Economic Advisory Panel Meeting

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Overview of Economic and Financial Market Developments

Discussion and Charts

Prepared by the staff of the
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TABLE OF CONTENTS

Recent Economic and Financial Market Developments

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We last met on Friday, May 15. In its advance estimate of 2009Q1 GDP, the BEA had estimated that real GDP contracted at a 6.1% annual rate, only slightly less than the 6.3% decline of 2008Q4.[1] Final sales to domestic purchasers were estimated to have declined at a 5.1% annual rate, the third consecutive steep quarterly decline. Both exports and imports plunged in the first quarter, as did inventories. The recently-released employment report for April indicated that nonfarm payroll employment had declined by 539,000 and that the unemployment rate had risen 0.4 percentage points to 8.9%, roughly double its cyclical low. Despite the very gloomy reports on the real economy, some encouraging signs were beginning to emerge. The S&P 500 had passed through 900 that week, a 30 percent increase from its early March low. Corporate bond spreads, while still high, were steadily falling. Commodity prices were recovering from their lows. In the statement following its April 29 meeting, the FOMC concluded that "…*the pace of contraction appears to be somewhat slower."* but that *"…economic activity is likely to remain weak for a time …."* Moreover, the Committee expressed concern that "…*inflation could persist for a time below rates that best foster economic growth and price stability in the longer term*."

Like many forecasters, in May we expected a sluggish recovery to begin around mid 2009. Growth was anticipated to remain below potential through mid 2010, at which point the unemployment rate would peak at just under 10%. By mid 2010 the recovery was expected to become more robust, bringing the unemployment rate lower, but it would still end the year around 9 ½%. With a large output gap over the entire forecast horizon, we projected core PCE deflator inflation to slow to around 1% from mid 2009 through mid 2010 and then moving very gradually higher. The basis for projecting that a recovery would begin in mid 2009 was the preemptive path of monetary policy, various initiatives to foster financial market stability, and significant fiscal stimulus. However, we concluded that the risks to the outlook for both growth and inflation were to the downside.

Economic Developments since May

Inflation.

On a year-over-year basis the total CPI was down 1.4 percent in August after having declined 1.9 percent over the year ending in July. Both food and energy prices declines sharply over the past year. **[Figures 1 & 2]** Oil prices, which averaged just under $60/barrel in May, rose to an average of near $70 in June and have stayed within the $60 to $70 dollar range since then. (Futures quotes anticipate a gradual rise to $75/barrel by the end of 2010.) Many non-oil commodity prices, such as industrial metals, have followed a similar pattern. With this rise of oil prices, the energy component of the CPI rose 12 percent from April to August, but likely declined modestly in September. Food prices were essentially unchanged from April to August. At the three month horizon total inflation has accelerated rapidly in recent months. As a result, the year-over-year change of the total CPI is expected to return to positive territory later this year.

Year-over-year increases of the core CPI slowed to 1¾% during 2009Q1 but then rose to between 1 ¾% and 2% during the second quarter. **[Figure 3]** This pattern reflected unusual movements in core goods inflation, which was negative in 2008Q4 and 2009Q1 but then rose to roughly 1¼% in 2009Q2. To a very large extent, this pattern reflected steep increases in tobacco prices in March and April associated with the imposition of higher federal excise taxes on cigarettes. Since then, year-over-year increases of core goods prices have begun to slow again, reaching 1.1% in August. **[Figure 4]** Through this volatility, non energy service inflation has slowed dramatically, from 2 ½% at the beginning of the year to just 1.6% in August. This slowing has been driven by the shelter components and, to a lesser extent, transportation services. **[Figure 5]**

[1] Post revision, the 2009Q1 and 2008Q4 growth rates were -6.4% and -5.4%, respectively.

On a year-over-year basis nonpetroleum import prices were down 6.5% in August. **[Figure 6]** However, at the 3 month horizon they have begun to increase again. This pattern likely reflects the appreciation of the exchange value of the dollar from mid 2008 through March of this year followed by the decline since March. **[Figure 7]**

Shorter horizon inflation expectations have been strongly affected by the movements in energy prices but have been relatively stable over the past several weeks. **[Figures 8 and 9]** Longer-dated inflation expectations have been declining since June of this year but have been relatively stable compared to shorter horizon expectations.

Real Activity.

Over the first half of 2009 real GDP declined at a 3.6% annual rate, a slightly better showing than we anticipated in May. Nonetheless, over the four quarters ending in 2009Q2, real GDP declined 3.8%, the steepest downturn of the post WWII period. **[Figure 10]** At this point the prospects for growth over the second half of 2009 appear considerably stronger than we anticipated in May. Despite this stronger near-term growth outlook, the path of the unemployment rate is expected to be somewhat higher, with a peak of around 10 ¼% in mid 2010.

After declining at a 3.3% annual rate over the second half of 2008, real PCE declined a modest 0.1% annual rate over the first half of 2009. Despite rapidly falling nominal wage and salary income, real disposable income rose at a 1.2% annual rate over the first half of 2009. **[Figure 11]** Government transfer payments to households rose at a 28% annual rate over the period, personal current taxes declined at a 45% annual rate, and energy prices fell at a 21% annual rate. Available data suggest that real PCE is likely to increase at around a 3% annual rate in 2009Q3. Much of this increase reflects the surge of light-weight vehicle sales associated with the cash for clunkers program. From an average of just 9.55 million units over the first half of the year, vehicle sales rose to an 11.5 million annual rate in the third quarter. **[Figure 12]** Moreover, the value per unit sold in Q3 was unusually high. However, the stronger tone of consumer spending in the third quarter was not confined to vehicles. Over the three months ending in August, growth of real PCE excluding autos and housing and utilities was 3.1% (annual rate), a vast improvement over the preceding three months. This pace of spending is surprising given the headwinds facing the consumer, and we do not expect it to be sustained in the fourth quarter. **[Figures 13 & 14]**.

Residential investment has exerted a substantial drag on the US economy for the past four years. **[Figure 15]** Last May we expected the residential investment to bottom out around mid 2009 and remain essentially flat over the second half of the year. Data coming out of the housing market over the past few months has been an upside surprise. From there trough in February, single family housing starts rose nearly 40% through July before stalling a bit in August. Sales of new single-family homes rose 30% from January to August, while sales of existing homes rose nearly 14% over the same period. **[Figures 16-18]** Finally, several national home price indices have actually begun to move higher in recent months and the expected future path of home prices has moved higher. **[Figure 19 & 20]** Several factors have contributed to this improvement. Lower home prices and mortgage interest rates have resulted in dramatic improvement in measures of cash flow affordability. **[Figure 21]** In addition, the $8,000 first-time home buyer tax credit has provided a much larger boost to sales than anticipated when enacted earlier this year. This tax credit is currently scheduled to expire on November 30 and to be eligible the buyer must close on or before that date. Therefore, the credit likely had its maximum effect in the period from August to right about now.

Whether or not the credit is extended, we expect some softening of home sales in the fourth quarter and into early 2010. Mortgage underwriting standards in the conventional mortgage market remain relatively stringent, and it is difficult to get a mortgage with less than a 20 percent down payment unless one uses the FHA program. **[Figures 22 & 23]** Moreover, we would not be surprised to see renewed softness in home prices in coming months. While serious mortgage delinquencies continue to increase rapidly, the rate at which properties enter and exit the foreclosure process has slowed dramatically over the first half of 2009 due to foreclosure moratoria and administrative delays. This in turn resulted in a temporary decline in so-called distress sales. **[Figures 24 & 25]** However, in recent months the flow of properties out of the foreclosure process and the volume of distressed sales have begun to increase again and will likely continue to do so for some time.

Business investment in equipment and software peaked in 2007Q4 and has fallen quite sharply since then. **[Figure 26]** It continued to decline in 2009Q2 but at a considerably slower rate than over the preceding two quarters. The decline was broad based but particularly severe for industrial and transportation equipment. Recent data has been mildly encouraging in that new orders for non defense capital goods rose in 2009Q2 and appear to be increasing again in the third quarter. However, shipments have lagged behind and at this point it appears that the Q3 average will be below the Q2 average. Moreover, as discussed below, we do anticipate a strong rebound of exports in the second half of 2009 which surely accounts for a significant portion of the increase in orders. Business investment in nonresidential structures also declined sharply over the first half of this year and the decline was also broad based. But unlike with equipment and software, recent data on construction-put-in-place suggest that this category of final demand is likely to continue to decline at a steep rate at least through 2009Q3. Steep declines in employment, retail sales, and business and consumer travel have reduced demand for commercial real estate space while investors have become more risk adverse, resulting in steep declines in the values of existing assets. **[Figure 27]** One category of business investment that is likely to contribute to growth in the second half of 2009 is inventories. Total business inventories have been declining sharply since mid 2008 but in recent months the rate of decline has begun to slow. By the fourth quarter of this year we anticipate that inventories will begin rising again, led by vehicle inventories which are currently at quite low levels in absolute terms. As a result, we expect inventory investment to provide about 2 ½ percentage points to growth (annual rate) over the second half of 2009. **[Figure 28]**

Over the four quarters ending in 2008Q2 real exports declined 15% while real imports declined 18.5%. Reflecting the steeper decline of imports than exports, the arithmetic growth contribution from net exports over the first half of 2009 was 2.2 percentage points (annual rate). **[Figures 29 & 30]** Recent data for the US and many of its major trading partners suggest that trade flows are now recovering quite rapidly, a trend that we anticipate will continue. But the net export growth contribution is likely to revert to essentially zero, at least over the second half of this year.

The rate of growth of real federal government consumption expenditures and gross investment was very strong in 2008, led by quite strong growth of both defense and nondefense spending. Since then the rate of growth of federal spending has been slowing, and further slowing is expected over the second half of 2009. **[Figure 31]** In contrast, growth of real state and local government consumption expenditures and gross investment slowed over the course of 2008 and was essentially zero over the first half of 2009. **[Figure 32]** While state and local governments have seen a significant increase in federal transfers, other sources of state and local government revenues have declined sharply. **[Figure 33]** Over the twelve months ending in August, state and local government employment has declined by nearly 1% with further declines expected. **[Figures 34]**

Manufacturing output, while still down over 12% from year ago levels, did increase in July and August. Recent increases have been led by motor vehicles and parts and related industries but the general improvement has been broad based. **[Figure 35]**

Employment, Wages, and Productivity.

Over the four quarters ending in 2009Q2, nonfarm payroll employment declined by 3.9%, comparable to the severe recession of 1957 to 1958. **[Figure 36]** However, over the same period hours worked in the nonfarm business sector declined by 7.2%, a record for the post WWII period. Over the same period, output per hour worked rose 1.9%. The recently announced benchmark revision of the establishment employment data indicate that the level of private payroll employment in March 2009 will be lowered by 0.8 percent, suggesting a comparable downward revision of hours worked. This would imply an upward revision of productivity growth barring a downward revision of output.

Data through September indicate that while the demand for labor continued to decline in the third quarter, the rate of contraction has slowed. Nonfarm payroll employment declined at a 2.8% annual rate over the quarter (-256,000 per month) while hours worked fell at around a 3% annual rate. With a consensus estimate of growth of real GDP in the 2 ½% to 3% range, productivity growth would be nearly as strong as the 6 ½% annual rate increase of the second quarter.

The unemployment rate rose from 8.9% in April to 9.8% in September. The increase in the prime age male unemployment rate over this period is even more striking, from 8.8% to 10.4%, the highest in the post WWII period. **[Figure 37]** The rise of the unemployment rate over the past five months has been damped by a significant decline of the labor force participation rate, from 68.8 in April to 65.3 in September. This decline was heavily concentrated in the 16 to 24 years age group. In contrast, the participation rate for prime age males rose by 0.3 percentage points to 90.2. **[Figure 38]** The employment to population ratio stood at 58.8 in September, a decline of 4.1 percentage points since the business cycle peak and the lowest level since January of 1984.

The weakening of the labor market has been associated with a substantial slowing of the rate of increase of labor compensation, as measured by the Employment Cost Index (ECI) that controls for changes in the quality of the labor force. **[Figure 39]** The rates of increase of both wages and salaries and of benefits have slowed. The slowing in the rate of increase of benefits has been most pronounced among those categories linked directly to wages, such as social security and defined contribution retirement plans, and supplemental pay such as shift differentials and nonproduction bonuses.

The slowing of the rate of growth of compensation per hour along with the well maintained growth of productivity have resulted in much slower growth of unit labor costs in 2008 followed by outright declines thus far in 2009. **[Figure 40]** Profit margins have widened thus far in 2009 and corporate profits have increased as a share of national income.

Financial markets.

Overview. Financial market conditions have improved further since the last EAP meeting in May, particularly in areas of policy intervention, but strains remain evident. Corporate credit spreads have narrowed, corporate debt issuance remained above the depressed levels of the second half of 2008, and prices in equity markets have increased. Conditions in money markets improved notably, as one- and three-month LIBOR/OIS spreads fell to levels close to those that prevailed prior to August 2007 and the usage of Fed liquidity facilities dropped. Fed asset purchase programs also contributed to narrow spreads in the agency debt and agency mortgage-backed securities (MBS) markets. Nevertheless, corporate credit spreads remain fairly wide, and lending to the private sector has declined.

Financial sector conditions have gotten better since the last meeting by many measures, reflecting better sentiment about the sector following the stress test results and stronger profits from some major financial institutions. Some institutions have lessened their dependence on various government support programs, and a number have repaid funds previously supplied through the TARP. Despite these signs of improvement, the financial sector still remains in a fragile position, in part because of the weak economy and the continuing struggles in the commercial real estate and construction sectors, as illustrated by the problems of the small business lender CIT and the acceleration of bank failures during the period.

Although there were some noticeable fluctuations in coupon yields, yields on Treasury bills and nominal coupon securities remained low through the period. Real yields declined on net since May. Longer-term inflation compensation implied by TIPS fluctuated within a relatively narrow range; it reached somewhat elevated levels in early August, but returned to within its recent historical range, suggesting that inflation expectations remained contained.

Credit Risk. CDS and corporate bond spreads of banks and securities firms declined somewhat further since May, reflecting modest improvement in sentiment about the sector [**Figures 41, 42**]. Nevertheless, these spreads were still at high levels comparable to those of mid-2008, as market participants continued to be concerned about the impact of the weak general economy on credit quality, particularly in problematic areas such as commercial real estate.

Corporate credit spreads more generally have moved down further from their peaks in late 2008, but remain wide at levels comparable to those of mid-2008 [**Figure 43**]. Even though these spreads remain elevated, corporate issuance generally was fairly solid since May, continuing the rebound of issuance following the very weak second half of 2008 [**Figure 44**]. The increase in issuance reflected financial firms desire to secure private financing to repay TARP funds as well as nonfinancial firms desire to extend the maturity of their debt and reduce reliance on loans as banks tighten credit standards.

Spreads in markets supported by the Term Asset-Backed Securities Loan Facility (TALF) also narrowed further since May. For asset-backed securities (ABS), these spreads have moved below those that prevailed in the first half of 2008 [**Figure 45**]. Issuance of these securities also has picked up since May: much of the issuance has been TALF-eligible, although a smaller fraction of it recently has been supported by TALF loans. In contrast, even though spreads on commercial mortgage-backed securities (CMBS) have declined and the CMBX indices have increased, they remain at levels indicating significant distress in the market, particularly for below-AAA tranches that are not eligible for TALF [**Figure 46**]. Furthermore, there has been no new issuance of CMBS.

Agency Debt and Mortgage Markets. The Fed continued its program to purchase up to $200 billion of the direct obligations of housing-related government-sponsored enterprises and $1.25 trillion of MBS backed by Fannie Mae, Freddie Mac, and Ginnie Mae. In part because of these purchases, spreads on agency debt and agency MBS generally have remained narrow since the last EAP meeting in May.

Agency debt spreads, which narrowed sharply after the Fed's November purchase program announcement and again after the expansion of the program in March, fluctuated within a fairly small range since May [**Figure 47**]. These spreads remained considerably narrower than they were in the first half of 2008.

The behavior of agency MBS and mortgage spreads was more complicated over the period. In late May and June, there were sharp rises in Treasury, MBS, and mortgage rates as market participants concluded that the Fed purchase programs were not defending particular levels of those rates and some greater inflation concerns surfaced. At that time, spreads on MBS and mortgages to Treasuries, that had become extraordinarily narrow, retraced part of their previous declines [**Figure 48**]. Subsequently, these spreads have fluctuated within a fairly narrow range and are still at relatively low levels.

With Treasury yields falling gradually from their June highs, MBS and mortgage rates have also come down since June and are only marginally above their lows for the year [**Figure 49, 51**]. The spread between jumbo mortgage rates and conforming mortgage rates also remains wide. Even though the rise in mortgage rates has reduced refinancing activity, agency MBS issuance remained robust, while non-agency (private label) MBS issuance was minimal [**Figure 50**]. The spread between secondary market MBS rates and the primary mortgage market rate remained quite wide [**Figure 51**]. In part, this spread may reflect the continued impact of rising mortgage delinquency rates and prospects of further significant foreclosures in coming months [**Figure 52**].

Money Markets. Since the last EAP meeting, many measures of money market conditions have improved further. The spreads of LIBOR to Treasuries and to OIS declined further since May, and the spreads of LIBOR to OIS at the one-and three-month tenors are now around the levels that prevailed before August 2007 [**Figures 53, 54**]. However, there reportedly remains considerable tiering in the interbank funding market, suggesting that a number of institutions are borrowing well above LIBOR.

Spreads between rates on commercial paper and OIS also have fallen at levels similar to those prior to August 2007 [**Figure 55**]. Commercial paper outstanding has rebounded some after a falling through most of the year through July; its current level is still somewhat below that of mid-May and well below the trough reached before the introduction of the Fed's Commercial Paper Funding Facility (CPFF) [**Figure**

56]. In part, the recent rebound may reflect the desire of many issuers to reduce their reliance on government programs such as the FDIC's Temporary Liquidity Guarantee Program (TLGP).

Treasury bill yields remain very low [**Figure 57**]. Current levels probably are indicative of the easy stance of monetary policy as opposed to high risk aversion, which was an important factor during the height of the crisis during the fall. Over the past month, bill rates probably have been held down additionally by the Treasury's decision to reduce its Supplementary Financing Account with the Fed, which has the effect of reducing bill supply. Spreads in the repurchase agreement (repo) market between loans collateralized by agency debt or agency MBS and loans collateralized by Treasury debt remain narrow, another indication that risk aversion has dissipated in money markets [**Figure 58**].

Bank Lending and Private Debt. Even though many indicators of financial conditions have improved over recent months, bank lending has fallen rapidly, which probably reflects a combination of tighter supply and lower demand. According to the Senior Loan Officer Survey, the tightening of loan standards is occurring at a slower pace, while demand for loans continued to weaken [**Figure 59**]. A majority of respondents in the most recent survey indicated that loan standards were expected to remain tighter than average until at least mid-2010, and a significant fraction expect them to remain tighter than average for "foreseeable future," suggesting that loan supply could remain tight for some time.

Commercial and industrial loans outstanding, which have declined since October, have fallen at a more rapid pace in the past few months; consequently, the decline of these loans over the past 12 months is comparable to the experience in 2002-04 [**Figure 60**]. Total bank loans, which had risen sharply after the Lehman collapse, have fallen steadily since the beginning of this year and are now well below their level at the start of the recession [**Figure 61**].

With tighter supply and weaker demand from continued weak economic conditions, private sector debt has declined recently. Household sector debt has fallen over the past year, an unprecedented event in the post-war data [**Figure 62**]. This decline has occurred for both residential mortgage debt and consumer credit, and the decrease in consumer credit has accelerated in the past few months. The four-quarter change in nonfinancial corporate debt remained positive through mid-year, keeping above the lows in the past two recessions, but the slowdown is striking nonetheless [**Figure 63**].

The decline in bank lending and private debt in part reflects the continued stresses in parts of the financial sector. Among the more prominent developments was the emergence of problems at the small business lender CIT, whose business model appears to be unsustainable in the current environment. In addition, the pace of bank failures increased over the period since the last EAP meeting. Many of the banks that failed were particularly exposed to either commercial real estate or the construction sector.

