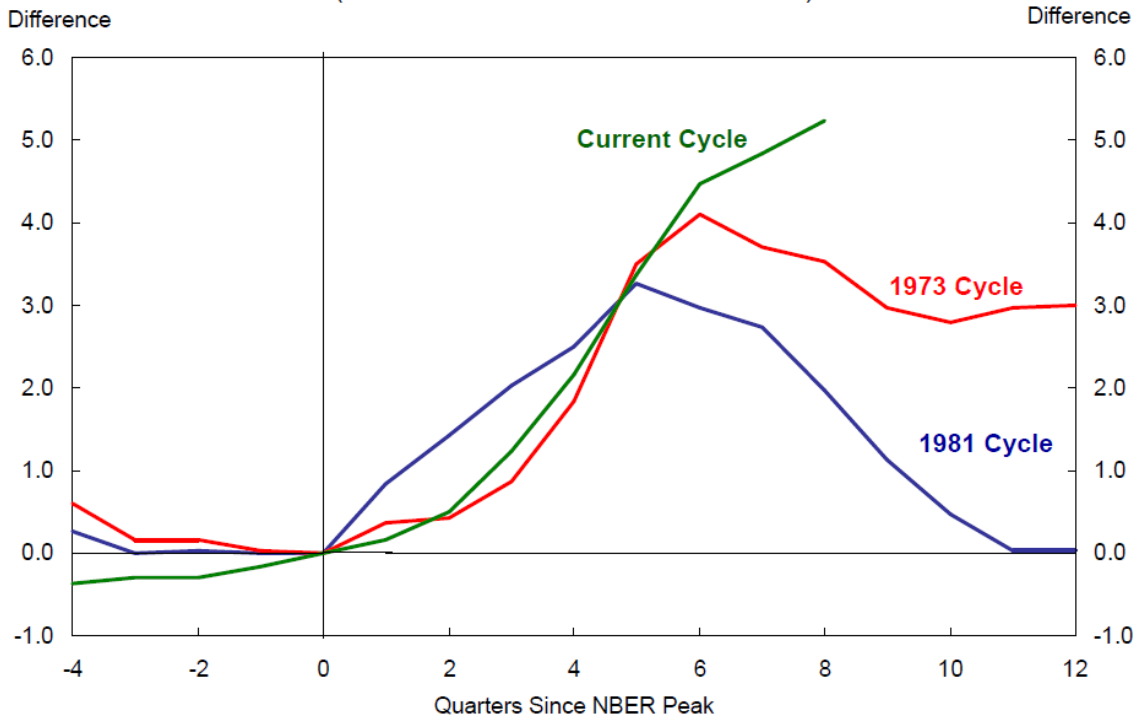


Source: Bureau of Economic Analysis

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Chart 13

Unemployment Rate (Series Set to 0.0 at NBER Peak)



Source: Bureau of Labor Statistics

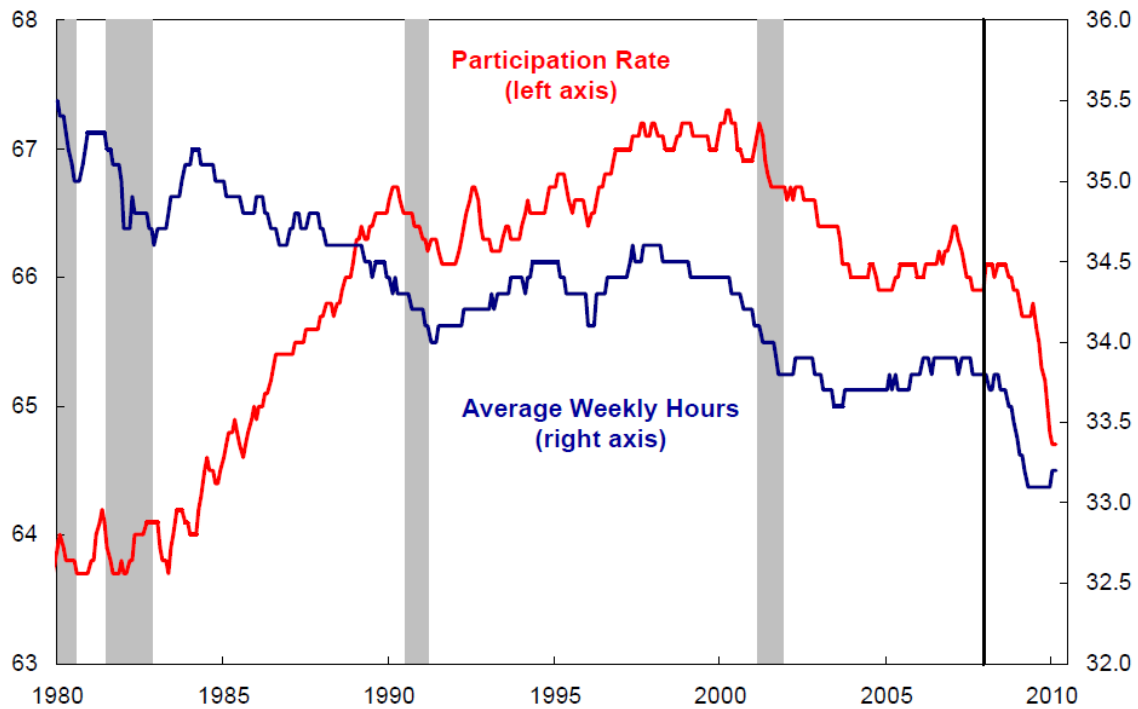
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Chart 14

Labor Force Participation Rate and Average Weekly Hours

Percent – 3 Month Moving Average

Hours – 3 Month Moving Average



Note: Shading represents NBER recessions, vertical line represents 2007Q4 business cycle peak.

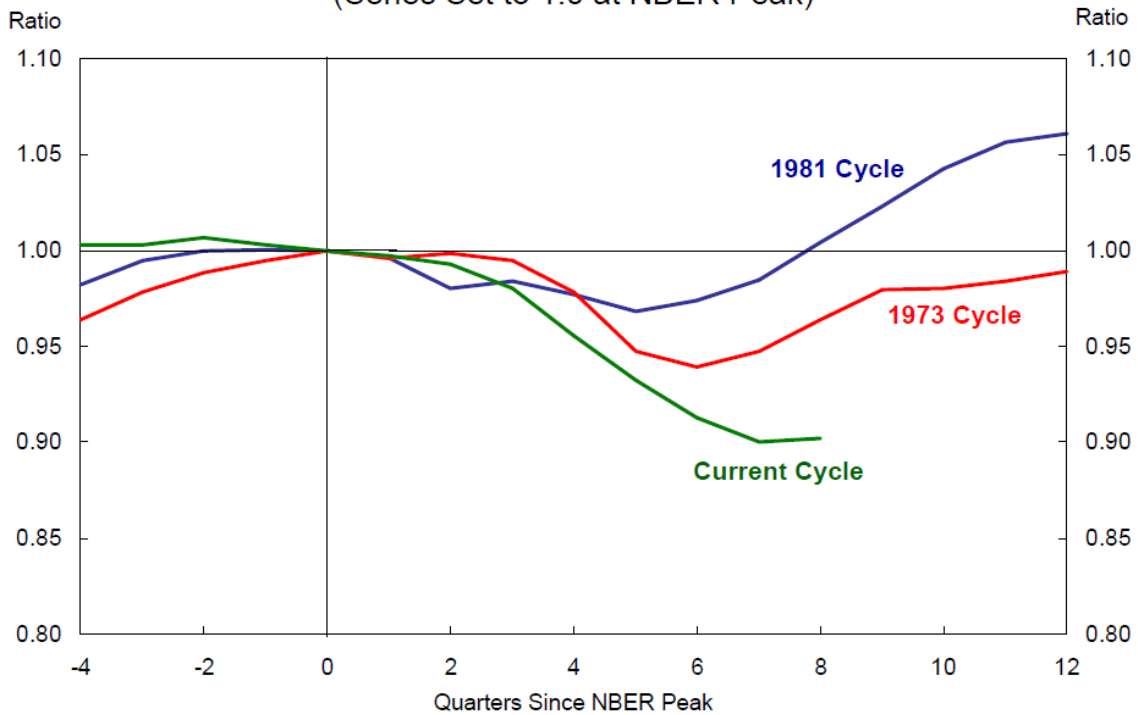
Source: Bureau of Labor Statistics

14

Chart 15

Nonfarm Business Sector: Hours Worked

(Series Set to 1.0 at NBER Peak)

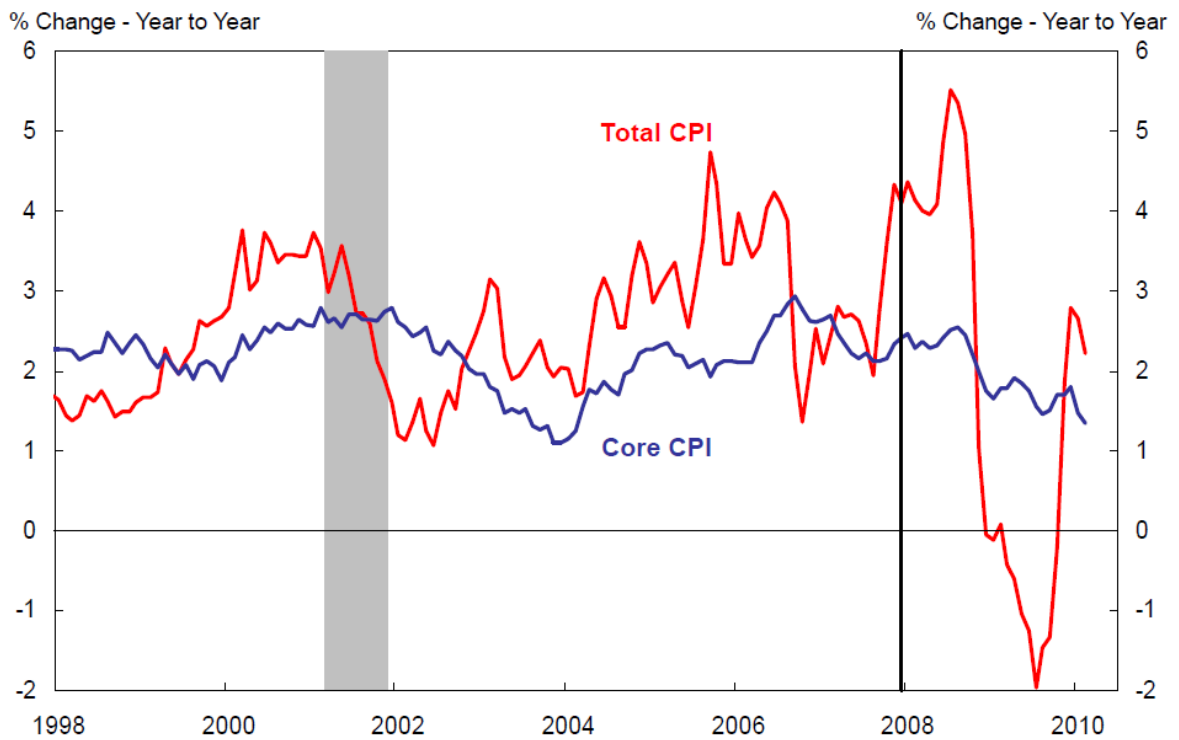


Source: Bureau of Labor Statistics

15

Chart 16

Total and Core CPI



Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions, vertical line represents 2007Q4 business cycle peak.