Equity Markets. The rebound in equity prices that began in early March generally continued since the May EAP meeting [**Figures 64, 65**]. Outside of a decline in prices during June, in part reflecting increases in interest rates at the time, broad equity indices rose fairly steadily over the period. Since its early March lows, the S&P 500 is up over 55%. In the financial sector, equity prices of securities firms rose more than those of banks, reflecting concerns of investors of the state of many regional and smaller banks [**Figure 65**].

Implied equity volatility has continued to fall since the last EAP, and is near its lowest level since mid-September 2008; however, this level is still near those associated with previous recessions [**Figure 66**]. Realized volatility for a broad cross section of equities also continued to fall, and that for banks, which had risen in the first half of 2009, fell considerably since mid-year [**Figure 67**].

Because of the recent severe declines in firms' earnings, standard measures of equity valuations using trailing earnings have risen and are at elevated levels [**Figure 68**]. Such levels could be justified if earnings show a sizable recovery over the coming quarters, which is possible given the current depressed levels of profits. However, if such earnings growth does not occur, then a significant correction of equity prices would be more likely.

Treasury Yields. Yields on nominal Treasury coupon securities, which generally had been rising after the March 18 FOMC announcement of the $300 billion Treasury purchase program (yields had dropped significantly on the day of the announcement), experienced a sizable increase in the weeks immediately after the May EAP meeting. By early June, the yield for the on-the-run 10-year note approached 4% [**Figure 69**]. The rise probably reflected a combination of market participants' realization that the asset purchase programs would not defend particular levels of Treasury yields and mortgage rates as well as concerns about the inflation and government debt outlooks, with these factors exacerbated by technical factors associated with changing mortgage duration and linked hedging flows.

Since then, even though there was considerable volatility, yields have declined on net, with the 10-year yield now about 3¼%. The decline apparently reflected a reversal of some of the factors that contributed to the late May/early June rise; for example, generally strong demand at Treasury auction has reduced concerns about whether there would be sufficient demand for the larger supply of Treasuries. In addition, the economic outlook and the continued reiteration of the "extended period" language in the FOMC statement have made market participants less uncertain about the near-term path of policy rates. On net, yields changed only modestly since the last EAP meeting; consequently, the Treasury yield and forward rate curves have retained their steep upward slopes [**Figures 70, 71**].

In some contrast to nominal yields, real yields fell moderately since the last EAP meeting [**Figure 72**]. Some of the net decline may reflect changes in market participants' outlook for real activity in light of the continued weakness in the labor market, but some of the decline also likely reflects further improvement in market conditions for Treasury inflation-protected securities that has led to more reductions in the price discount associated with their relatively poor liquidity. For the 0-to-5 year horizon, real yields are now well below nominal yields [**Figure 73**]. At the 5-to-10 year horizon, real yields have fallen somewhat more than nominal yields [**Figure 74**].

Inflation Expectations. Since May, inflation compensation measures have fluctuated within ranges that were considerably narrower than those over the previous year. At the short end, inflation compensation rose further from the extraordinarily low (and negative) levels that prevailed since September 2008, but still remains at fairly low levels [**Figure 75**]. Longer-term inflation compensation rose to somewhat elevated levels by early August, but has since fallen to within its recent historical range [**Figure 76**]. Various 5-to-10 year measures, which had given fairly consistent reads of expectations in May, diverged some during the summer, suggesting that part of the changes in inflation compensation over the period reflected changing risk premia rather than inflation expectations [**Figure 77**]. Consistent with this interpretation, survey measures of longer-term inflation expectations of households and economists changed little over the period. Measures of implied inflation from inflation swaps are somewhat higher at shorter horizons than measures constructed from real and nominal Treasury securities, but tell a similar story as the TIPS-implied measures [**Figures 78, 79, 80**].

Monetary policy.

In contrast to the two previous periods between EAP meetings, since the last EAP meeting, the Fed has not engaged in significant new policy moves. It has kept the target rate to close to zero and continued to commit itself to low rates for some time. It also has maintained its asset purchase programs that were instituted in November 2008 and March 2009, making only fairly minor changes in the timing of the proposed completions of the programs. It has also maintained most of the various liquidity facilities that were instituted during the financial crisis, announcing the termination of only one facility (MMIFF) that has not been used since its inception. However, as financial conditions improved over the period, usage at most of the other liquidity facilities diminished. The Fed also announced an extension of most facilities through early 2010, but also indicated that a number will not be extended further unless there is a setback in the improving trend in financial conditions.

Policy Rates and Expectations. Since the last EAP meeting, the FOMC has maintained a target range for the funds rate of 0 to 0.25% [**Figure 81**]. The FOMC also continued to indicate at each of the meetings that "weak economic conditions are likely to warrant exceptionally low levels of the federal funds rate for extended period."

Consistent with the small changes in policy over the period and the continued commitment to low rates for an extended period, the expected path of policy has changed little on net since May [**Figure 82**]. The expected funds rate curve fluctuated over the period, reflecting changing investor sentiment about the impact of the inflation outlook on the policy path and about the ability of the Fed to exit eventually from its extraordinary policy measures. Expectations of economists in the Blue Chip survey moved down slightly since the May EAP meeting [**Figure 86**]. Shorter-term policy rate uncertainty as implied by Eurodollar options declined further over the period, consistent with the Fed's commitment to low rates [**Figure 83**]. However, the longer-term policy rate uncertainty implied by swaptions has moved up, possibly reflecting uncertainty related to the inflation outlook and eventual exit strategy [**Figure 84**]. The implied skewness of Eurodollar rates now suggests that market participants do not have a greater expectation of a large rate increase as opposed to a rate decrease—somewhat surprising given the low level of rates [**Figure 85**].

Federal Reserve Balance Sheet and Asset Purchases. After rising sharply in the last quarter of 2008, the size of the Federal Reserve balance sheet has changed relatively little since late 2008. Since the May EAP meeting, total Federal Reserve assets have risen very slightly as declines in the liquidity facilities and swap lines largely offset increases in Treasuries, agency debt, and agency MBS associated with the large-scale asset purchase programs [**Figure 87**]. On the liabilities side, bank reserves remained sizable, but were little changed on net since the May EAP meeting [**Figure 88**]. However, with the reduction of the Treasury's Supplementary Financing Account at the Fed from about $200 billion to $15 billion (at least temporarily), which has only just begun, reserves could show a sizable increase in coming weeks unless offset by some other factor.

The asset purchase programs had proceeded on fairly steady paces over most the period since the May EAP. Only recently, as the programs began to approach their completions, the FOMC decided to taper purchases to promote a smooth transition in markets, reflecting the possibility that the flow of purchases as well as the anticipated stock could influence rates in these markets. The Treasury purchase program is close to its $300 billion allotment, consistent with its announced completion date of the end of this month [**Figure 89**]. The agency debt and agency MBS programs are further away from their allotments of $200 billion and $1.25 trillion respectively, and their completion dates were pushed back from the end of this year to the end of 2010Q1 [**Figures 90, 91**]. As discussed earlier, these programs appeared to have kept spreads in agency debt and mortgage markets fairly narrow. Because the Fed has been a relatively large purchaser in these markets (as compared to Treasuries), it is possible that the completion of these programs may have a greater effect in agency debt and MBS markets than in the Treasury market, especially as the fate of the GSEs remains uncertain.

Liquidity Facilities. With financial market conditions improving, most liquidity facilities have shrunk since May. On June 25, the Federal Reserve announced that most facilities would be extended until February 1, 2010, with expectation that they may not be extended further. With better liquidity conditions for financial institutions, the amount outstanding under the Primary Credit Facility (discount window) fell fairly steadily, although its level is still well above that prior to March 2008, and borrowing at the Primary Dealer Credit Facility (PDCF) has been zero since around the time of the May EAP meeting [**Figure 92**].

The amounts outstanding under the Term Auction Facility (TAF) have declined by over one-half since May [**Figure 93**]. Over this time, the size of individual auctions has been cut from $150 billion to $75 billion in a series of steps; nevertheless, all auctions held were undersubscribed. It has also begun a process to terminate longer-term (84-day) credit under the facility, leaving only the 28-day credit available. The Fed also announced it would assess whether to maintain a permanent TAF. Consistent with the drop in demand for dollar funding with the improvement in financial conditions and falling spreads, the amount outstanding under the central bank swap lines also dropped sharply since May [**Figure 94**].

With financing spreads for eligible collateral falling below the levels under the terms of the Term Securities Lending Facility (TSLF), the amounts outstanding at the TSLF dropped sharply to zero by September [**Figure 95**]. Schedule 1 auctions (collateral comprises Treasuries, agency securities, and agency MBS) were suspended on June 25, and the size of Schedule 2 auctions (collateral includes Schedule 1 plus highly-rated private securities) has been reduced. The improvement in financial conditions also has reduced the amount outstanding at the CPFF [**Figure 96**].

The one facility that has been increasing in size since May is the TALF [**Figure 97**]. As discussed earlier, support from TALF appears to have helped reduce spreads in consumer ABS markets to the extent that a smaller fraction of TALF-eligible ABS is being financed with TALF loans. With the CMBS market still severely stressed, in early May, the Federal Reserve announced that starting in June, it would accept newly-issued CMBS under the TALF; and in mid-May, it announced that it would accept legacy CMBS under the TALF starting in July. So far, about $4 billion of legacy CMBS has been accepted under the TALF, but no newly-issued CMBS have been brought to it. The Federal Reserve and Treasury have announced that an extension of TALF loans against ABS and legacy CMBS to March 31, 2010 and against newly-issued CMBS to June 30, 2010.

Foreign Macroeconomic Conditions.

The global recession appears to be over with Emerging Asia leading the recovery and Europe making more modest progress. At the last meeting, the forecast had foreign output falling again in Q2, but at a more moderate pace relative to the steep decline in Q1. Instead, Q2 posted stronger-than-expected results, particularly in Asia. The outlook is for a return to growth in the second half of 2009 with production, export and confidence data from around the world improving over the course of the summer. Foreign output is now expected to increase 0.2% (Q4/Q4) in 2009, a change from May's forecast of a 1.2% decline. The 2010 outlook has been raised from 2.0% to 2.9%.

Europe: Euro area GDP was essentially flat in Q2 with consumption increasing for the first time in five quarters and the pace of decline in investment spending and exports easing considerably. Industrial production remained depressed though July, but survey data suggest it started to turn up in August. Business and consumer confidence measures have improved steady from April through September. U.K. GDP contracted 2.3% (saar) in Q2, but a recovery in production and exports point to growth in Q3 **[Figures 103 & 104]**.

Asia: Japan's GDP grew 2.3% (saar) in Q2, the first increase in five quarters. Output, though, was still down 7.2% over the year. Japanese production and exports improved significantly from March through July, but are substantially below year-ago levels **[Figures 105 & 106]**. The Tankan index of business confidence improved in September, but remains at a low level.

China's strong domestic-led recovery is continuing, although the rate of GDP growth has slowed considerably from the 19% (saar) surge in Q2. Credit creation is slowing after the meteoric pace in the first half of 2009. Exports remain weak **[Figure 107]**. GDP data were also strong across the rest of Asia in Q2, with robust recoveries in production and exports continuing into Q3.

Latin America: Mexico's economy contracted 4.4% (saar) in Q2, putting output down nearly 10% over the year. A recovery in exports and production over the summer, tied to the U.S. recovery, suggests a resumption of Mexican growth in Q3. Brazil's economy is doing well, growing 7.8% (saar) in Q2 due to increases in consumption and exports.

Foreign Financial Conditions

Although central banks in Europe and Asia still provide extensive liquidity support to their respective financial sectors, global funding conditions have improved markedly over the last six months **[Figures 109-112]**. Throughout the period participation in U.S. dollar auctions by foreign central banks declined. Towards the end of the period the ECB, the Bank of England and the SNB received no bids at their 84-day dollar auctions and decided to discontinue their 28-day dollar auctions. In emerging markets, liquidity conditions are also improving further with less need for liquidity support for these economies. The Bank of Korea reduced its Federal Reserve swap line outstanding to $4.6 billion, allowing $11.8 billion to roll off since mid-March, whereas the Mexican central bank only drew once on its swap line since April. In addition, Mexico suspended from October 1st onwards its daily dollar auctions, which were first initiated last March to address tight external funding conditions.

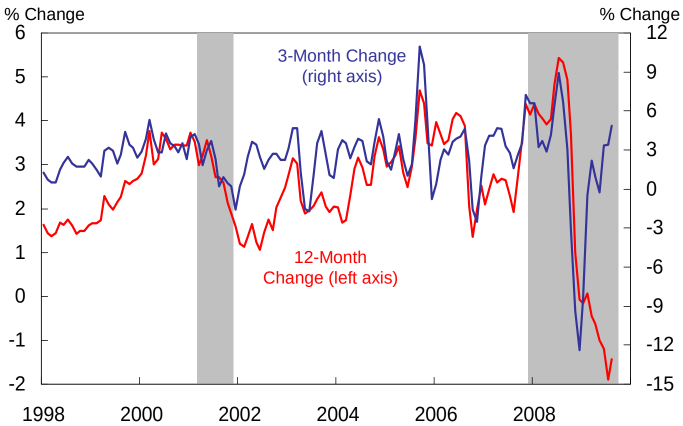
Despite improving global liquidity conditions, credit conditions in Europe remain tight. In the euro area, lending to corporations grew only 1.6% year-on-year in July whereas lending to businesses in the U.K. was down with an annual 3.3%. Emerging Asia outside of China showed increasingly stronger signs of a credit thaw, as mortgage and corporate credit lending have been increasing at an accelerating pace in Korea and Malaysia.

The trade-weighted U.S. dollar index fell over the last six months, as the growth outlook abroad improved substantially and investors' risk appetite increased **[Figure 117]**. In particular relative to the Japanese yen the dollar weakened **[Figure 119]**. Against the Chinese yuan the dollar remained stable and forward contracts suggest modest dollar weakening over the next 12 months **[Figure 120]**

There have been tentative signals of a decoupling in global monetary policies. Developed nation central banks publicly committed themselves to maintain the current accommodative stance for a prolonged period. The ECB kept the target rate for its 1-yr refinancing program at 1% and the Bank of England decided to expand their asset purchases, financed through monetary base expansion, from GBP 150 billion to GBP 175 billion. Monetary authorities in emerging markets, however, are clearly at the end of their loosening cycle and possibly might move towards a tightening in the near future. Particularly in Emerging Asia, U.S. dollar reserves have been increasing over the period as authorities continued to limit an appreciation of their domestic currencies relative to the dollar.

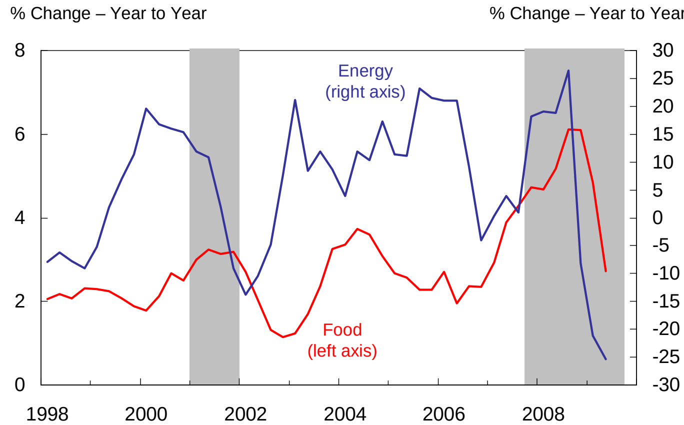
Inflation

Figure 1: Total CPI Inflation



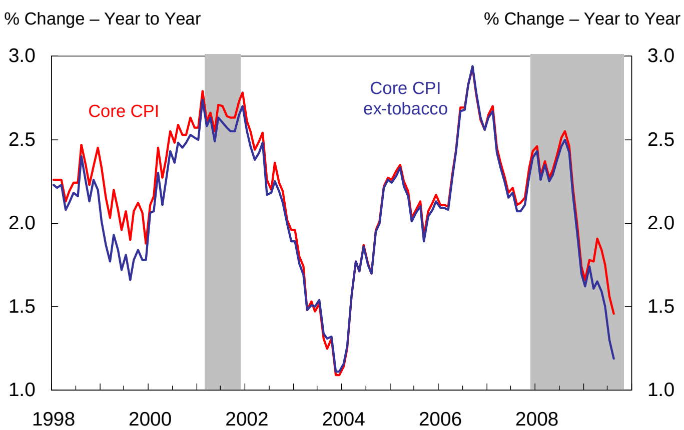
Source: Bureau of Labor Statistics

Figure 2: CPI Inflation: Food and Energy



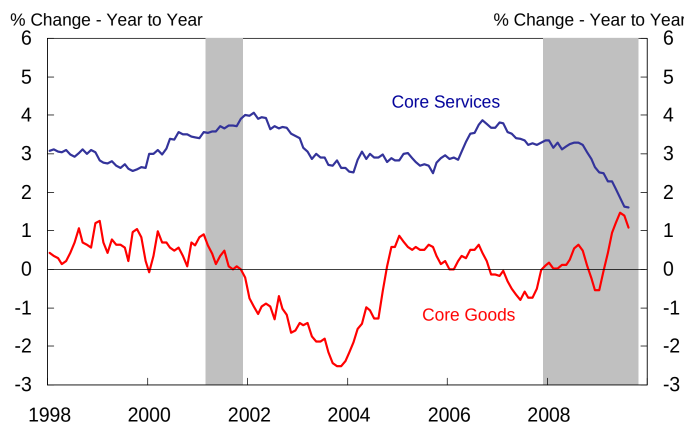
Source: Bureau of Economic Analysis

Figure 3: Core CPI Inflation



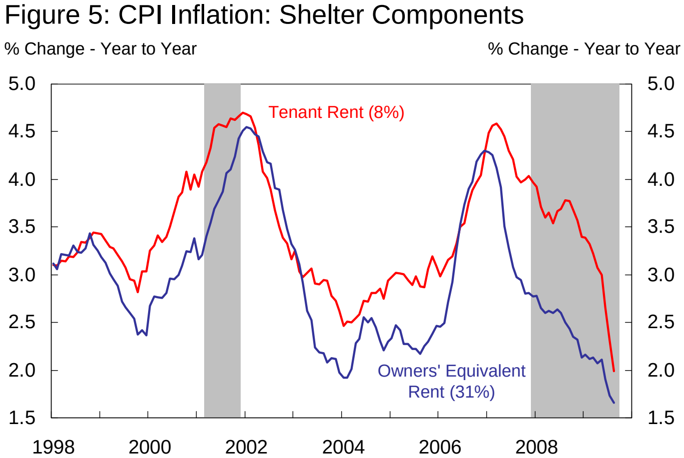
Source: Bureau of Economic Analysis

Figure 4: CPI Inflation: Core Services and Core Goods



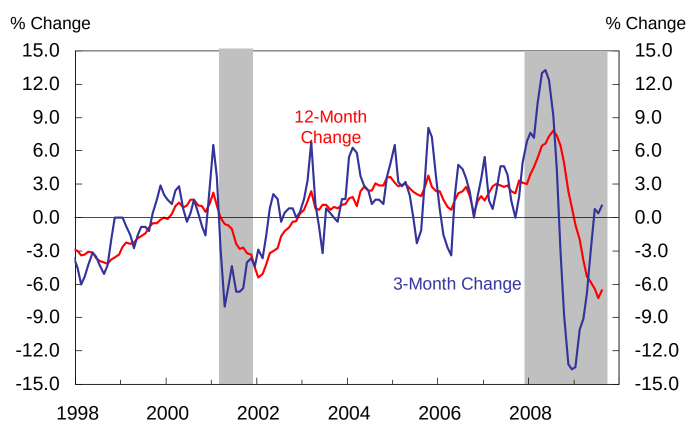
Source: Bureau of Labor Statistics

Figure 5: CPI Inflation: Shelter Components



Source: BLS

Figure 6: Nonpetroleum Import Prices

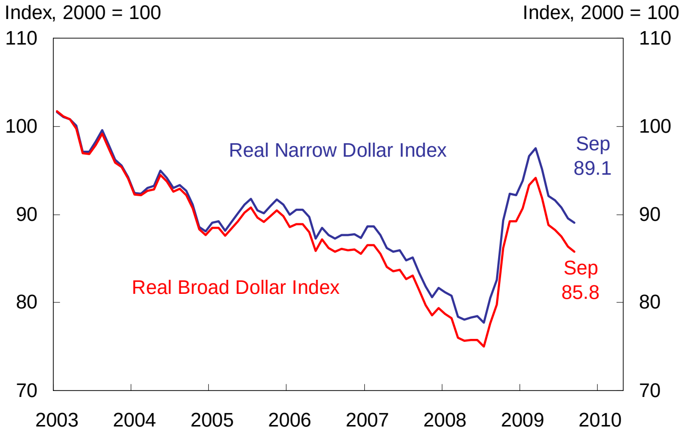


Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions, unless otherwise noted.