Chart 17

Exports and Industrial Production

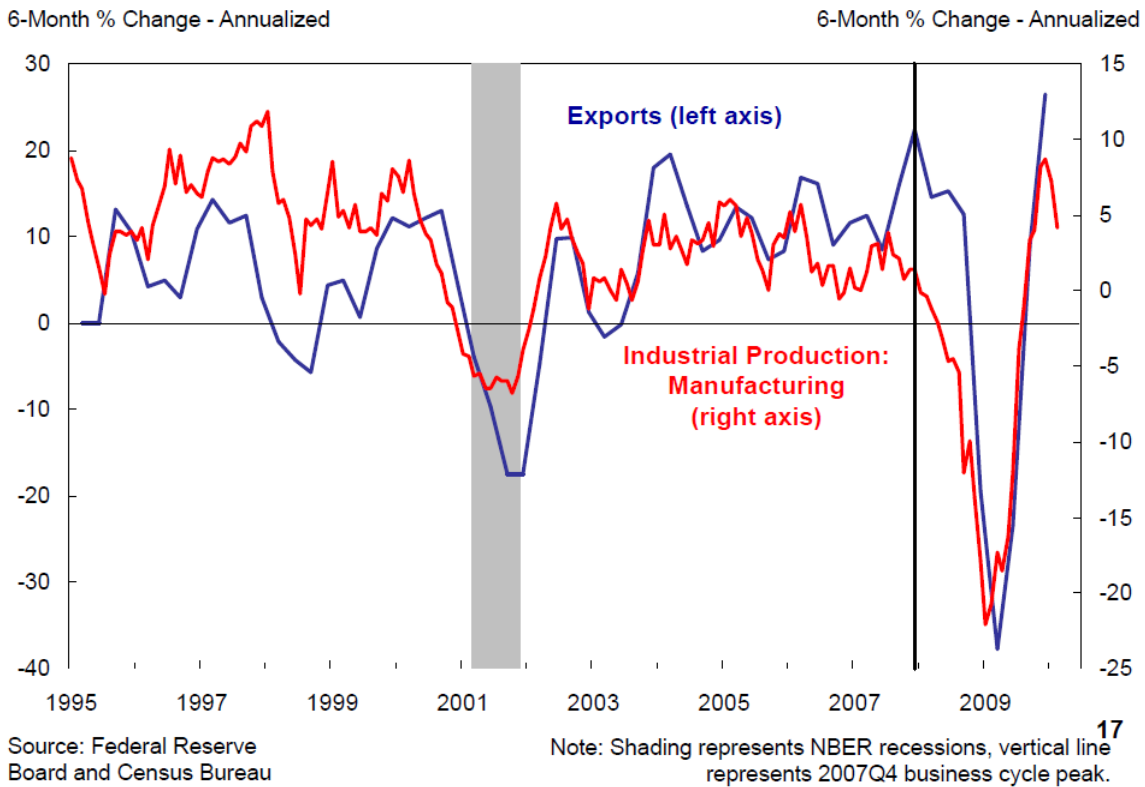


Chart 18

Net Worth over Disposable Personal Income

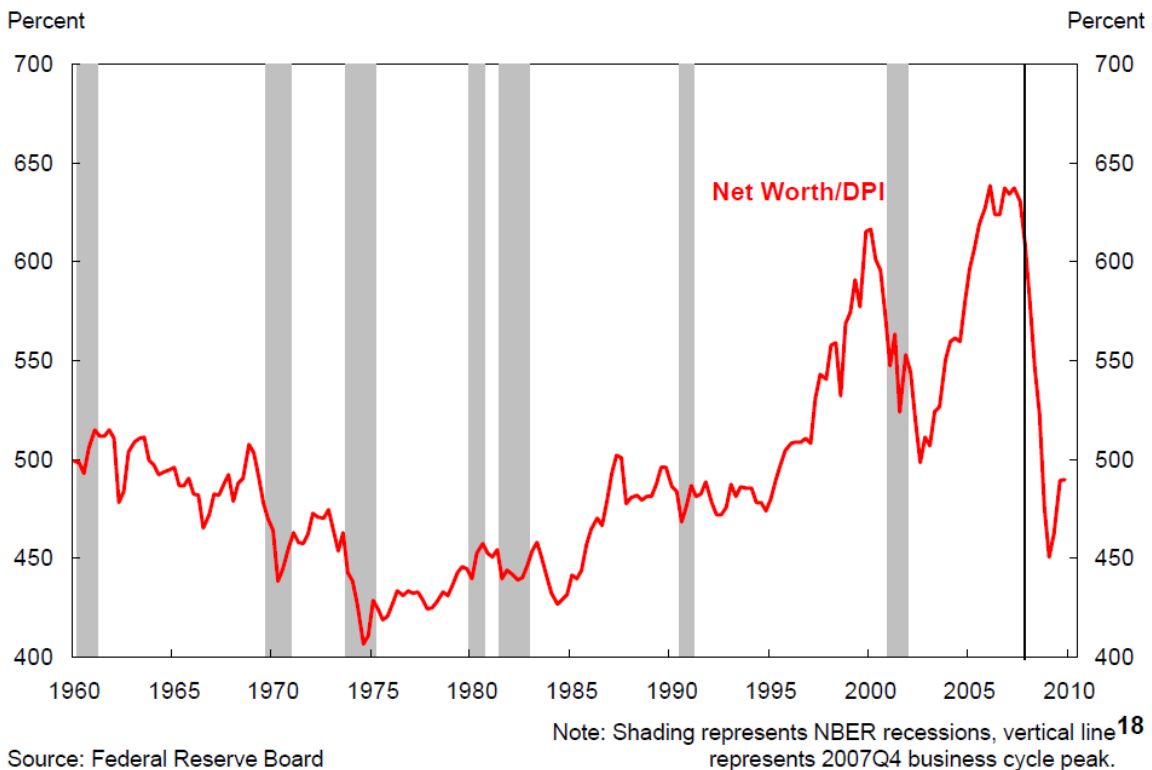
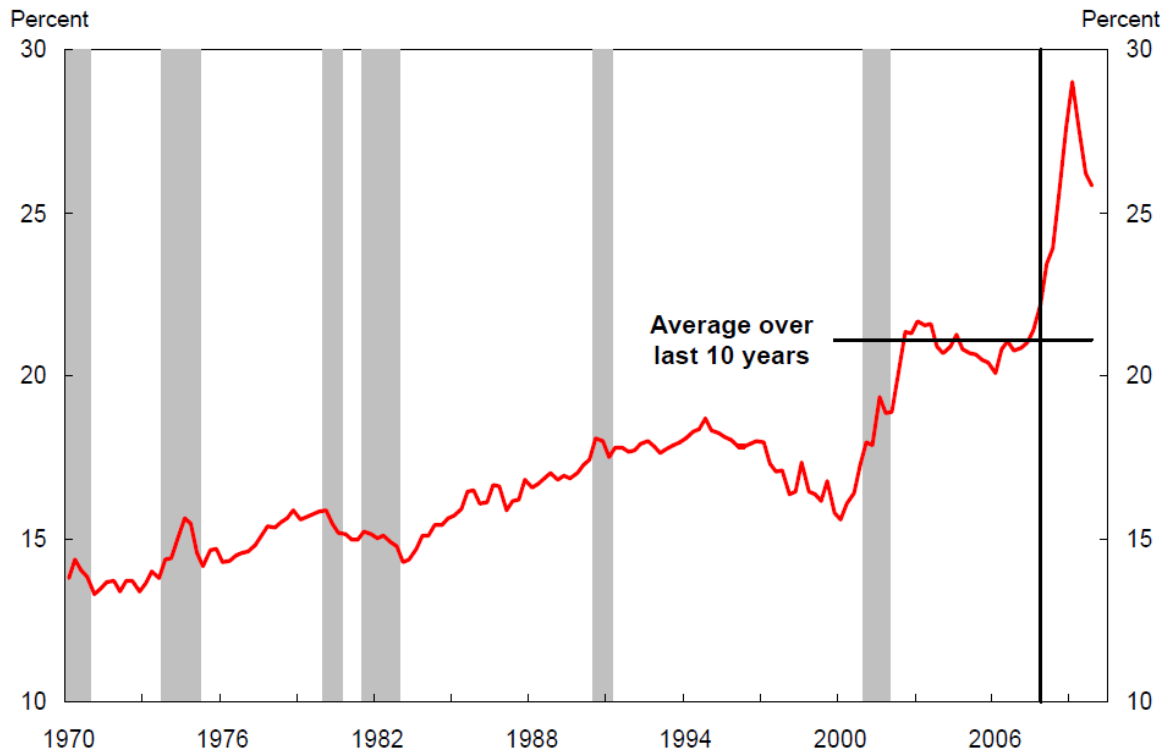


Chart 19

Household Liabilities as a Percent of Net Worth

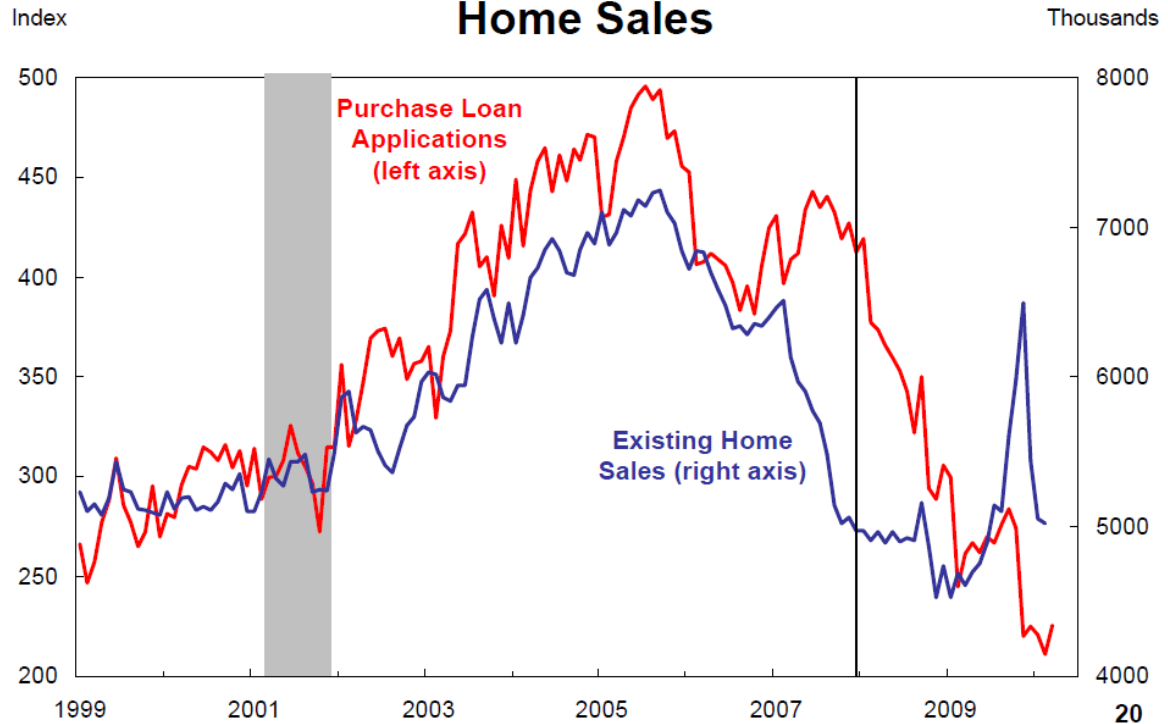


Source: Federal Reserve Board

Note: Shading represents NBER recessions, vertical line represents 2007Q4 business cycle peak.