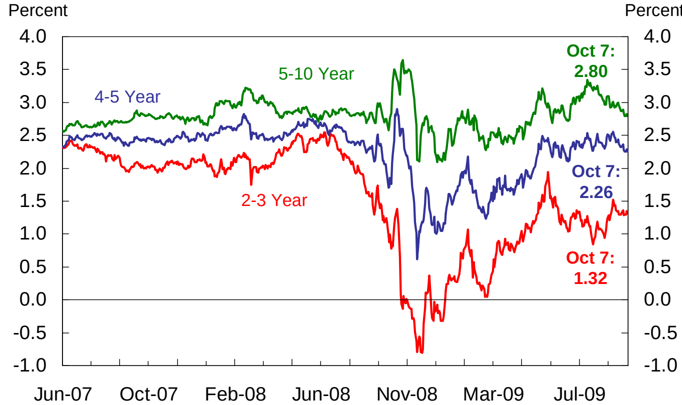
Inflation

Figure 7: Real Effective Exchange Rates



Source: Bloomberg and JPMorgan

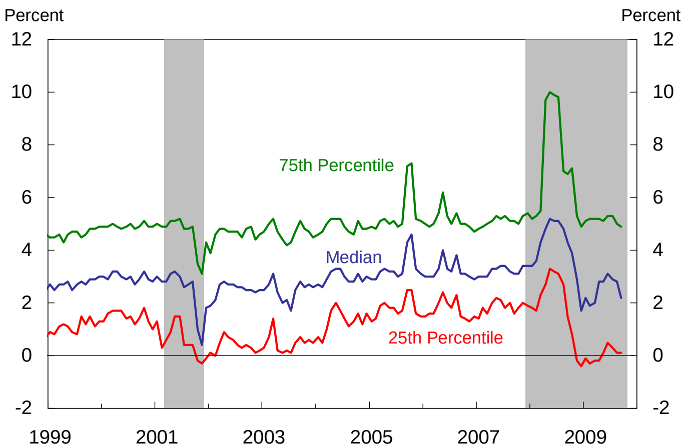
Figure 8: TIPS Implied Inflation Compensation:2-3,4-5,5-10 Year Horizons



Source: Federal Reserve Board

Note: Carry Adjusted.

Figure 9: Michigan Survey Inflation Expectations: 1 Year Ahead

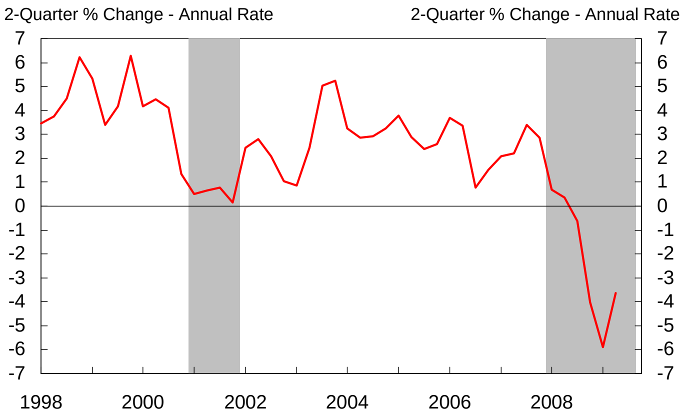


Source: University of Michigan

Note: Shading represents NBER recessions, unless otherwise noted.

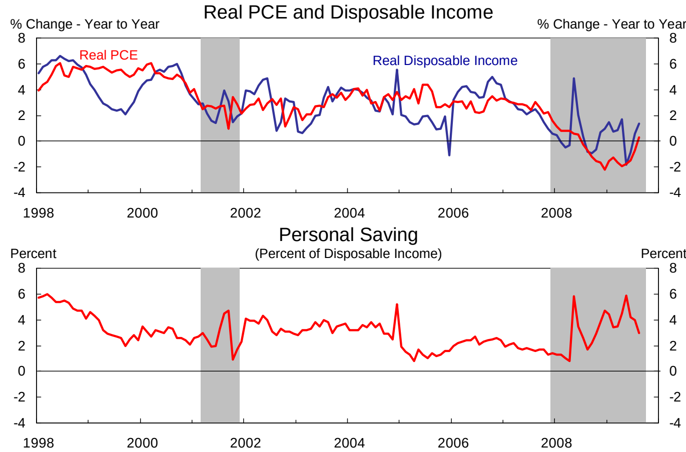
Real Activity

Figure 10: Gross Domestic Product



Source: Bureau of Economic Analysis

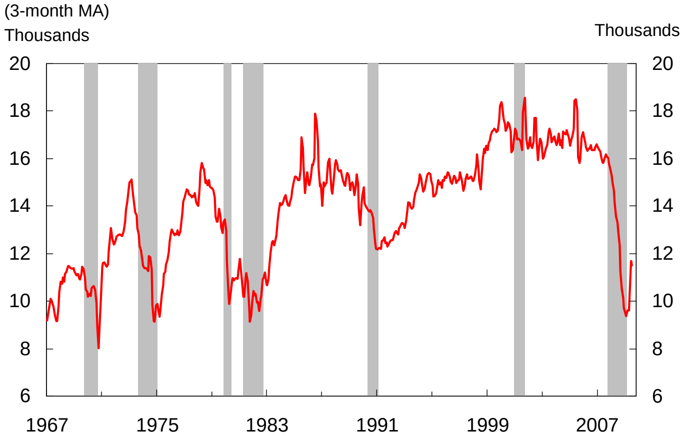
Figure 11: Consumption, Income, and Saving



Source: Bureau of Economic Analysis

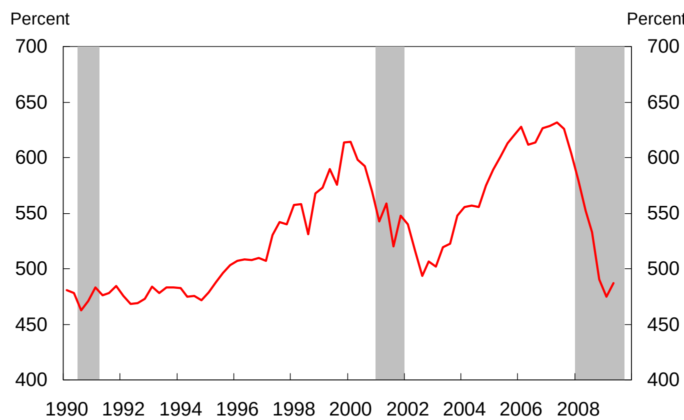
Figure 12: Auto and Light Truck Sales

(3-month MA)



Source: Bureau of Economic Analysis

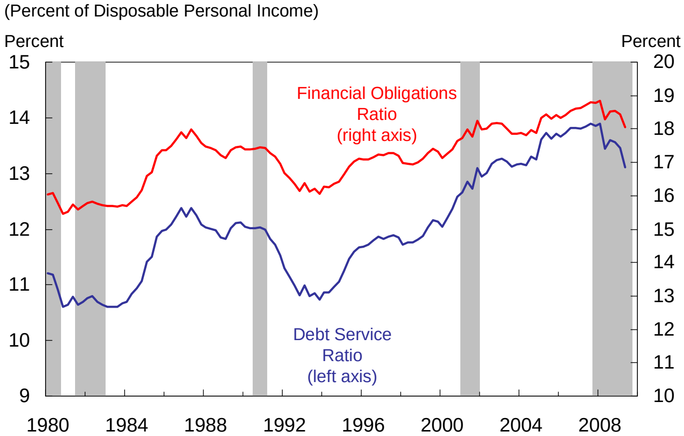
Figure 13: Net Worth over Disposable Personal Income



Source: Federal Reserve Board

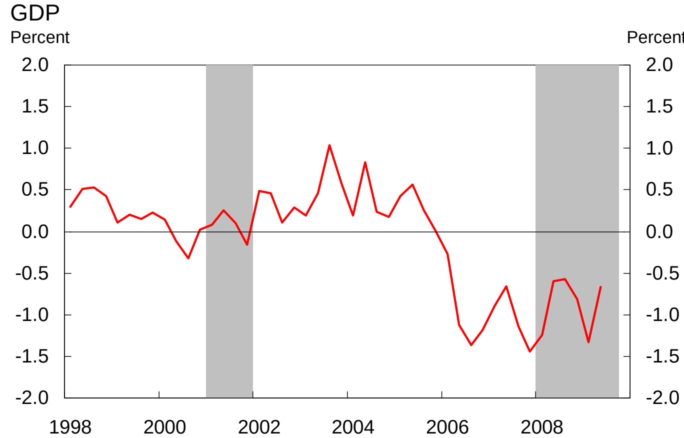
Figure 14: Debt Service and Financial Obligations

(Percent of Disposable Personal Income)



Source: Federal Reserve Board

Figure 15: Private Residential Investment: Contribution to Real GDP

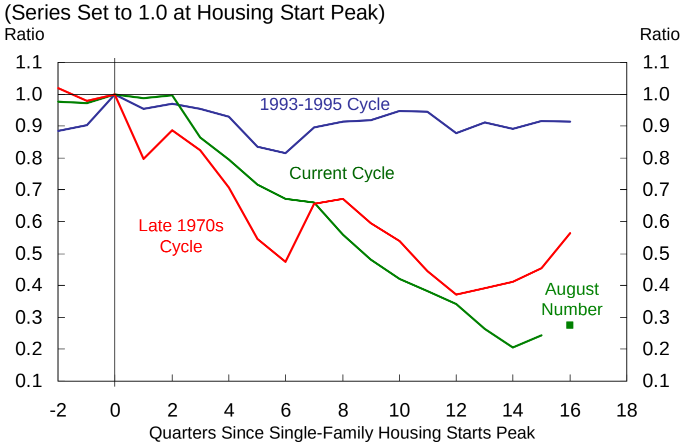


Source: Federal Reserve Board

Note: Shading represents NBER recessions, unless otherwise noted.

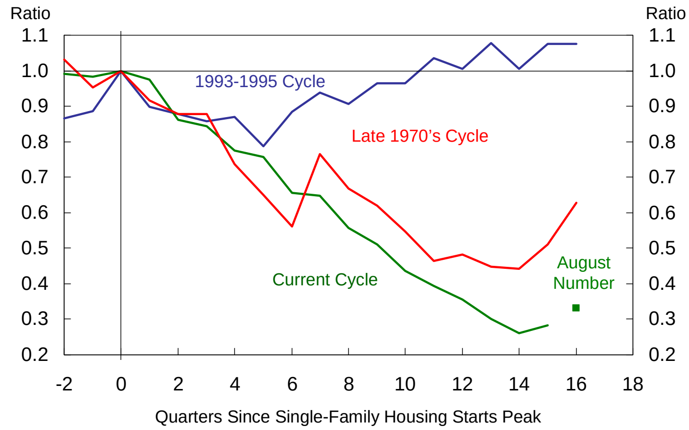
Real Activity, ctd.

Figure 16: Single-Family Housing Starts
(Series Set to 1.0 at Housing Start Peak)



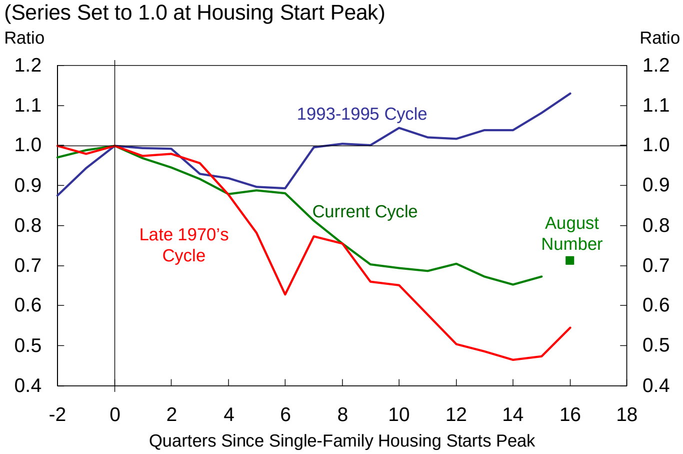
Source: Census Bureau

Figure 17: Single-Family New Home Sales
(Series Set to 1.0 at Housing Start Peak)



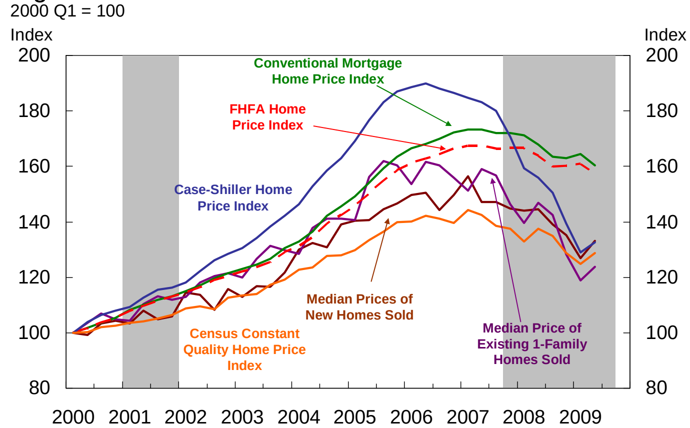
Source: Census Bureau

Figure 18: Single-Family Existing Home Sales
(Series Set to 1.0 at Housing Start Peak)



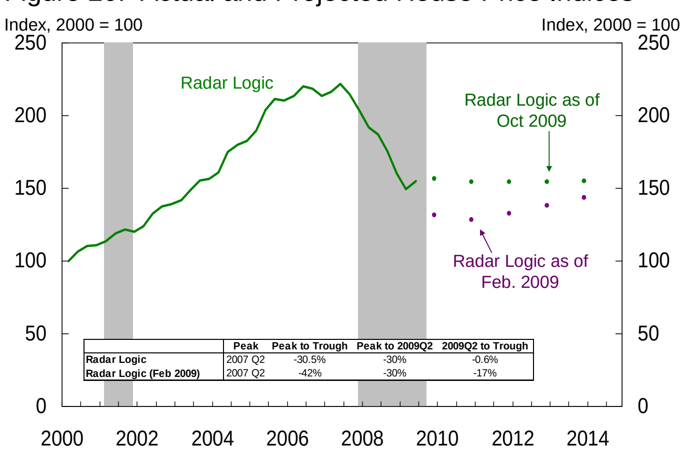
Source: Census Bureau

Figure 19: Home Price Indexes
2000 Q1 = 100



Source: U.S. Census, National Association of Realtors, Freddie Mac, FHFA, and Standard and Poors.

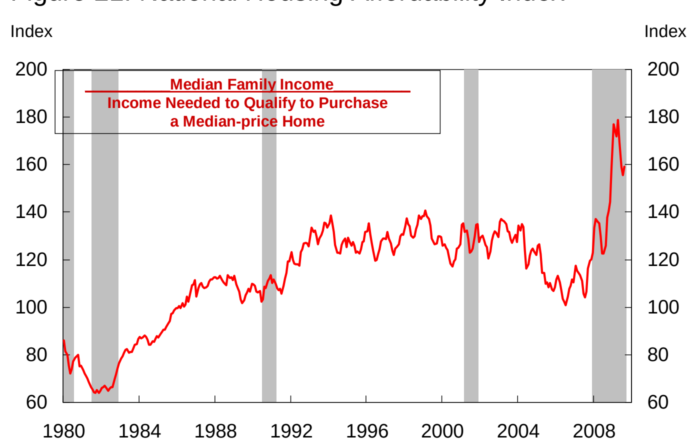
Figure 20: Actual and Projected House Price Indices



	Peak	Peak to Trough	Peak to 2009Q2	2009Q2 to Trough
Radar Logic	2007 Q2	-30.5%	-30%	-0.6%
Radar Logic (Feb 2009)	2007 Q2	-42%	-30%	-17%

Source: Bloomberg, FHFA, S&P, Radar Logic

Figure 21: National Housing Affordability Index

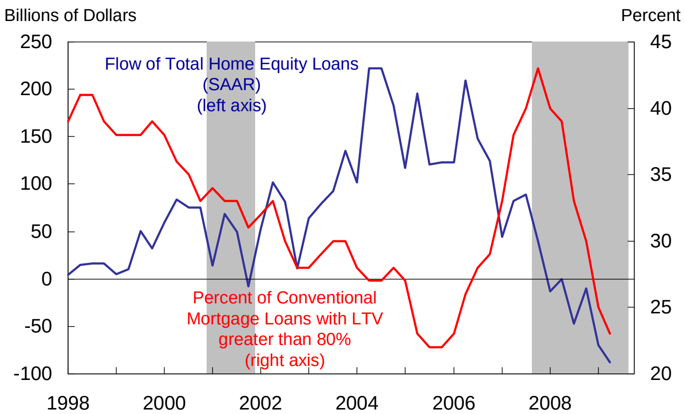


Source: National Association of Realtors

Note: Shading represents NBER recessions, unless otherwise noted.

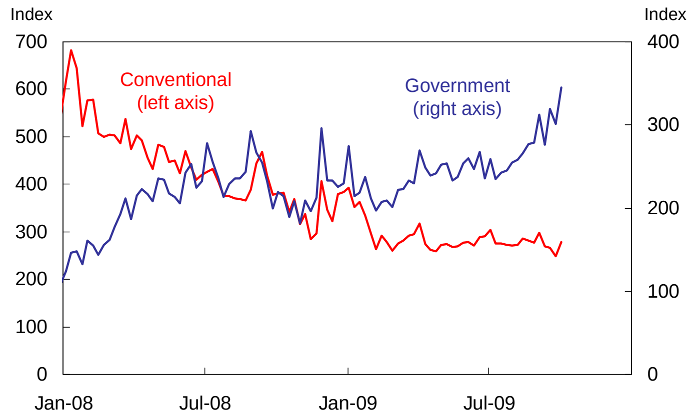
Real Activity, ctd.