Chart 20

MBA Purchase Mortgage Applications and Existing Home Sales

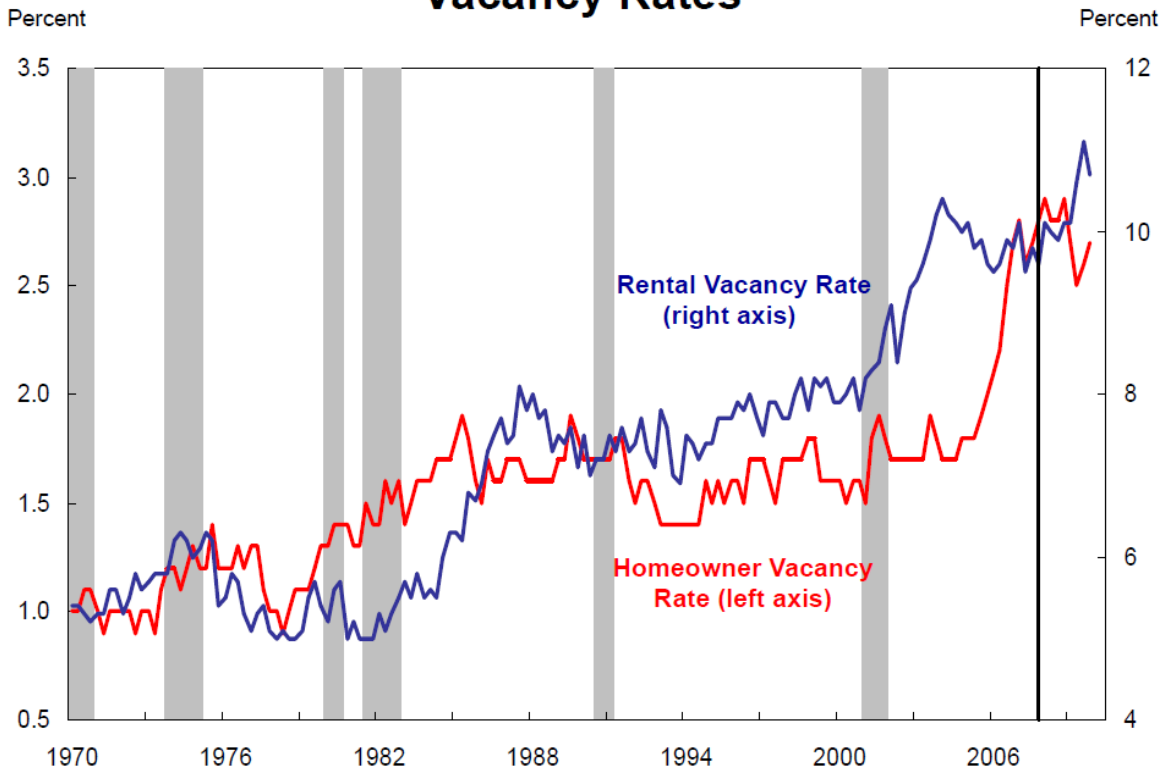


Source: Mortgage Bankers Association, National Association of Realtors

Note: Shading represents NBER recessions, vertical line represents 2007Q4 business cycle peak.

Chart 21

Vacancy Rates

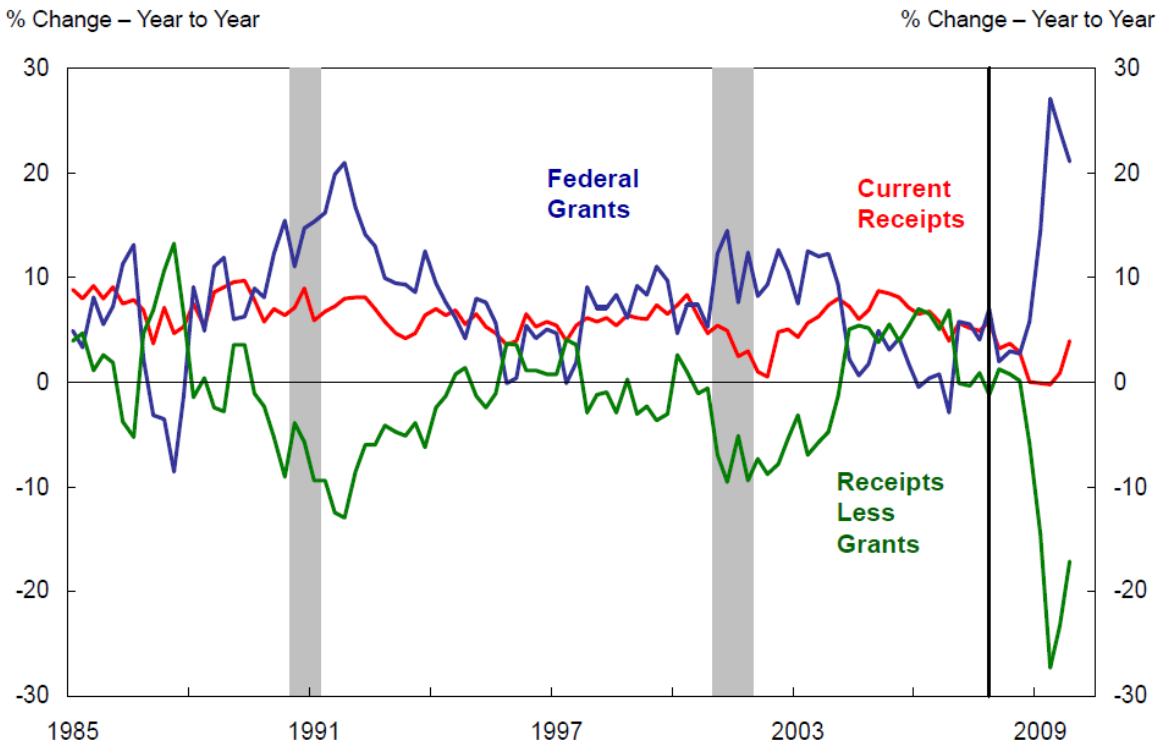


Source: Census Bureau

Note: Shading represents NBER recessions, vertical line represents 2007Q4 business cycle peak.

Chart 22

Total Receipts of State and Local Governments

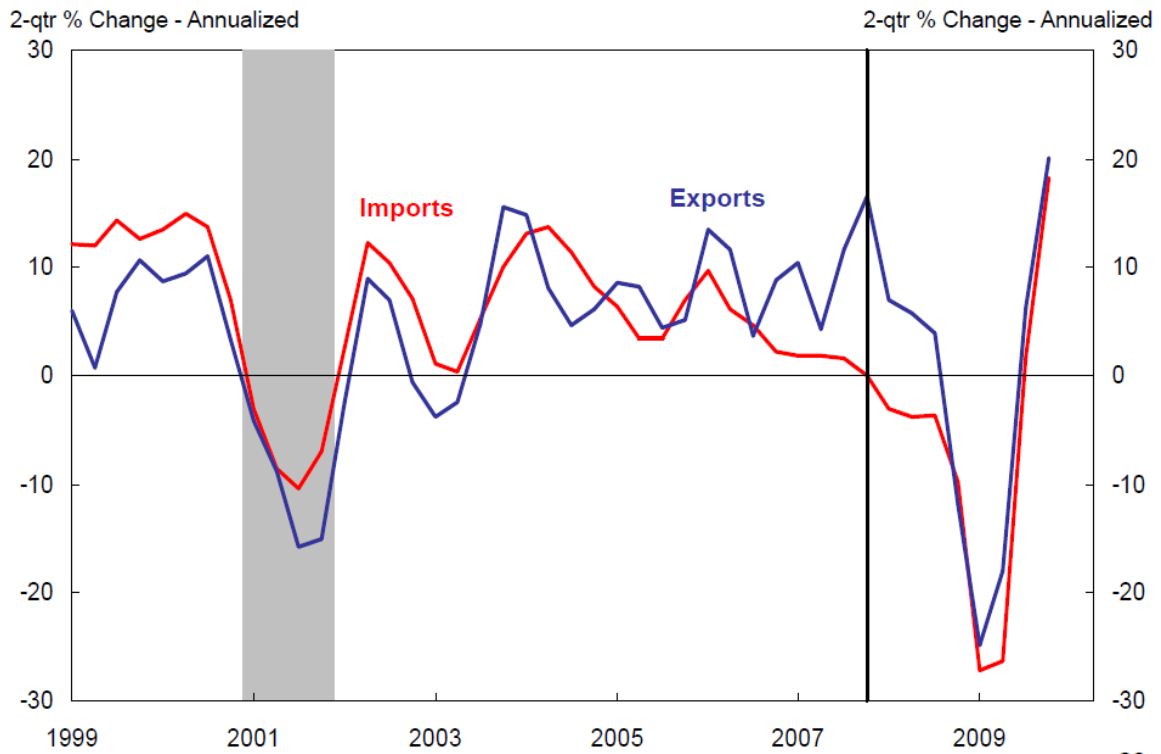


Source: Bureau of Economic Analysis

Note: Shading represents NBER recessions, vertical line represents 2007Q4 business cycle peak.