Figure 22: New Mortgage Loan LTV



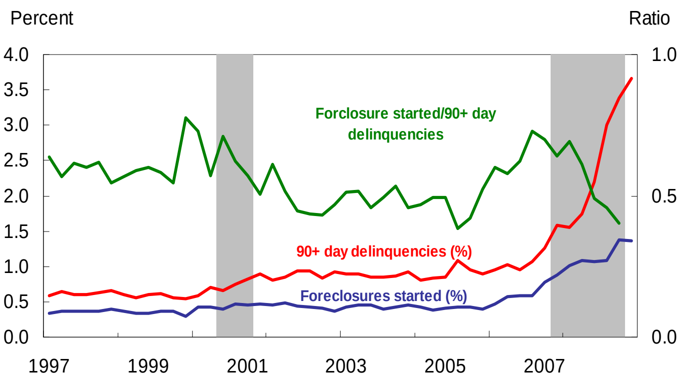
Source: Federal Housing Finance Board
& Federal Reserve Board

Figure 23: Purchase Mortgage Applications



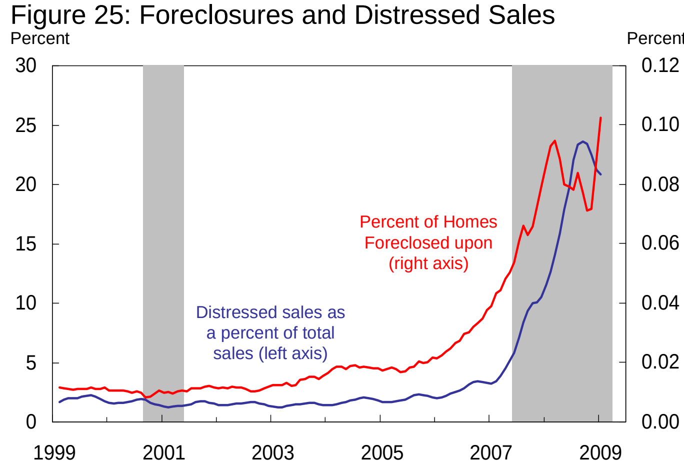
Source: Mortgage Bankers' Association

Figure 24: Serious Delinquencies to Foreclosures



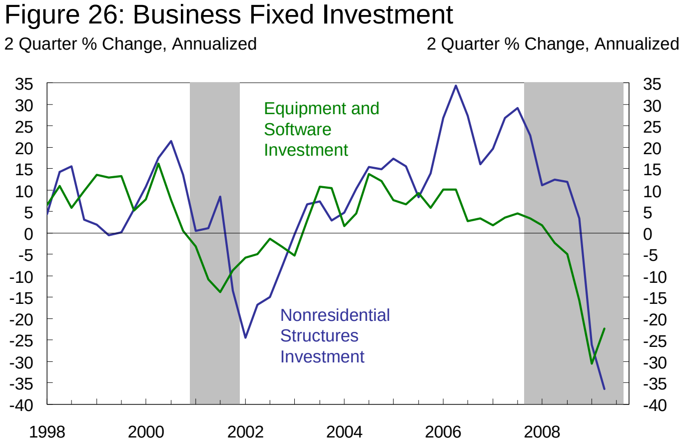
Mortgage Bankers' Association

Figure 25: Foreclosures and Distressed Sales



Source: Zillow

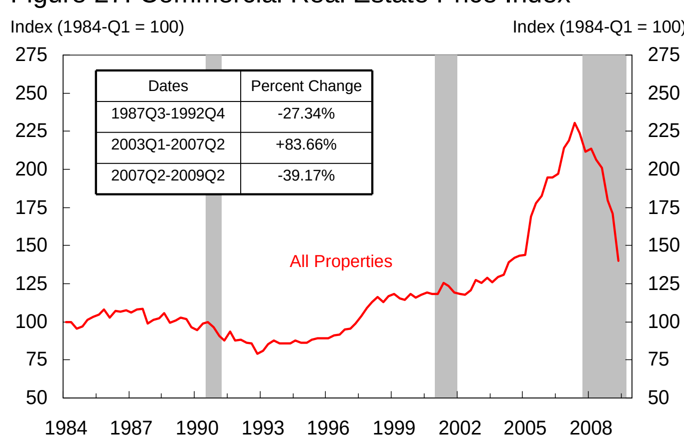
Figure 26: Business Fixed Investment



Source: Bureau of Economic Analysis

26

Figure 27: Commercial Real Estate Price Index



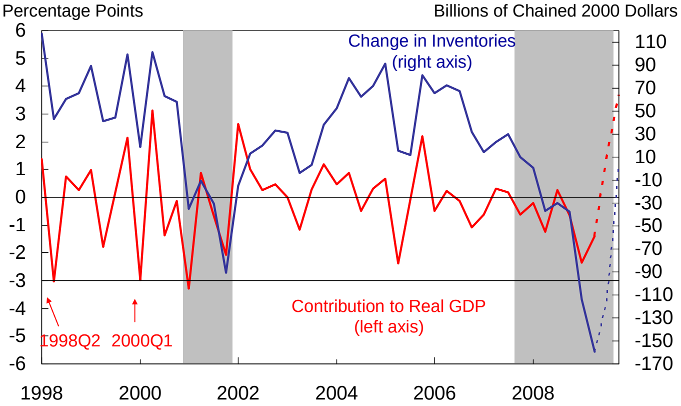
Dates	Percent Change
1987Q3-1992Q4	-27.34%
2003Q1-2007Q2	+83.66%
2007Q2-2009Q2	-39.17%

Source: MIT Center for Real Estate

Note: Shading represents NBER recessions, unless otherwise noted.

Real Activity, ctd.

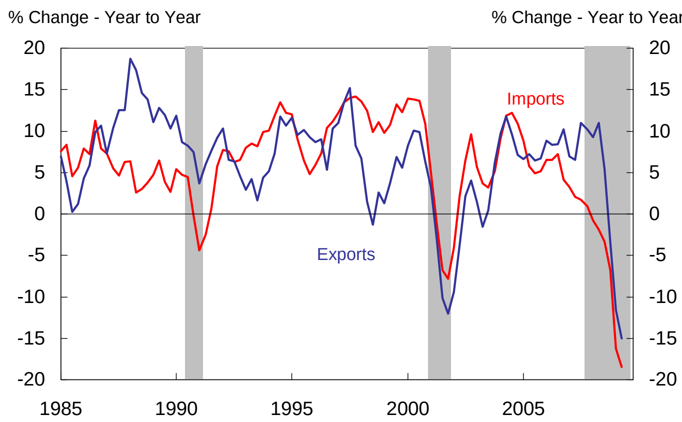
Figure 28: Real Change in Private Inventories and Contribution to Real GDP Percent Change (SAAR)



Source: Bureau of Economic Analysis

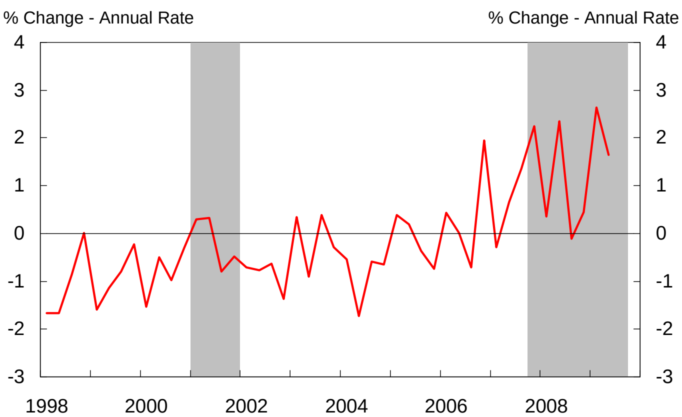
Note: Dashed line represents FRBNY forecast for Q3 and Q4.

Figure 29: Quantity Index of Imports and Exports



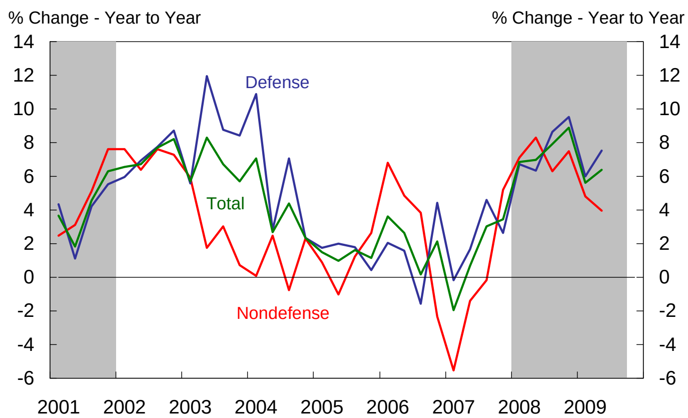
Source: Bureau of Economic Analysis

Figure 30: Net Exports: Contribution to Real GDP



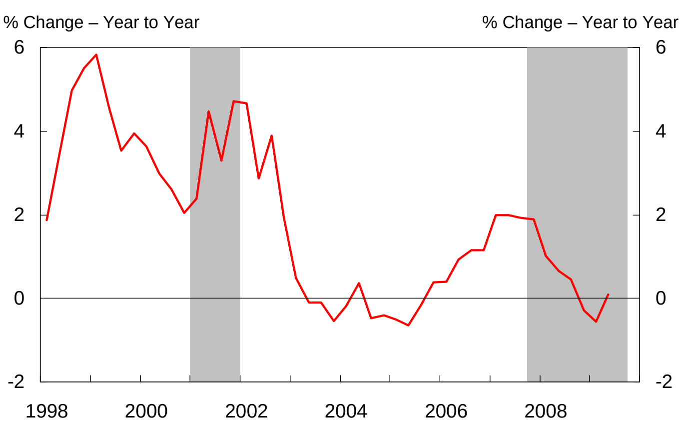
Source: Bureau of Economic Analysis

Figure 31: Real Federal Government Consumption Expenditures and Gross Investment



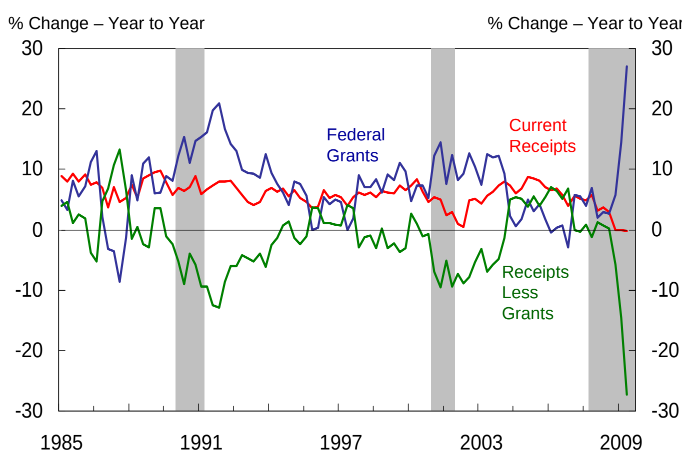
Source: Bureau of Economic Analysis

Figure 32: Real State & Local Government Consumption & Investment



Source: Bureau of Economic Analysis

Figure 33: Total Receipts of State and Local Governments

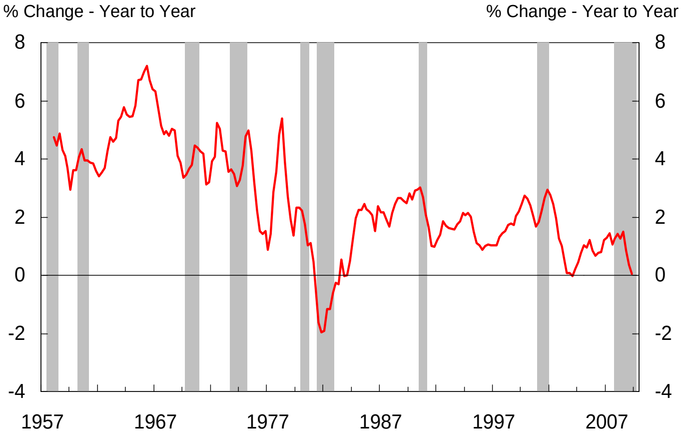


Source: Bureau of Economic Analysis

Note: Shading represents NBER recessions, unless otherwise noted.

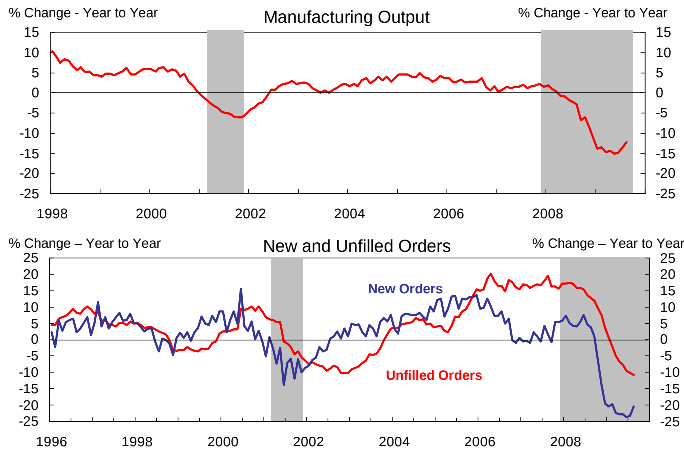
Real Activity, ctd.

Figure 34: Growth of State and Local Government Employment



Source: Bureau of Labor Statistics

Figure 35: Manufacturing Sector Overview

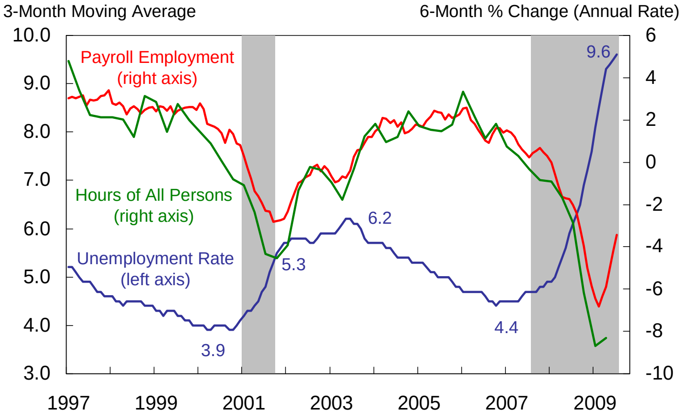


Source: Federal Reserve Board and Census Bureau

Note: Shading represents NBER recessions, unless otherwise noted.

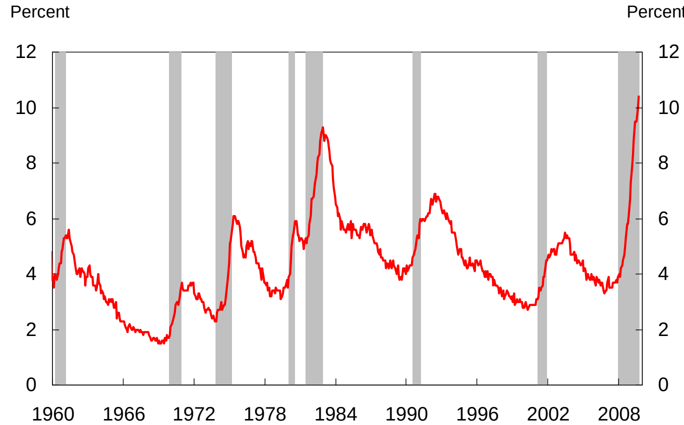
Employment, Wages, and Productivity

Figure 36: Labor Market Indicators



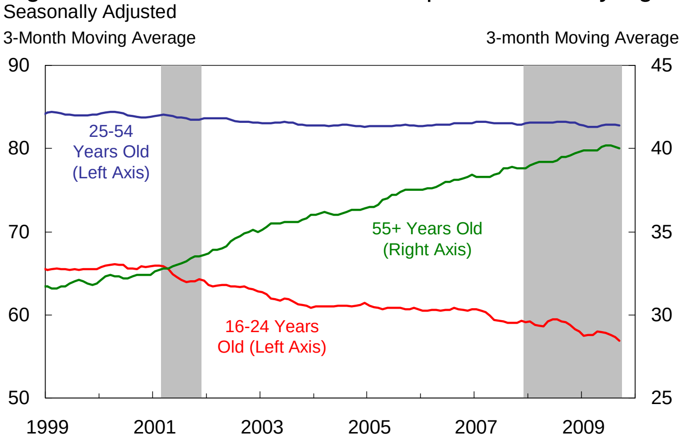
Source: Bureau of Labor Statistics

Figure 37: Prime-Age Male Unemployment Rate



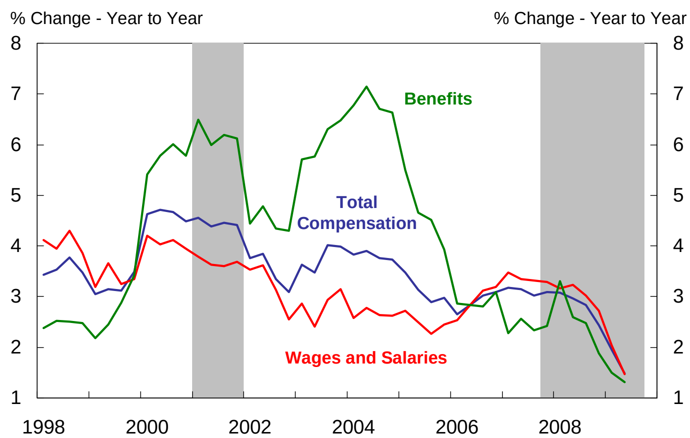
Source: Bureau of Labor Statistics

Figure 38: Total Labor Force Participation Rates by Age
Seasonally Adjusted



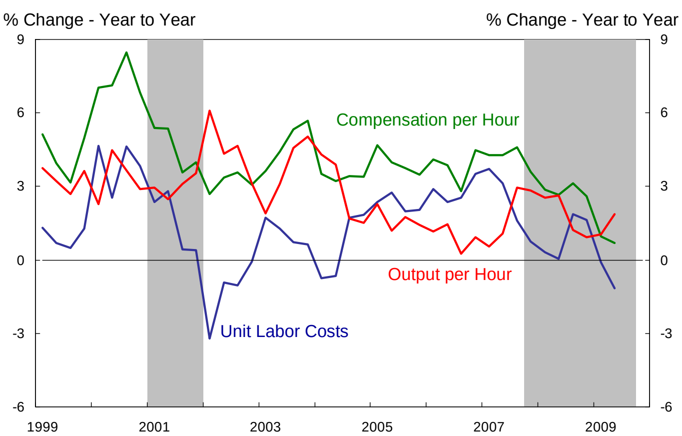
Source: Bureau of Labor Statistics

Figure 39: Employment Cost Index: Private Industry Workers



Source: Bureau of Labor Statistics

Figure 40: Productivity, Compensation, and Unit Labor Costs
Nonfarm Business Sector

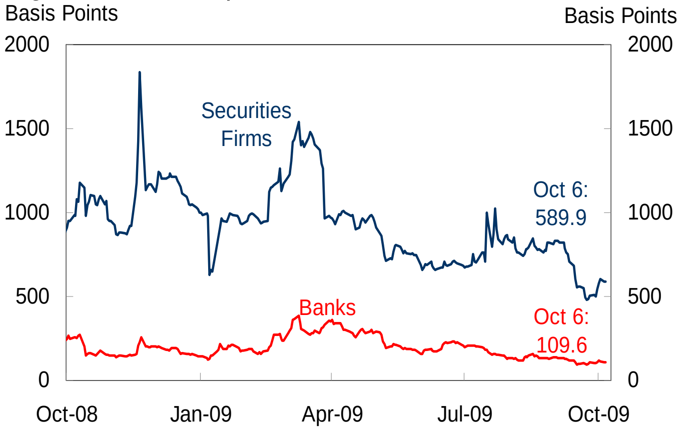


Source: Bureau of Labor Statistics

Note: Shading represents NBER recessions, unless otherwise noted.

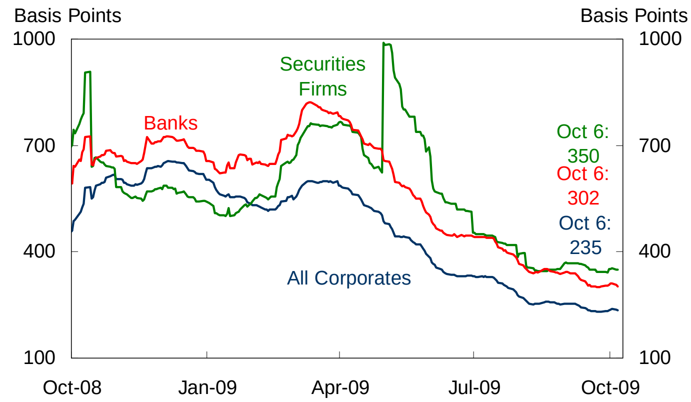
Credit Risk

Figure 41: CDS Spreads



Source: Datastream

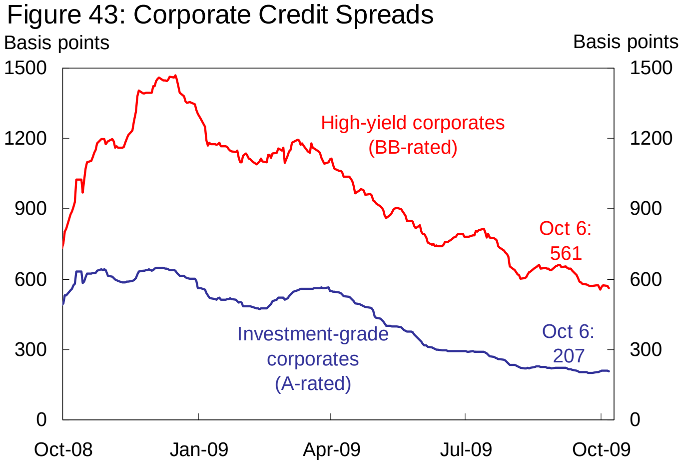
Figure 42: Credit Spreads



Source: Merrill Lynch

Note: Option-adjusted spreads. Banks series is Merrill Lynch Corporates, Banks bond index. Securities Firms series is Merrill Lynch Corporates, Brokerages bond index.