Chart 23

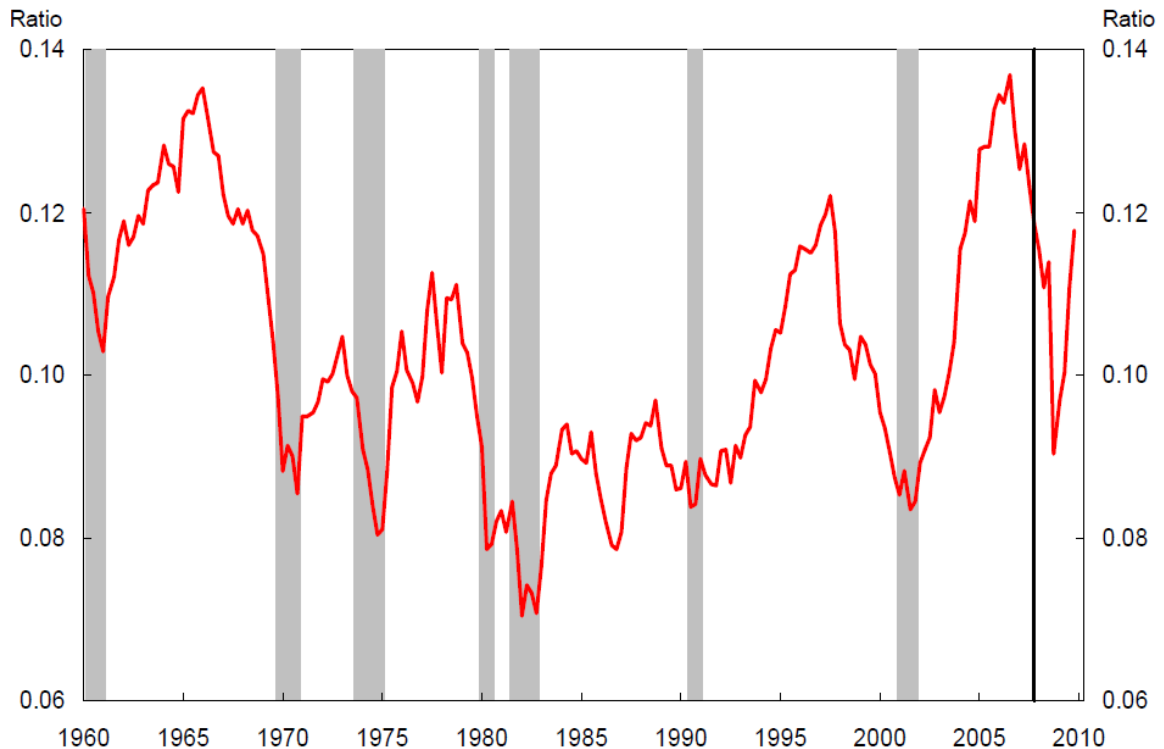
Real Imports and Exports



Source: Bureau of Economic Analysis

Chart 24

Corporate Profits as a Fraction of National Income



Source: Bureau of Economic Analysis

Chart 25

Corporate Net Cash Flow as a Fraction of Nominal GDP

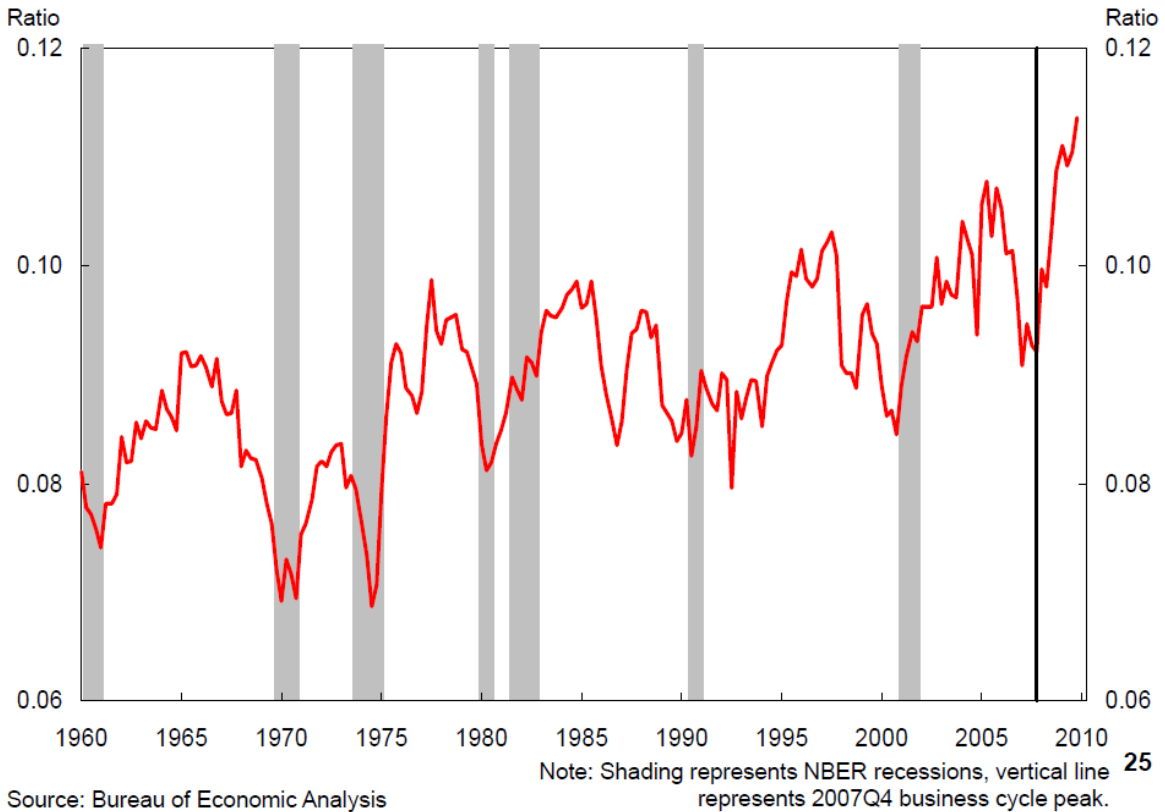


Chart 26

Manufacturing Capacity Utilization Rate

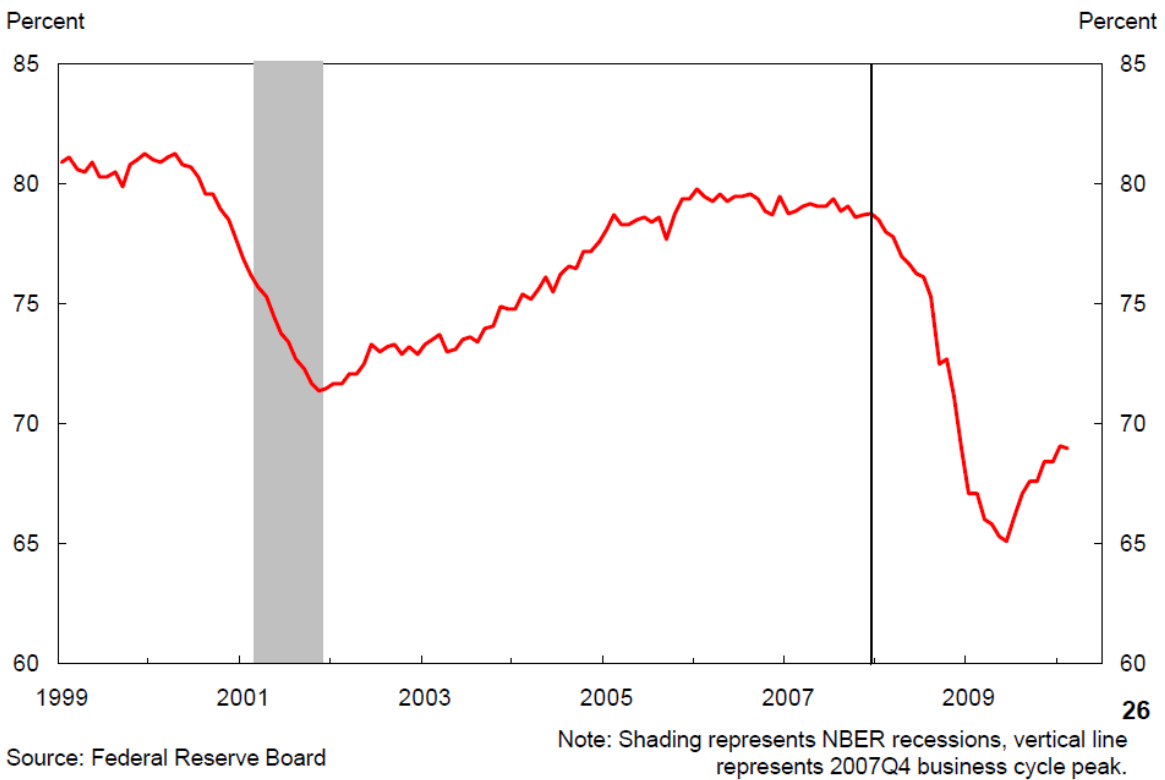
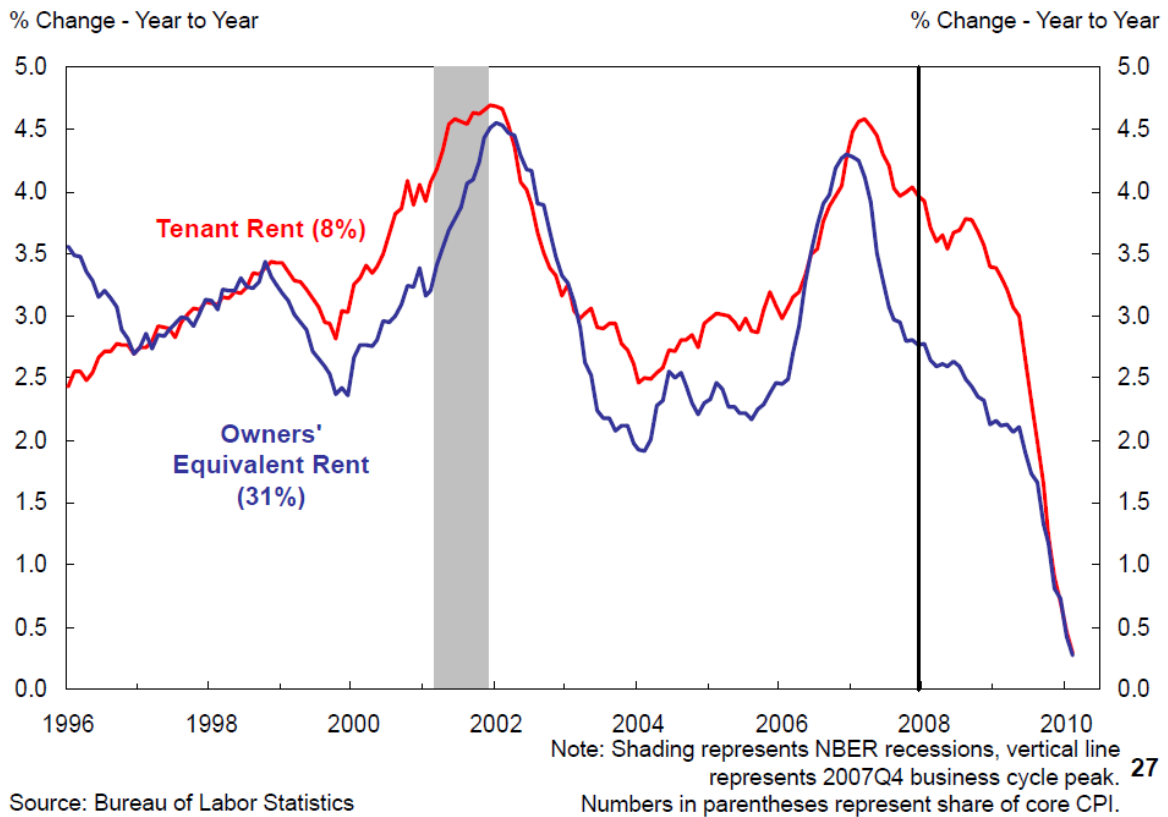