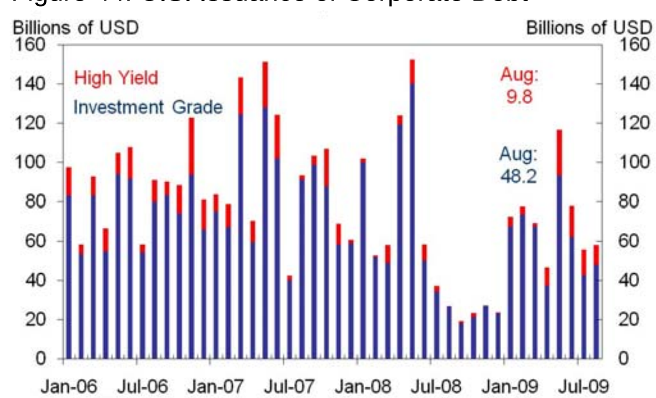
Figure 43: Corporate Credit Spreads



Source: Merrill Lynch

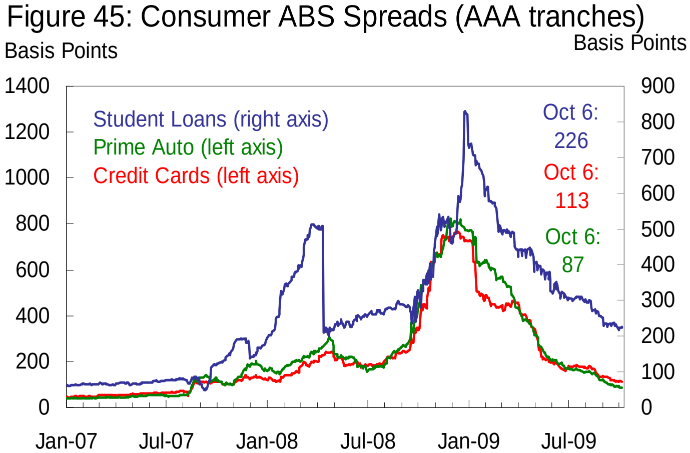
Note: Option-adjusted spreads.

Figure 44: U.S. Issuance of Corporate Debt



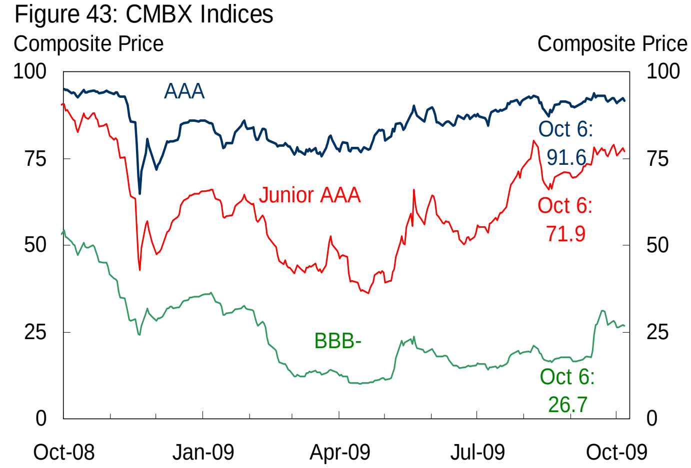
Source: SIFMA

Figure 45: Consumer ABS Spreads (AAA tranches)



Source: JPMorgan

Figure 43: CMBX Indices

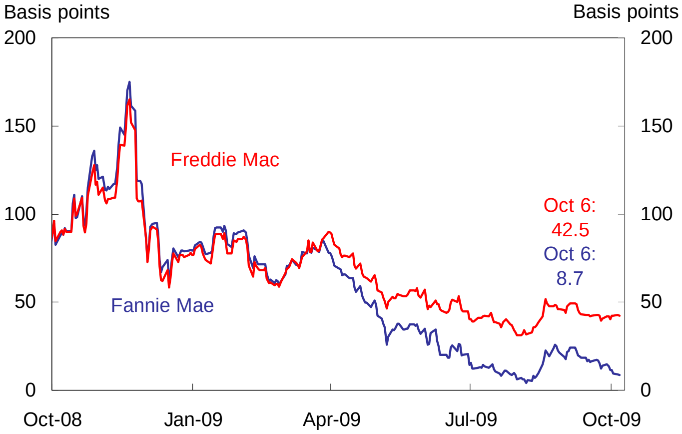


Source: Markit

Note: Shading represents NBER recessions, unless otherwise noted.

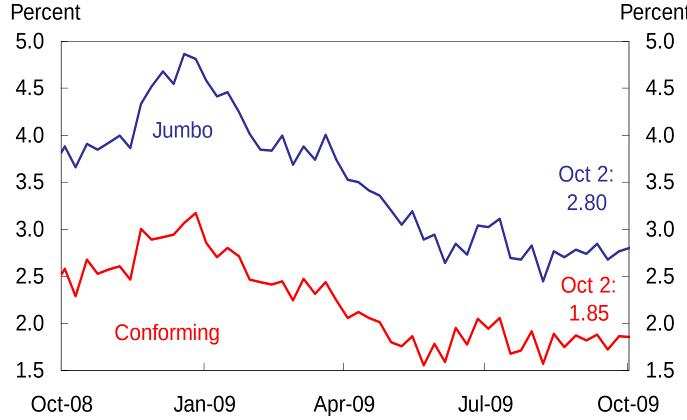
Agency Debt and Mortgage Market

Figure 47: 10-Year Senior Agency Debt Spreads



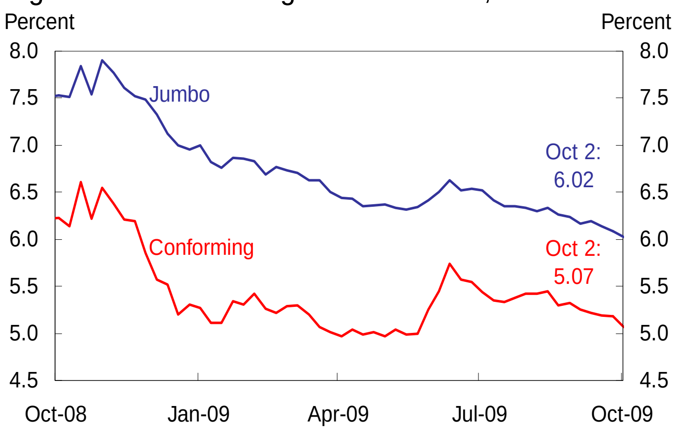
Source: Bloomberg

Figure 48: 30-Year FRM to 10-Year Treasury Spreads



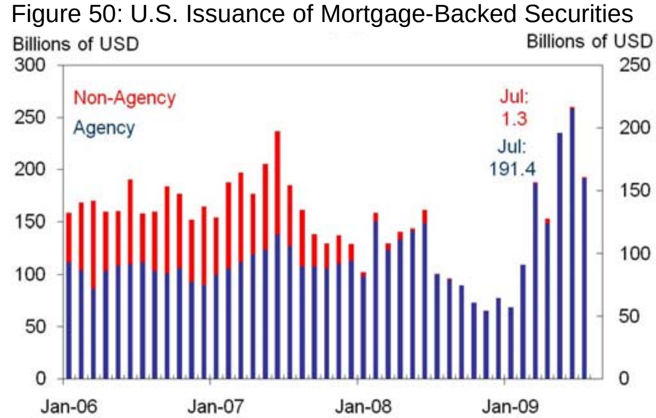
Source: HSH Associates and Datastream

Figure 49: National Avg. Offered Rates, 30-Year FRM



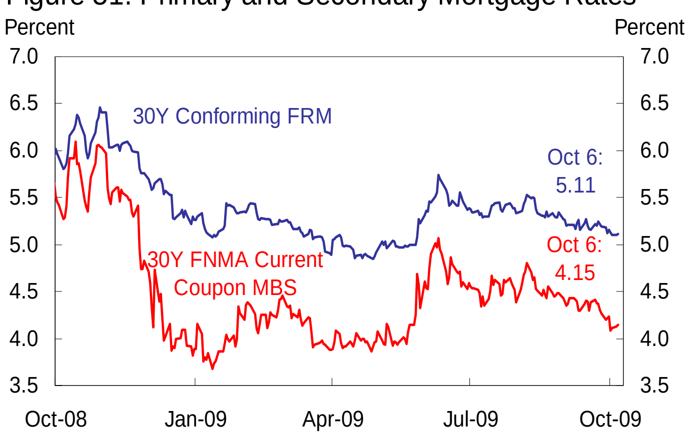
Source: HSH Associates

Figure 50: U.S. Issuance of Mortgage-Backed Securities



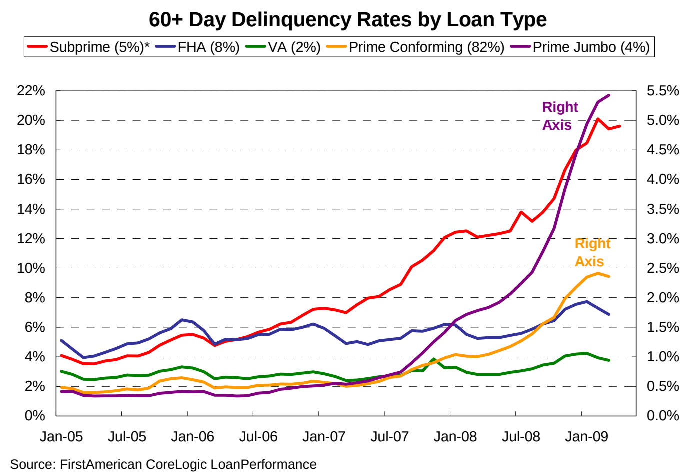
Source: SIFMA

Figure 51: Primary and Secondary Mortgage Rates



Source: Bankrate and Bloomberg

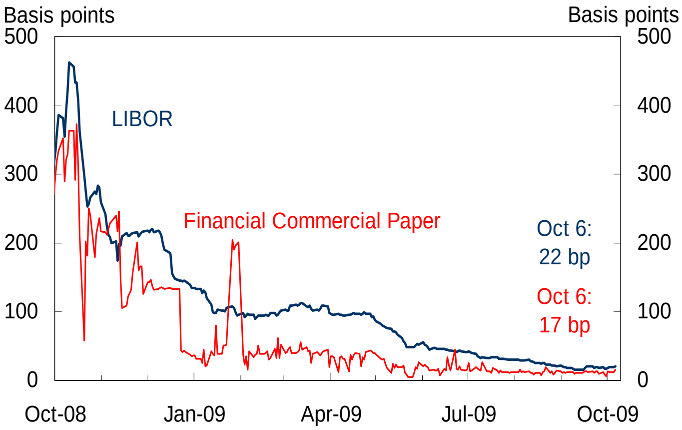
Figure 52: Mortgage Delinquency Rates



Note: Shading represents NBER recessions, unless otherwise noted.

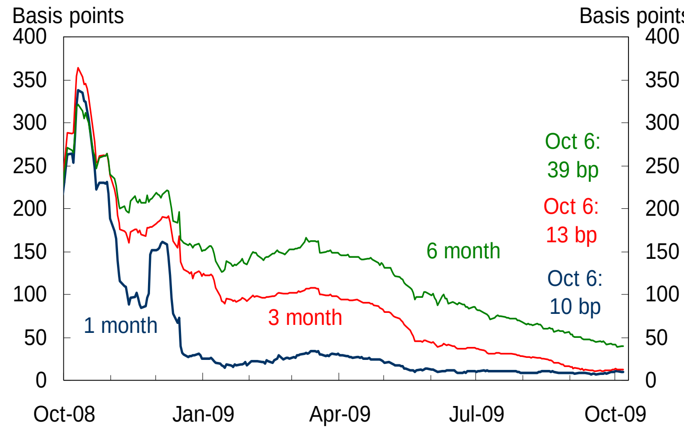
Money Markets

Figure 53: Unsecured Lending: 3 Month Spreads to Treasury



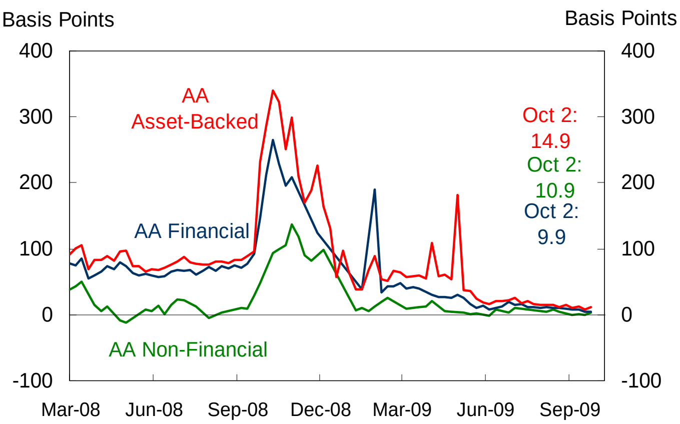
Source: Bloomberg

Figure 54: USD LIBOR-to-OIS Spreads



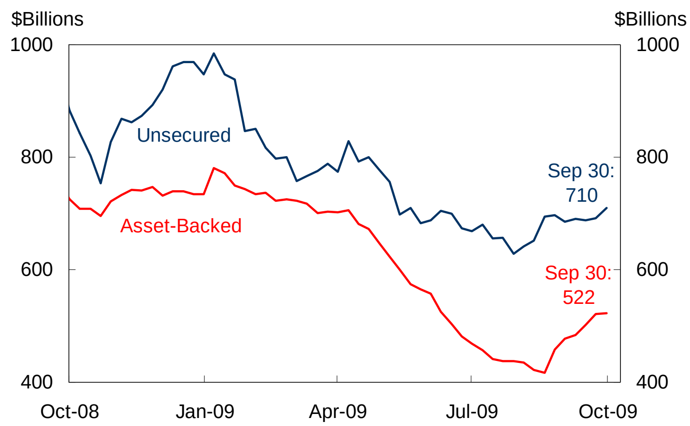
Source: Bloomberg

Figure 55: 3-Month CP Rates over OIS



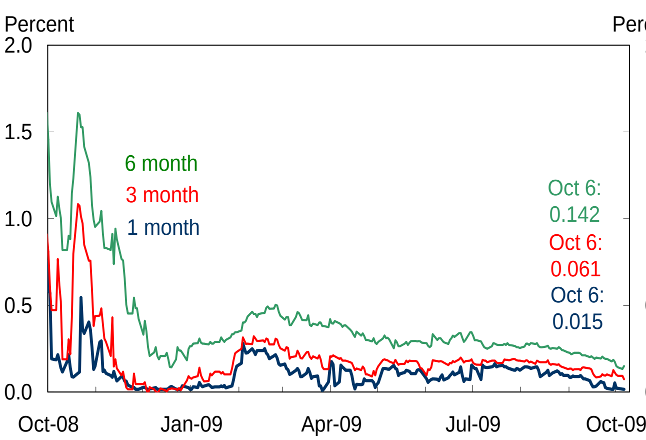
Source: Federal Reserve Board, Haver, Bloomberg

Figure 56: Commercial Paper Outstanding



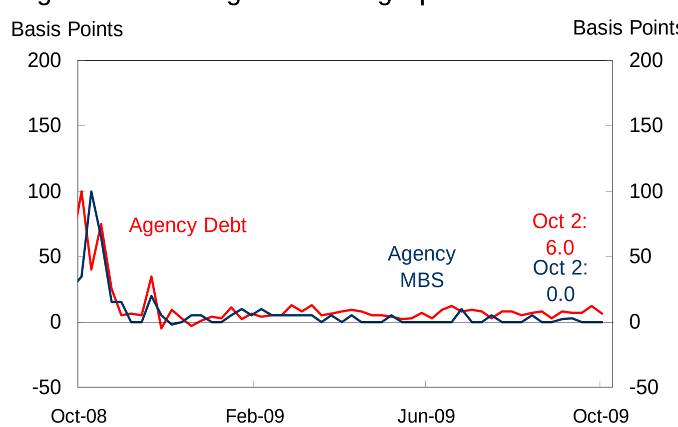
Source: Federal Reserve Board

Figure 57: U.S. Treasury Bill Yields



Source: Bloomberg

Figure 58: Overnight Financing Spreads



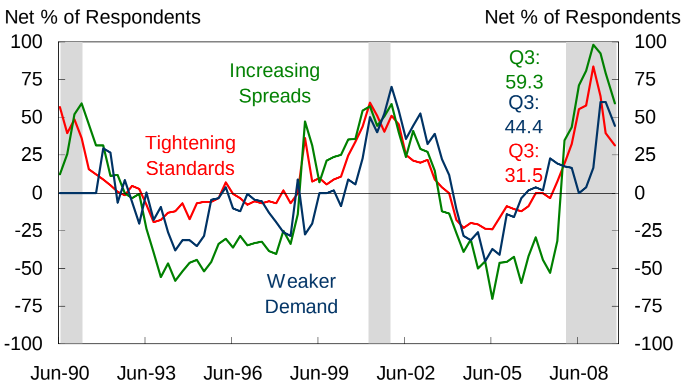
Source: Bloomberg

Note: Spreads are between overnight agency debt and MBS and Treasury general collateral repo rates

Note: Shading represents NBER recessions, unless otherwise noted.