Chart 27

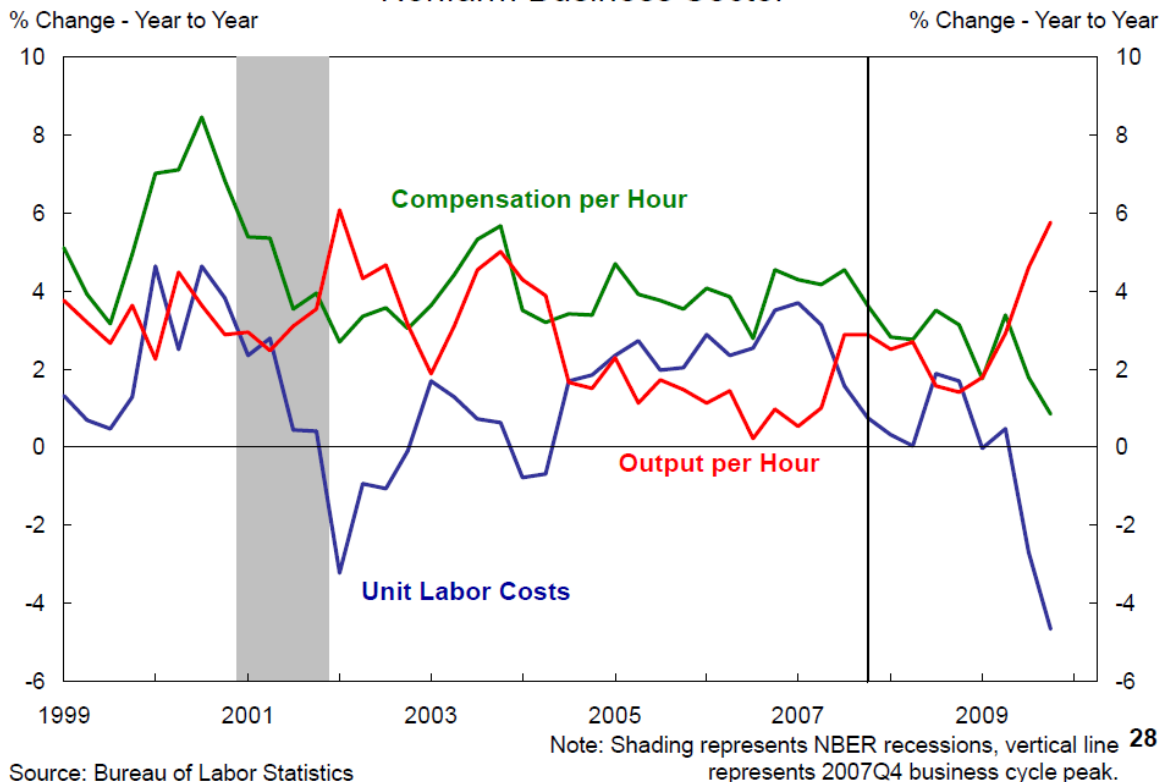
Rent Inflation



27

Chart 28

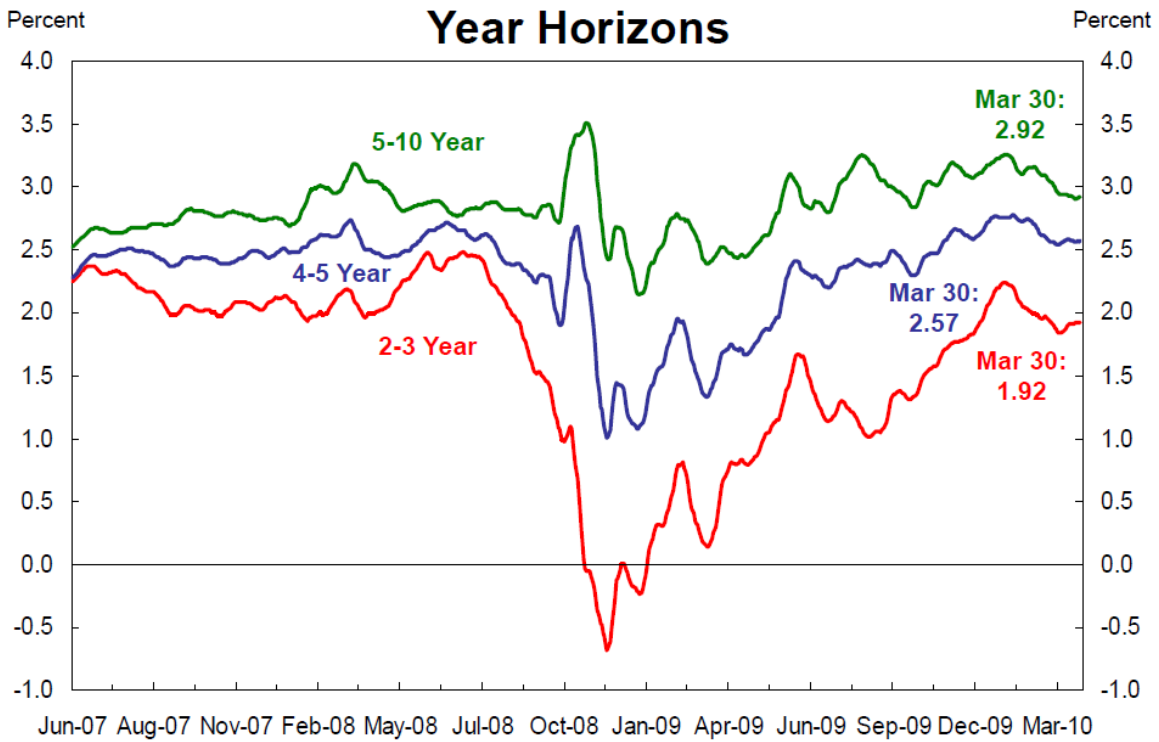
Productivity, Compensation, and Unit Labor Costs Nonfarm Business Sector



28

Chart 29

TIPS Implied Inflation Compensation: 2-3, 4-5, 5-10 Year Horizons



29

Source: Federal Reserve Board

Note: Carry Adjusted.