Bank Lending and Private Debt Levels

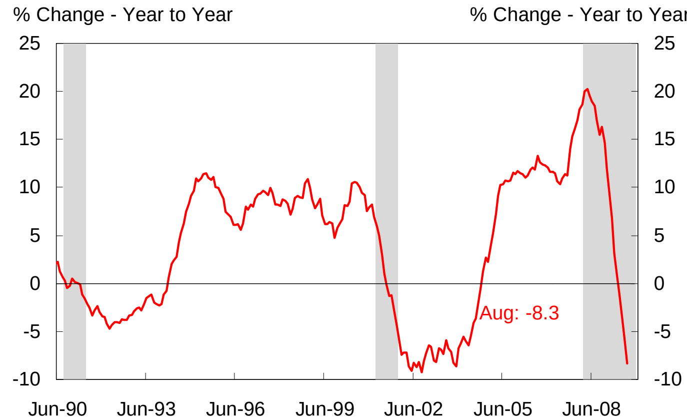
Figure 59: Bank Lending Practices



Source: Federal Reserve Board

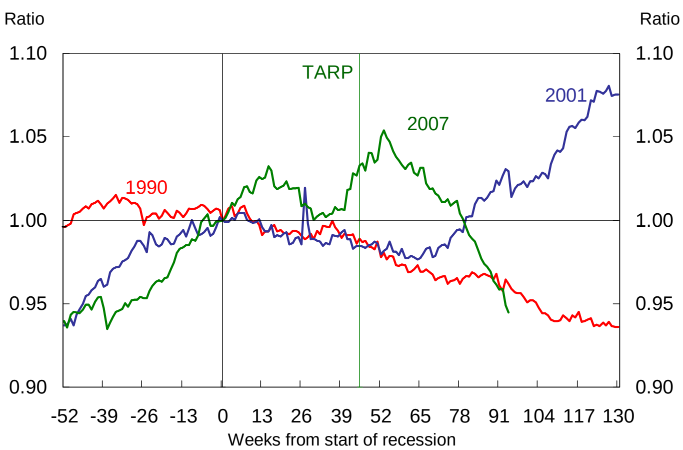
Note: Data cover C&I loans to large- and medium-sized firms

Figure 60: Commercial and Industrial Loans Outstanding



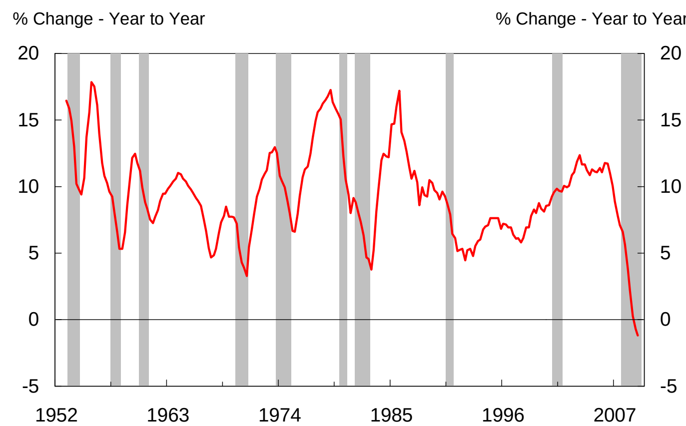
Source: Federal Reserve Board

Figure 61: Bank Loans in Recent Recessions



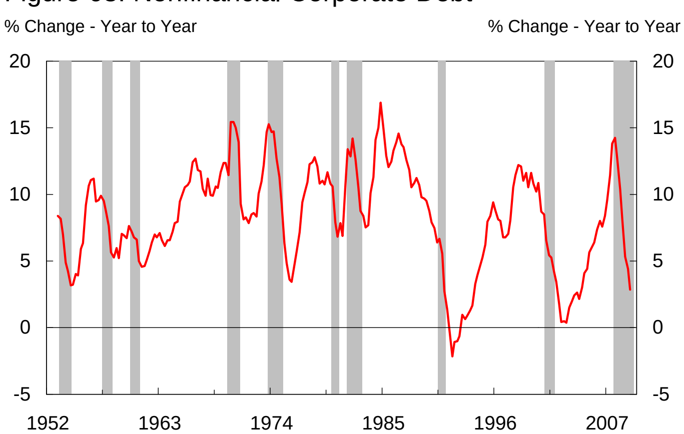
Source: Federal Reserve Board

Figure 62: Household Debt



Source: Federal Reserve Board

Figure 63: Nonfinancial Corporate Debt

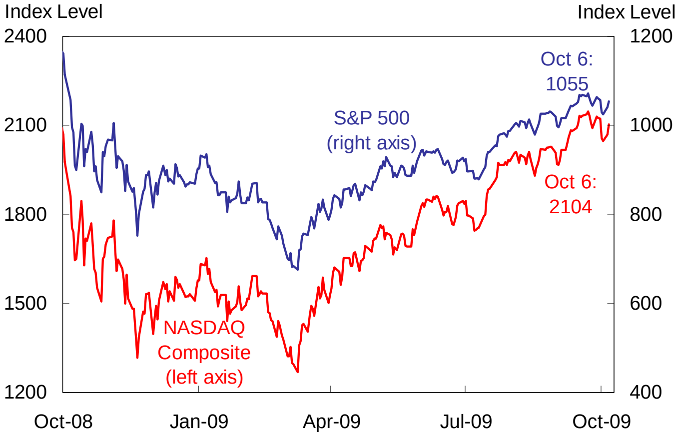


Source: Federal Reserve Board

Note: Shading represents NBER recessions, unless otherwise noted.

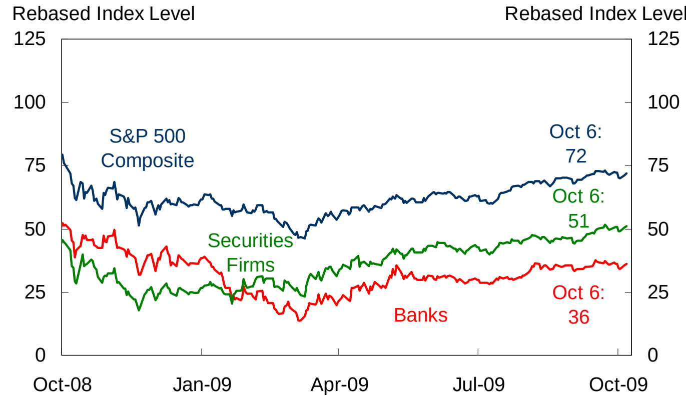
Equity Markets

Figure 64: Equity Market Performance



Source: Datastream

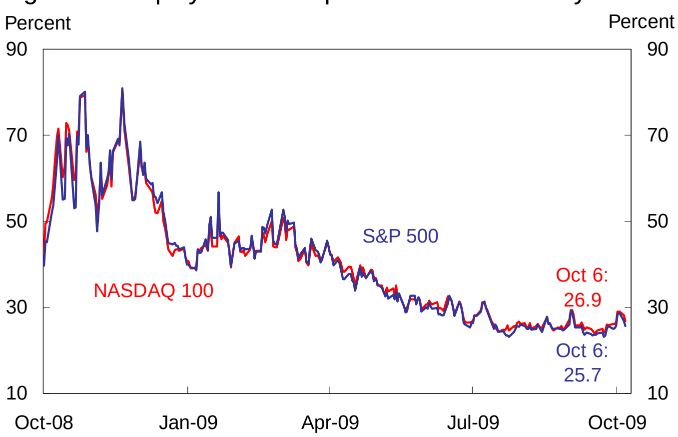
Figure 65: Equity Performance



Note: Rebased to equal 100 on August 1, 2007. Banks series is S&P 500 Banks index. Securities Firms series is S&P 500 Investment Banks and Brokerages index.

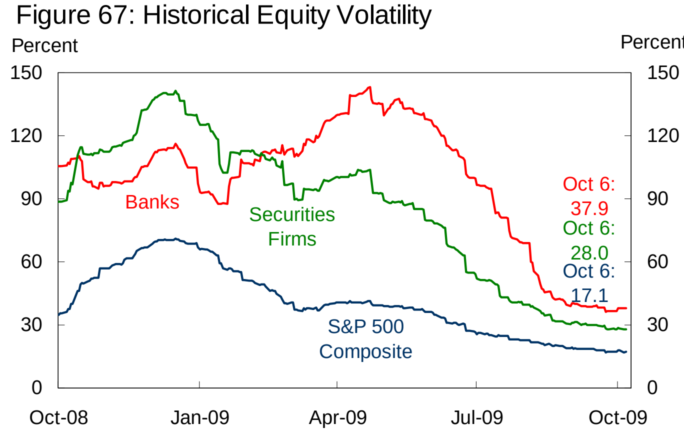
Source: Datastream

Figure 66: Equity Market Implied 1-Month Volatility



Source: Datastream

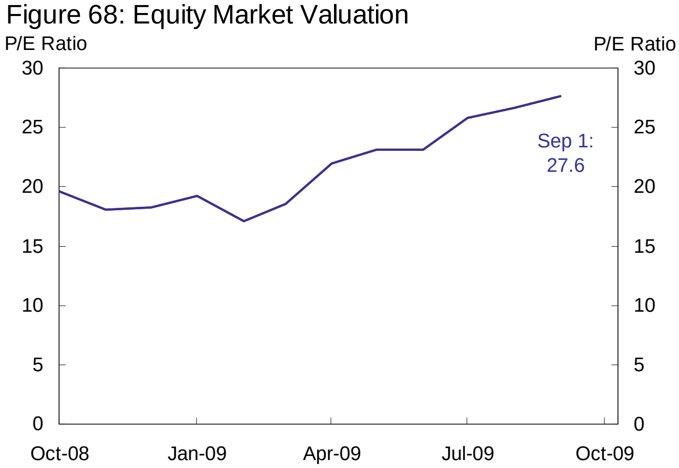
Figure 67: Historical Equity Volatility



Source: Datastream

Note: Annualized rolling 3-month standard deviation of daily returns. Banks series is S&P 500 Banks index. Securities Firms series is S&P 500 Investment Banks and Brokerages index.

Figure 68: Equity Market Valuation

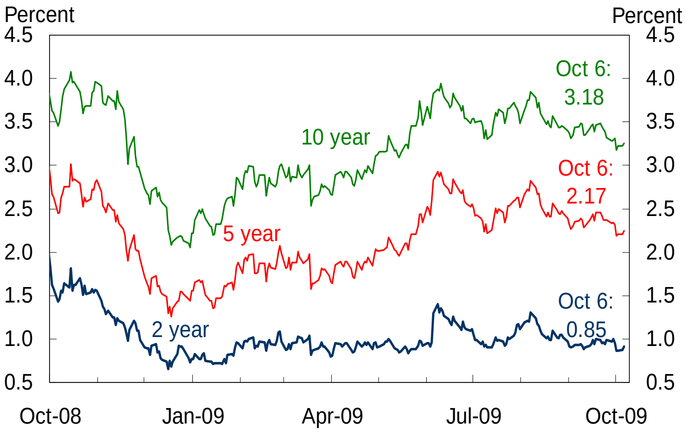


Source: Datastream

Note: Shading represents NBER recessions, unless otherwise noted.

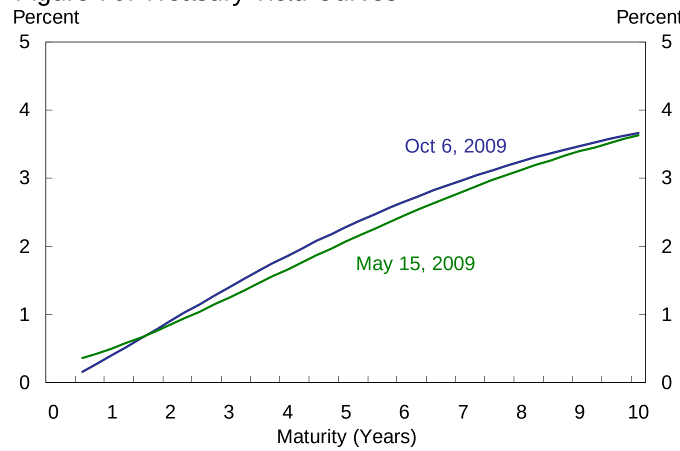
Treasury Yields

Figure 69: U.S. Treasury Note Yields



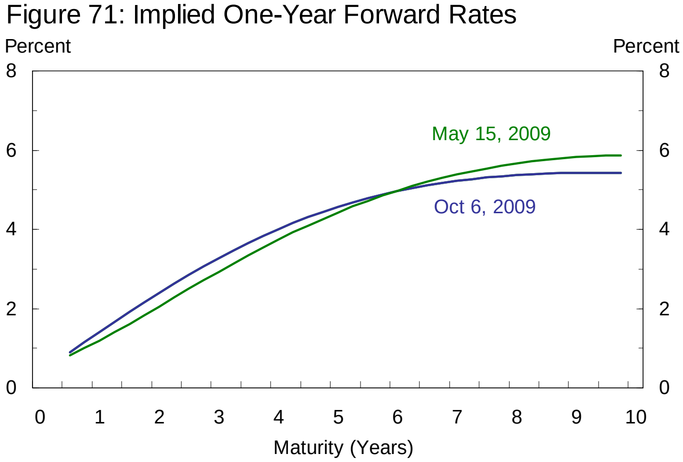
Source: Bloomberg

Figure 70: Treasury Yield Curves



Source: Federal Reserve Board

Figure 71: Implied One-Year Forward Rates

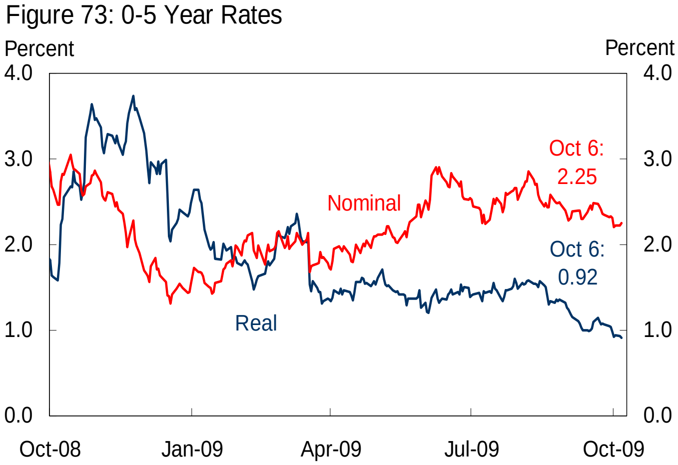


Source: Federal Reserve Board

Figure 72: 5- and 10-Year Real Treasury Rate

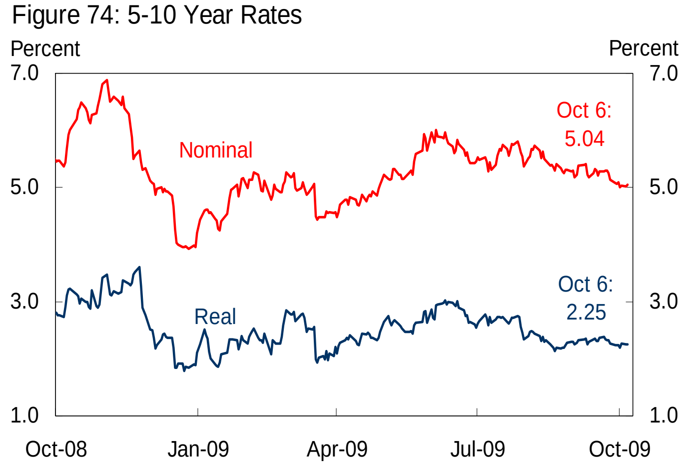
Source: Federal Reserve Board

Figure 73: 0-5 Year Rates



Source: Federal Reserve Board

Figure 74: 5-10 Year Rates

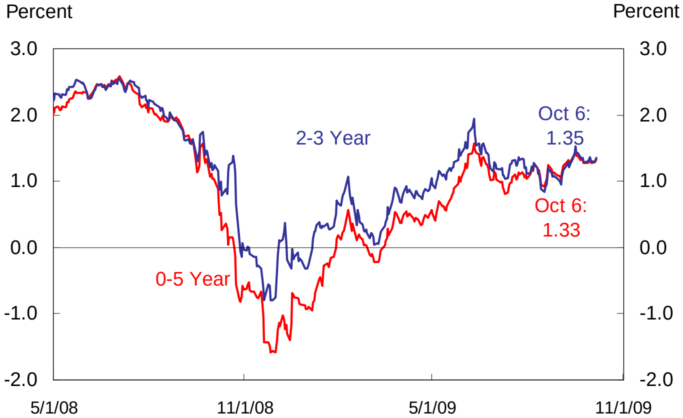


Source: Federal Reserve Board

Note: Shading represents NBER recessions, unless otherwise noted.

Inflation Expectations

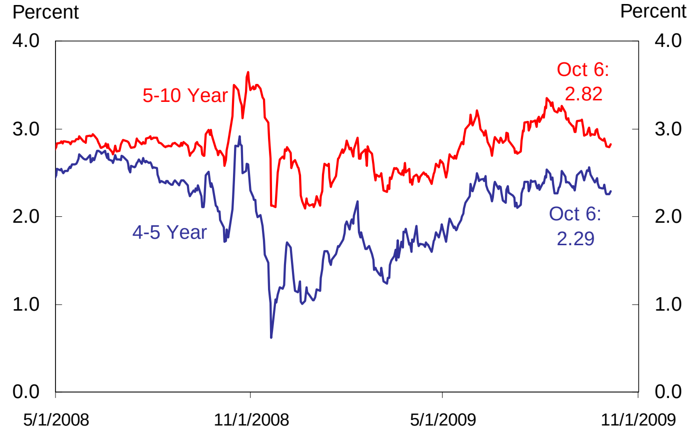
Figure 75: TIPS Implied Inflation: 0-5, 2-3 Year Horizons



Source: Federal Reserve Board

Note: Carry-adjusted

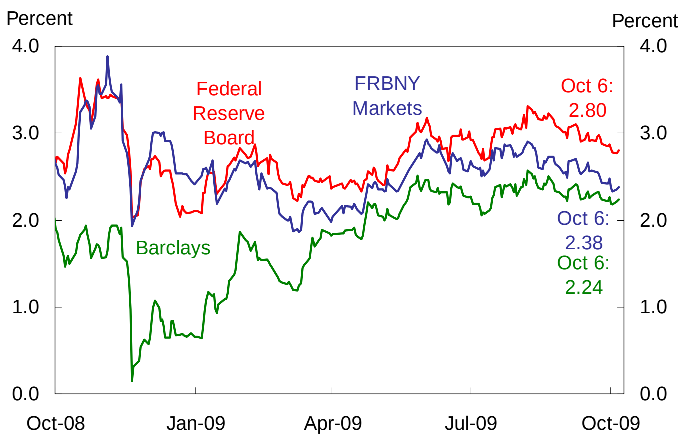
Figure 76: TIPS Implied Inflation: 4-5, 5-10 Year Horizons



Source: Federal Reserve Board

Note: Carry-adjusted

Figure 77: Alternative Measures of 5-10 Year Implied Inflation Compensation

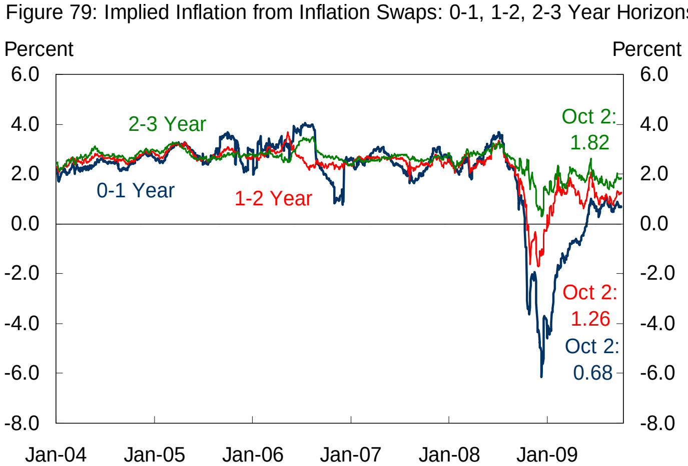


Source: Federal Reserve Board, Barclays, and FRBNY

Figure 78: Implied Inflation from Inflation Swaps: 0-5 Year Horizon

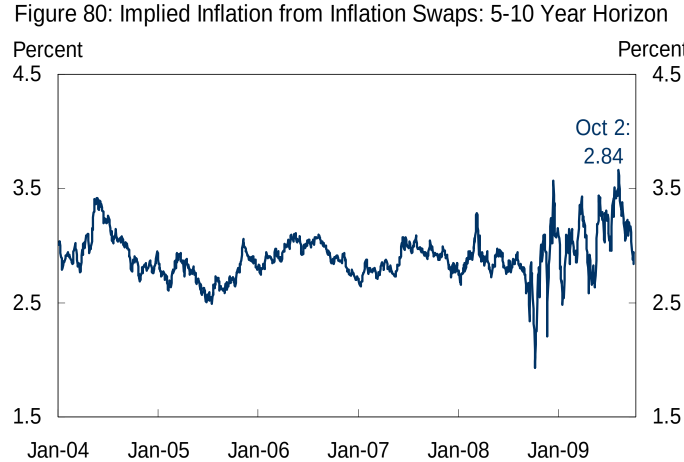
Source: Barclays

Figure 79: Implied Inflation from Inflation Swaps: 0-1, 1-2, 2-3 Year Horizons



Source: Barclays

Figure 80: Implied Inflation from Inflation Swaps: 5-10 Year Horizon

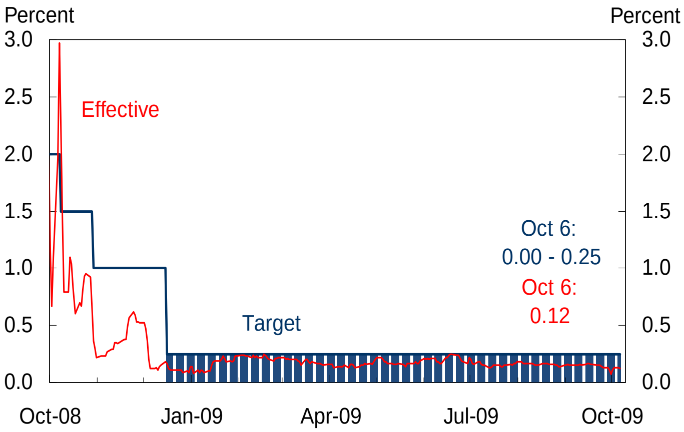


Source: Barclays

Note: Shading represents NBER recessions, unless otherwise noted.

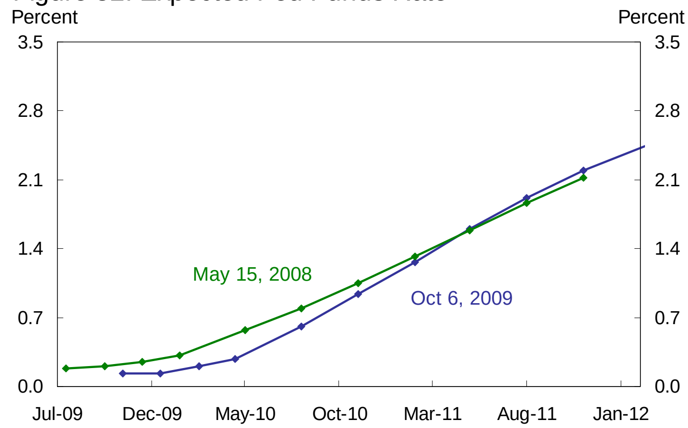
Policy Rates and Expectations

Figure 81: Effective Fed Funds Rate and Target



Source: Bloomberg

Figure 82: Expected Fed Funds Rate

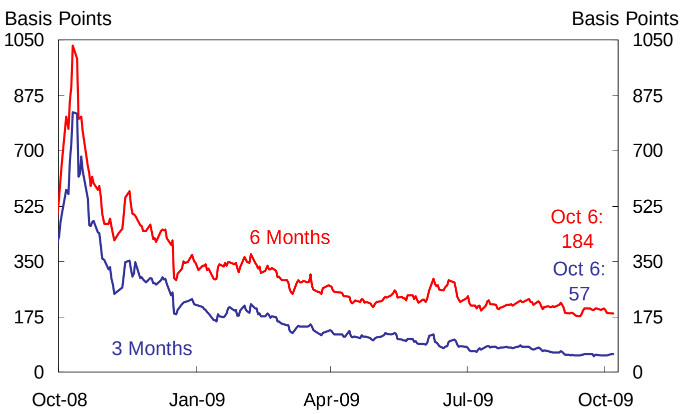


Source: Federal Reserve

Note: Estimated using fed funds and Eurodollar futures.

Figure 83: Short-Term Interest Rate Volatility

Width of 90% Confidence Interval Implied by Eurodollar Options



Source: Datastream, FRBNY calculations

Figure 84: Long-Term Interest Rate Volatility

Width of 90% Confidence Interval Implied by Swaptions

Source: Datastream, FRBNY calculations

Figure 85: Implied Skewness and Volatility

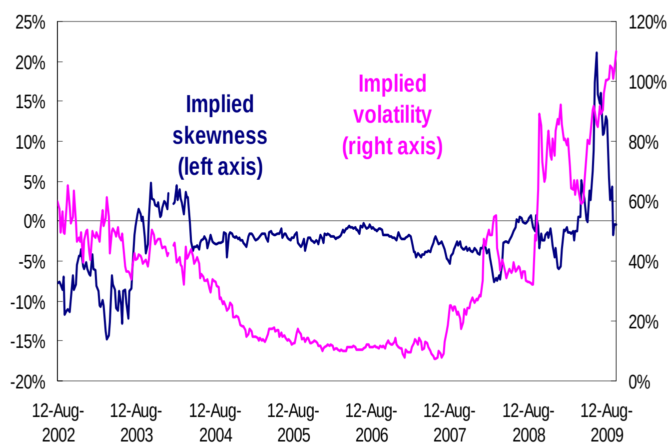
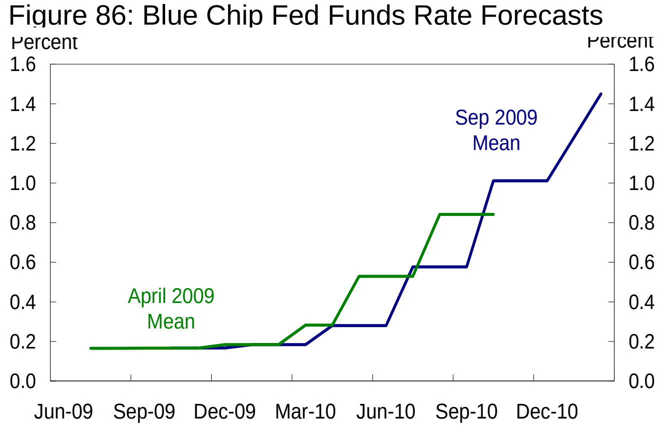


Figure 86: Blue Chip Fed Funds Rate Forecasts



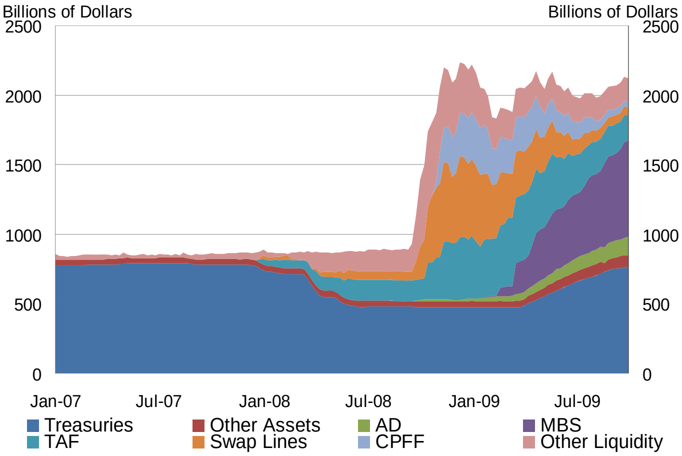
Source: Blue Chip Financial Forecasts

Note: The Apr. and Sept. surveys were conducted on Apr. 22-23 and Sept. 23-24, respectively.

Note: Shading represents NBER recessions, unless otherwise noted.

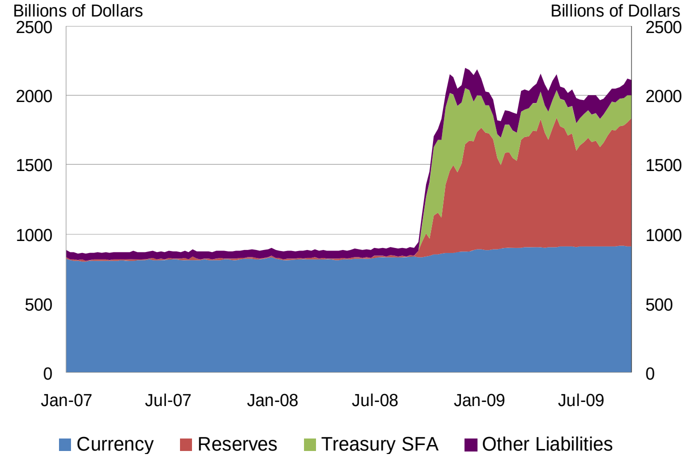
Federal Reserve Balance Sheet and Asset Purchases

Figure 87: Federal Reserve Balance Sheet: Assets



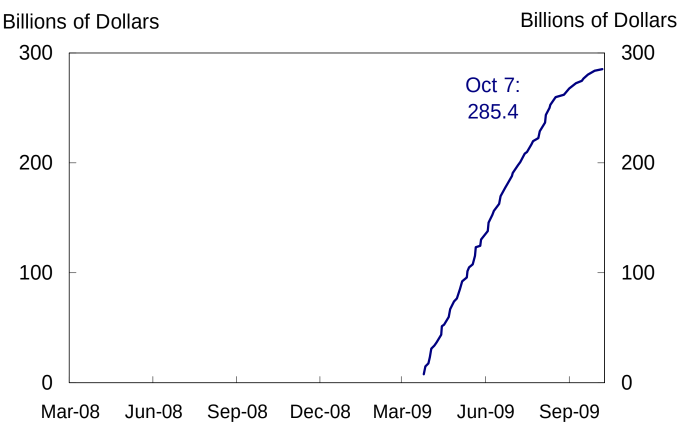
Source: Federal Reserve Board

Figure 88: Federal Reserve Balance Sheet: Liabilities



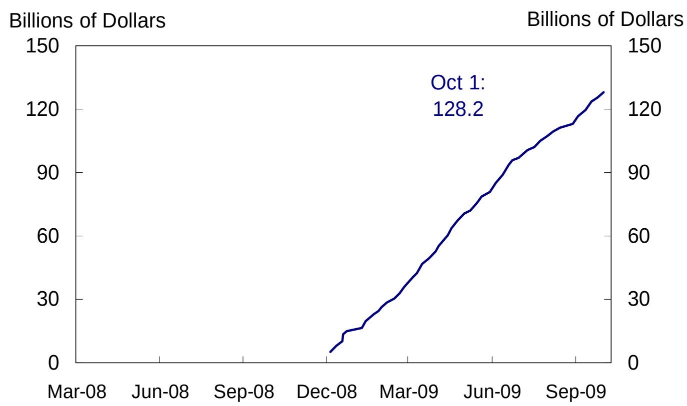
Source: Federal Reserve Board

Figure 89: Treasury Outright Purchases



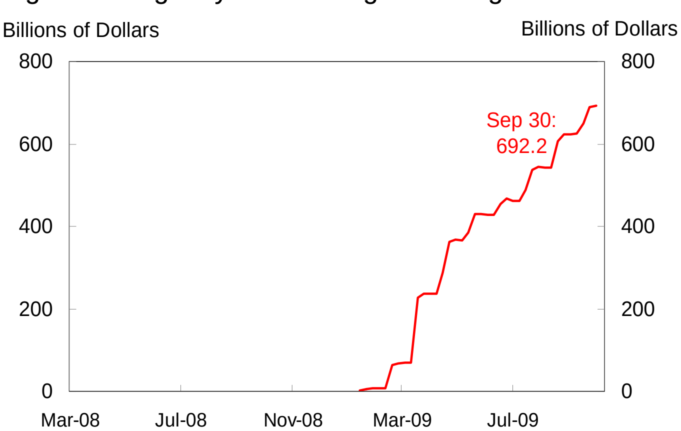
Source: Federal Reserve

Figure 90: Agency Debt Outright Purchases



Source: Federal Reserve

Figure 91: Agency MBS Outright Holdings

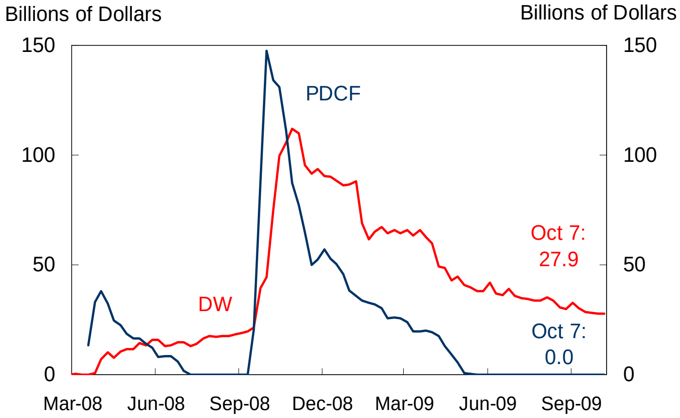


Source: Federal Reserve Board, Haver

Note: Shading represents NBER recessions, unless otherwise noted.

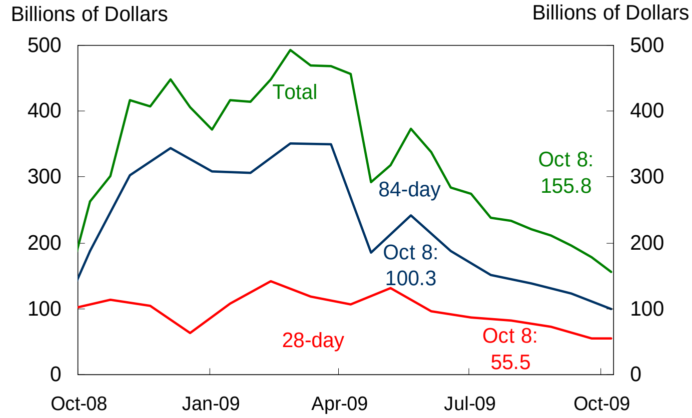
Liquidity Facilities

Figure 92: Discount Window and PDCF Borrowing



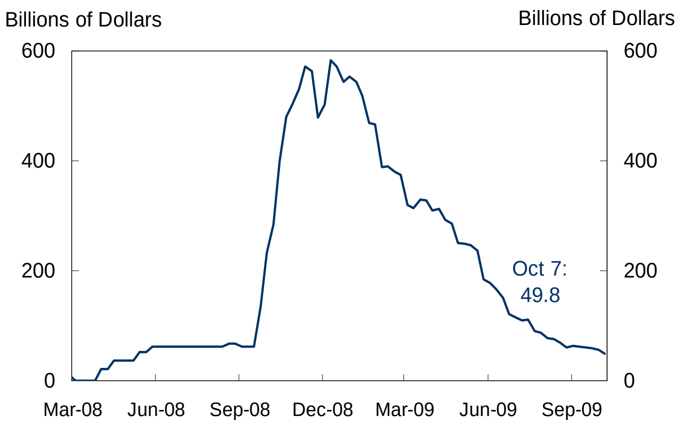
Source: Federal Reserve Board

Figure 93: TAF Outstanding



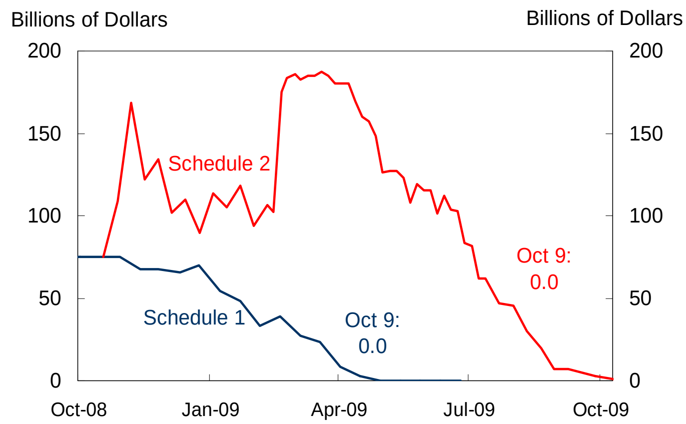
Source: Federal Reserve Board

Figure 94: Central Bank Liquidity Swaps Holdings



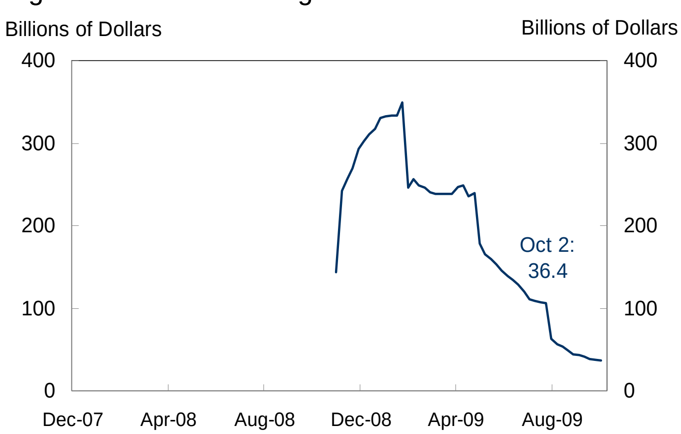
Source: Federal Reserve Board

Figure 95: TSLF Outstanding



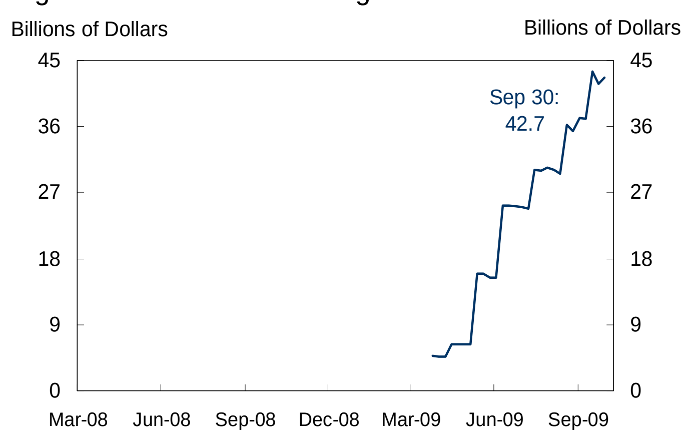
Source: Federal Reserve Bank of New York

Figure 96: CPFF Holdings



Source: Federal Reserve Board

Figure 97: TALF Outstanding

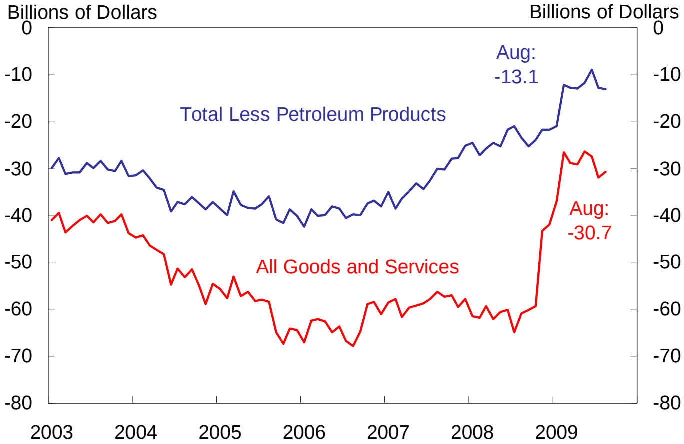


Source: Federal Reserve Board

Note: Shading represents NBER recessions, unless otherwise noted.

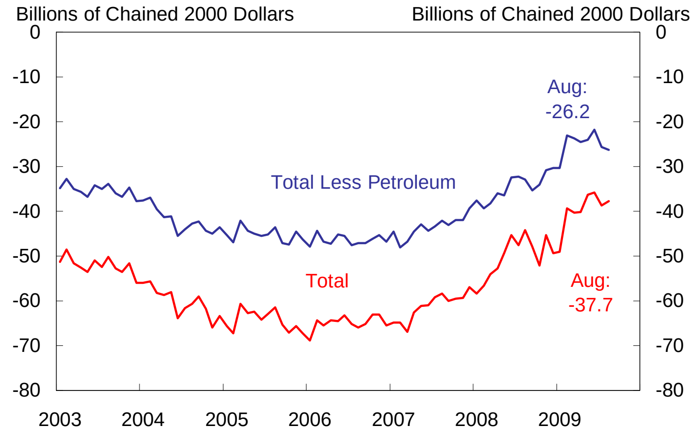
U.S. Trade in Goods and Services

Figure 98: Total Balance in Goods and Services



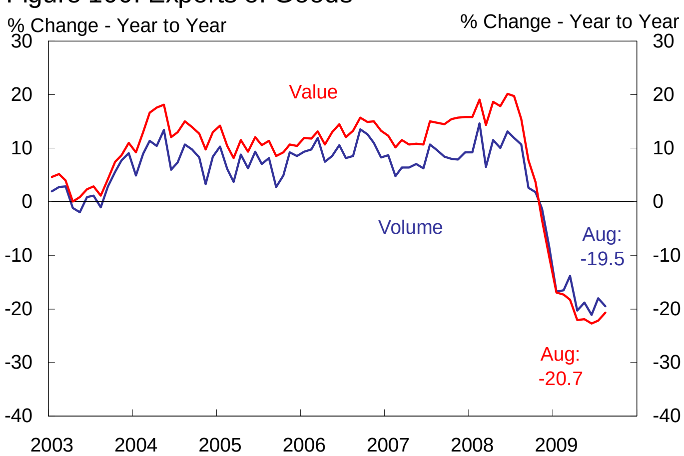
Source: Census Bureau

Figure 99: Real Total Balance of Goods



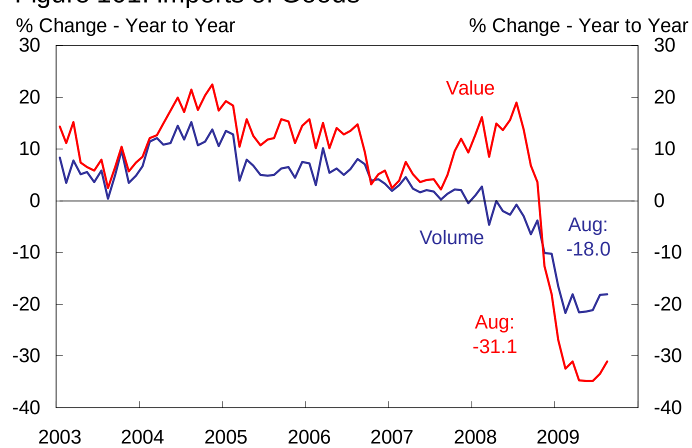
Source: Census Bureau

Figure 100: Exports of Goods



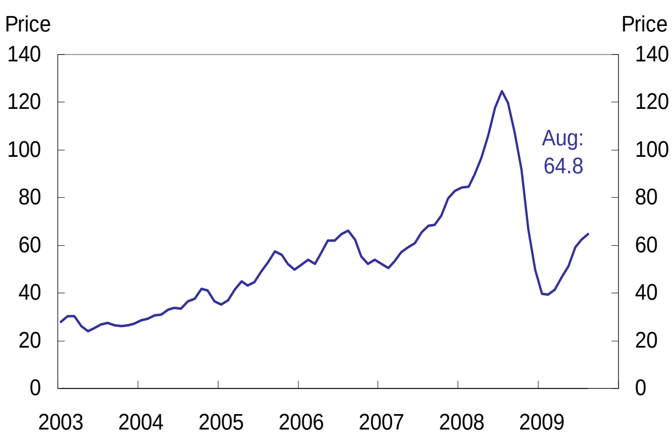
Source: Census Bureau

Figure 101: Imports of Goods



Source: Census Bureau

Figure 102: Crude Oil Price Per Barrel

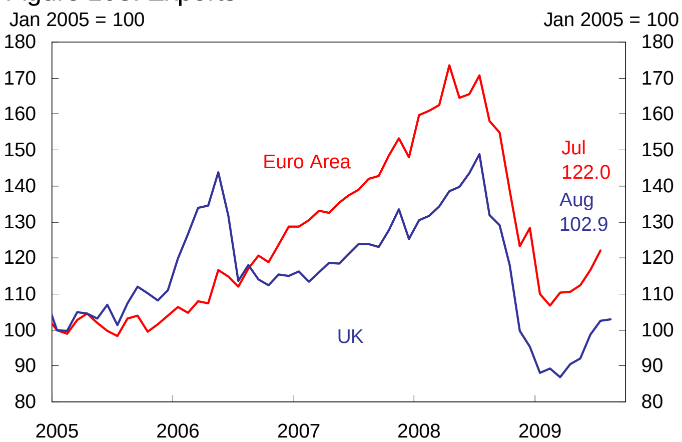


Source: Census Bureau

Note: Shading represents NBER recessions, unless otherwise noted.

Exports and Industrial Production

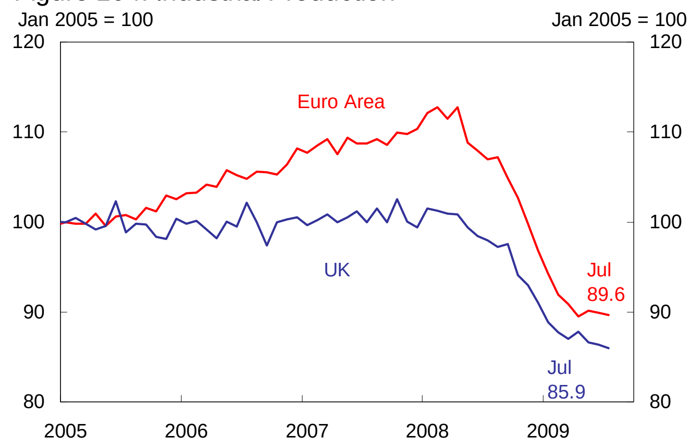
Figure 103: Exports



Source: Haver

Note: In Dollar Terms

Figure 104: Industrial Production



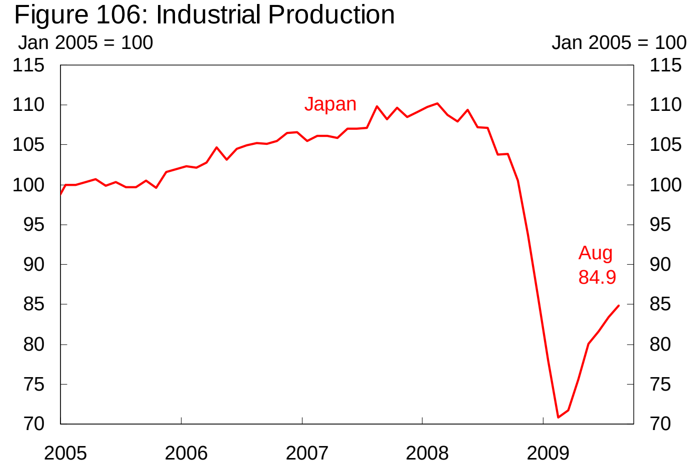
Source: Haver

Figure 105: Exports

Source: Haver

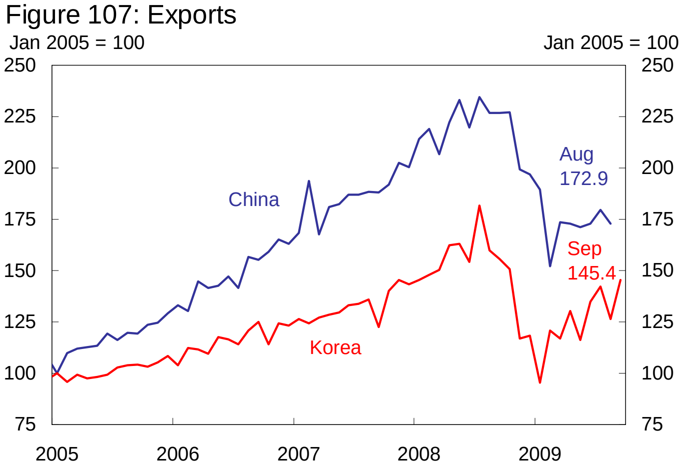
Note: In Dollar Terms

Figure 106: Industrial Production



Source: Haver

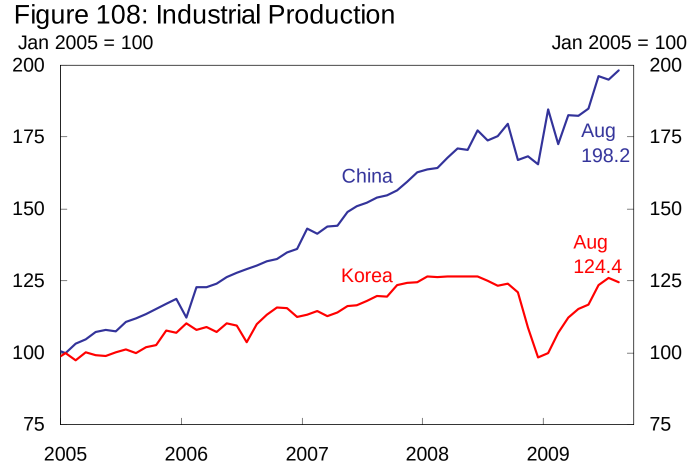
Figure 107: Exports



Source: Haver

Note: In Dollar Terms

Figure 108: Industrial Production

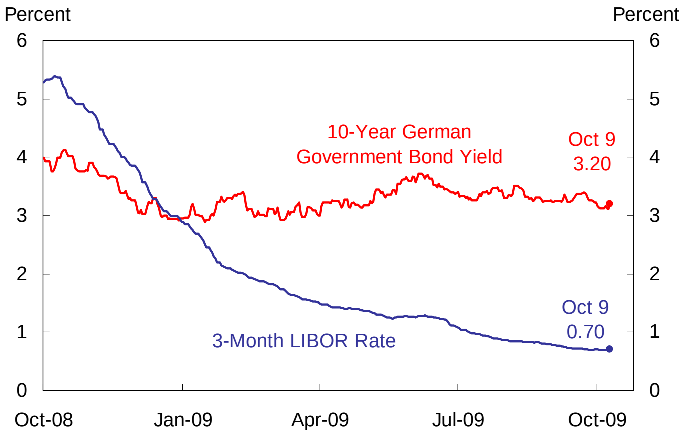


Source: Haver, CEIC

Note: Shading represents NBER recessions, unless otherwise noted.

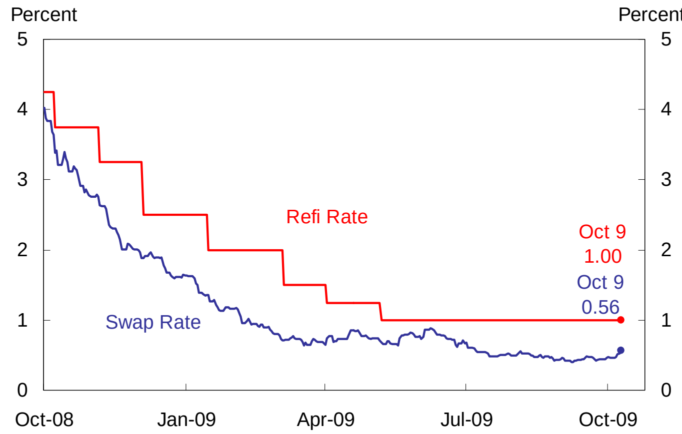
International Financial Markets Overview

Figure 109: Euro Area Interest Rates



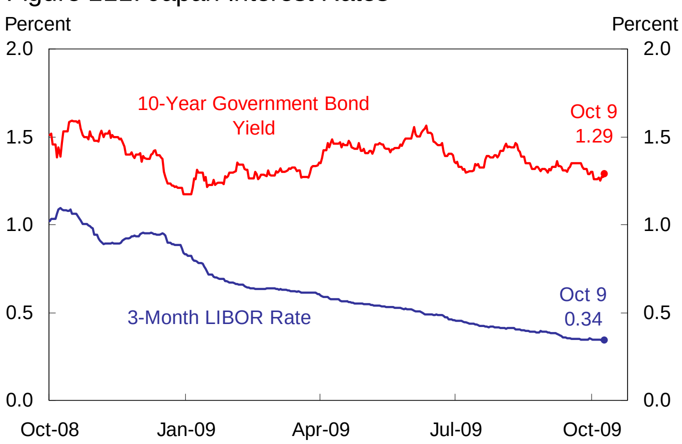
Source: Bloomberg

Figure 110: Euro Area OIS Rate (Six Months)



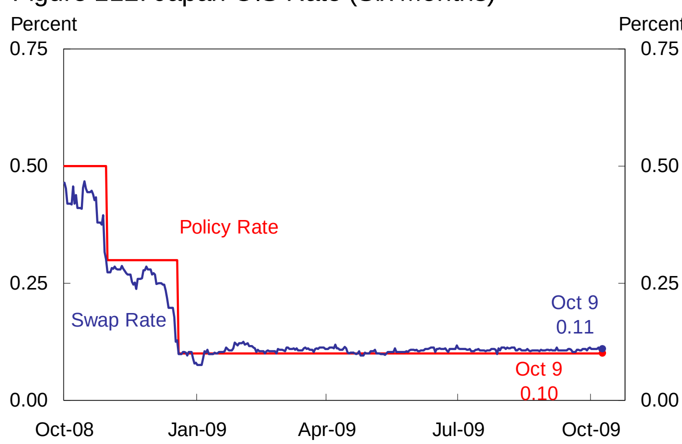
Source: Bloomberg

Figure 111: Japan Interest Rates



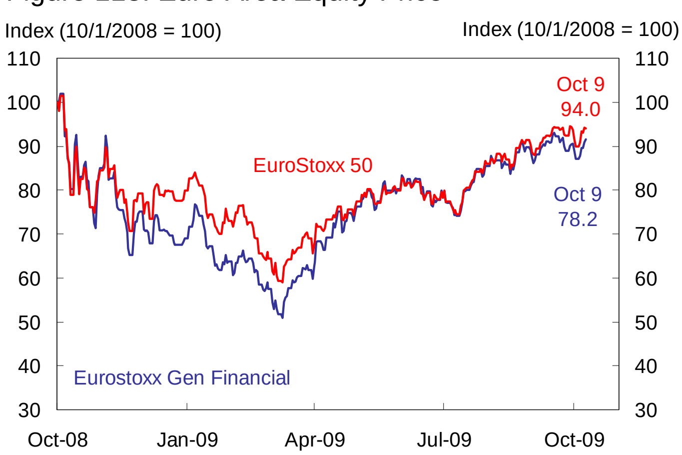
Source: Bloomberg

Figure 112: Japan OIS Rate (Six Months)



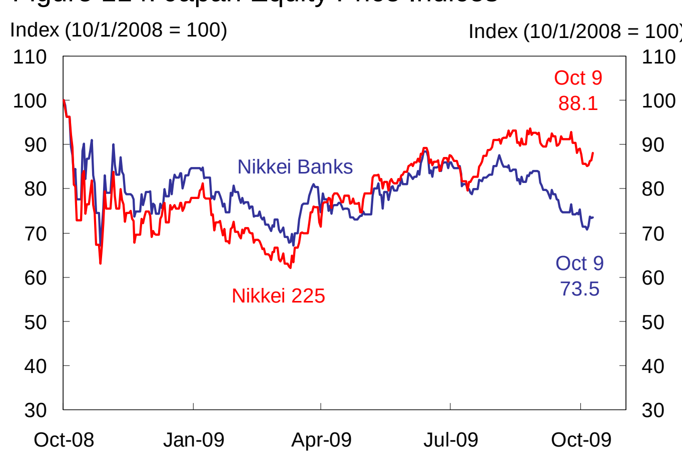
Source: Bloomberg

Figure 113: Euro Area Equity Price



Source: Bloomberg

Figure 114: Japan Equity Price Indices

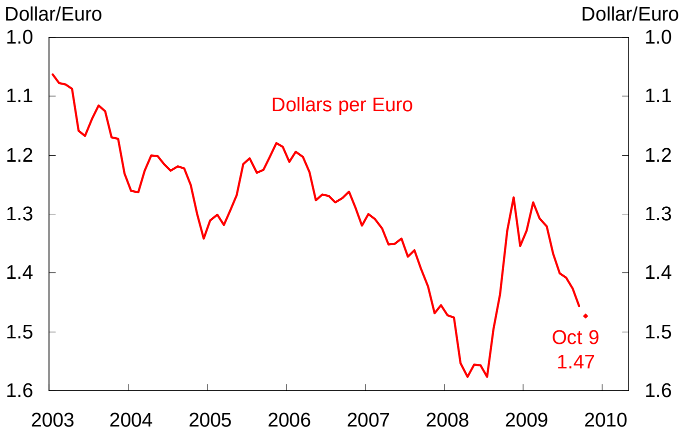


Source: Bloomberg

Note: Shading represents NBER recessions, unless otherwise noted.

Exchange Rates

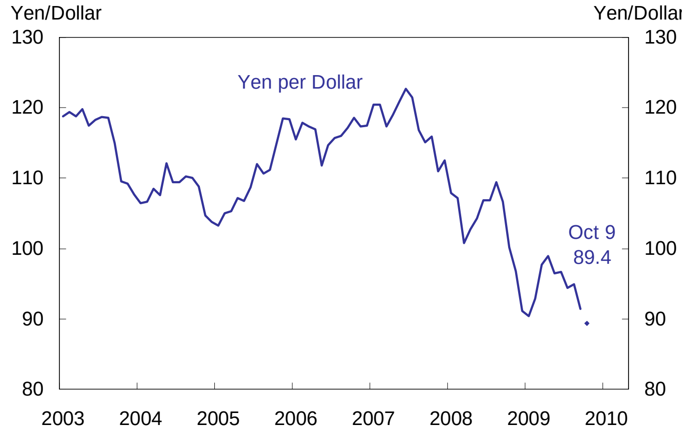
Figure 115: Dollar-Euro Exchange Rate



Source: Bloomberg

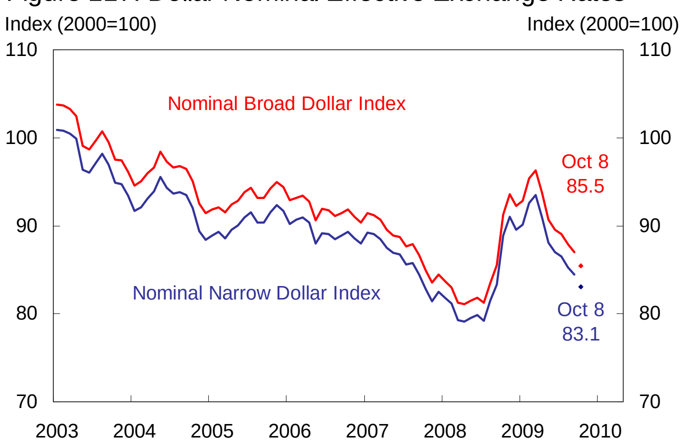
Note: Exchange rate scale is inverted.

Figure 116: Yen-Dollar Exchange Rate



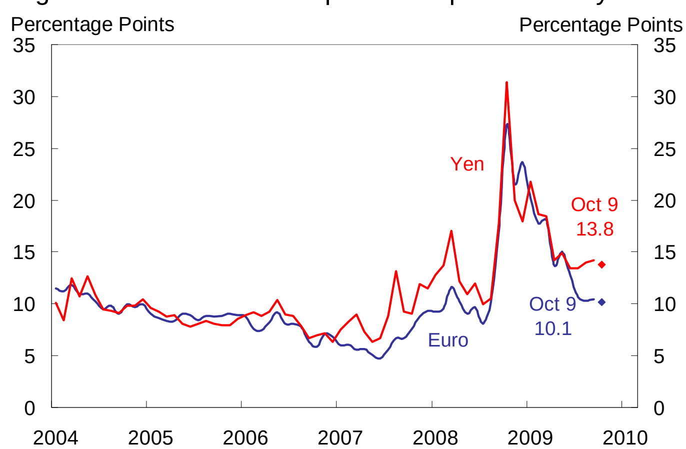
Source: Bloomberg

Figure 117: Dollar Nominal Effective Exchange Rates



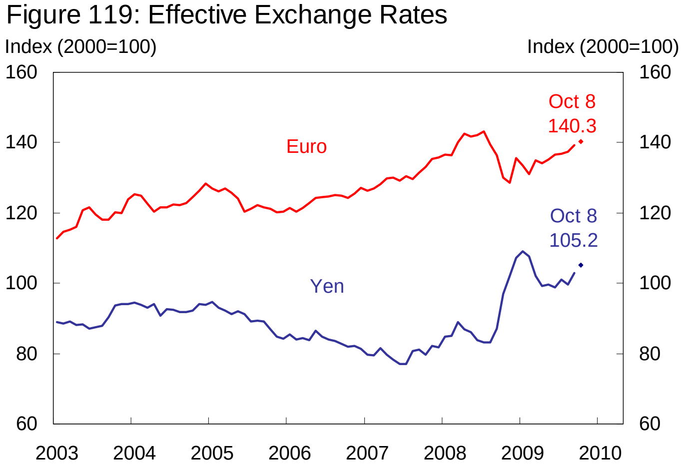
Source: Bloomberg and JPMorgan

Figure 118: One-Month Implied FX Option Volatility



Source: Bloomberg

Figure 119: Effective Exchange Rates



Source: Bloomberg and JPMorgan

Figure 120: China Exchange Rates

Source: Bloomberg

Note: Shading represents NBER recessions, unless otherwise noted.