

FRBNY BLACKBOOK

RESEARCH AND STATISTICS GROUP

FOMC Background Material

March 2011

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1. Policy Recommendation and Rationale

The outlook and risks for U.S. growth and inflation have changed in the intermeeting period. Risks, which had been skewed to the downside over the past year, now appear to be roughly balanced. The recent surge in oil prices has led to an upward adjustment in our forecast for headline inflation as well as a modest downward revision to the forecast for output growth. In addition, the oil price increase presents a significant risk to the outlook for both real activity and inflation. However, recent economic data and further improvement in financial conditions (despite the headwinds induced by the political events in the Middle East and North Africa), raise the probability that a more typical recovery dynamic may be coming into play with the associated upside risks for both output and inflation. Nonetheless, these risks do not warrant a change in our policy recommendation at this time. Therefore we continue to recommend maintaining the target for the federal funds rate in the 0-0.25% range through 2012Q2, one quarter after the lift-off date associated with the current market-implied path. We also support maintaining the existing policy of reinvesting principal payments from securities holdings and reaffirming the intention of the FOMC to purchase \$600 billion of long-term Treasury securities by the end of 2011Q2.

One rationale for our recommendation is that the economic recovery is still fragile and the FOMC is not yet close to accomplishing either objective of its dual mandate. The gap in resource utilization continues to be wide and core inflation and most other measures of underlying inflation remain below the implicit FOMC target. Recent improvements in economic conditions suggest that, at long last, the gaps are starting to close with respect to each objective. While these improvements cannot be attributed solely to monetary policy, expectations that it will remain accommodative probably have been a major contributor. A premature removal of policy accommodation may therefore jeopardize the recovery.

Although commodity prices have risen rapidly in recent months, we believe that the rise should not prompt a reduction in the current degree of accommodation, for two reasons. First, the increase in commodity prices may be temporary, and so could revert in the near

term, as occurred following the oil price spike in 2008. Second, there is little evidence to date that commodity price inflation is passing through to core prices, or is affecting longer-term inflation expectations. In 1937, during the recovery following the crisis most similar to the recent episode – the Great Depression – policymakers responded to commodity price pressures by removing accommodation. With hindsight, that policy choice was labeled the “mistake of 1937,” as it choked off the nascent recovery. The U.S. economy does not need a similar “mistake of 2011.”

In contrast to our policy recommendation, the ECB has signaled its intention to raise rates at its next meeting. Conditions in the euro area may justify this more aggressive policy stance. Euro-area inflation has exhibited a steady upward trend over the past year while the comparable measure for the United States has remained flat. Likewise, measures of resource utilization suggest the United States remains further from potential than is the euro area.

The key challenge for the FOMC at this meeting, therefore, is to communicate its strategy for responding to commodity price inflation, both at present and going forward. It should stress that allowing the headline inflation rate to rest temporarily above its implicit target is completely consistent with a commitment to price stability in the presence of long-term inflation expectations that remain well-anchored and unit labor cost growth that continues to be soft or negative. In doing so, it is also important for the committee to state that it will not accommodate second-round effects of commodity price inflation that allow core inflation to settle above its mandate-consistent level.

2. Evolution of Outlook and Risks

2.1 Central Forecast

Data released over the intermeeting period have been mixed. Real personal consumption expenditures (PCE) fell 0.1% in January, likely held back by unseasonably cold weather in December and January and the fact that energy prices rose at a 28% annual rate over the seven months ending in January. Private nonresidential construction spending fell sharply in January, as did shipments of nondefense capital

goods. Finally, the trade deficit was larger than expected in January. Due to this weakness, we have reduced our projection for growth of real GDP for 2011Q1 to 3 ¼%, down from 5% in the January Blackbook.

However, available data for the month of February have been generally consistent with our view that the recovery of the U.S. economy is gaining strength. For example, the four-week moving average of initial claims for unemployment insurance fell below 400,000 in the last week of February for the first time since late July of 2008. Light-weight motor vehicles sold at a 13.44 million unit annual rate in February, up from 12.62 million units in January. The ISM manufacturing composite index edged up 0.6 points to 61.4, its highest level since the spring of 2004. The ISM non-manufacturing composite index edged up 0.3 points to 59.7—its highest level since mid-2005.

The employment report for February was particularly encouraging, although that is likely due at least in part to the rebound from the depressed January data. Private nonfarm payroll employment rose by 222,000 which, except for April 2010, is the largest gain since March of 2006. In addition, hours worked by all private employees rose at a 2.6% annual rate in February. Even with modest wage increases, this suggests a healthy pace of nominal wage and salary income growth. Perhaps most impressive, the one-month diffusion index for all industries rose to 68.2, the highest it has been since May of 1998. Based on the household survey, employment on a payroll survey conceptual basis rose by 342,000 in February. And the unemployment rate fell another 0.1 percentage point to 8.9 percent. This brings the 3 month decline of the unemployment rate to 0.9 percentage points, the largest three month decline since September of 1983. (It should be noted that over the three months ending in September of 1983 the labor force grew at a 1.5% annual rate while over the three months ending in February of 2011 the labor force fell at a 1.8% annual rate.)

Headline inflation has moved up more than we expected in January due to a further steep increase of crude oil prices. The total PCE deflator rose at a 2.6% annual rate over the three months ending in January versus a 12-month change of 1.2%. For all of

2011Q1 we now expect the PCE deflator to rise at a 3% annual rate. Even if oil prices stabilize near current levels, as futures quotes suggest, higher energy prices will continue to boost the PCE deflator inflation through mid year. Core inflation appears to have bottomed, with the three-month change of the core PCE deflator at a 1.0% annual rate in January versus a 12-month change of 0.8%. Short-dated inflation expectations have also moved higher while medium-and long-term expectations remain stable.

Conditioning assumptions.

We continue to assume that potential GDP growth is around 2 ½%. This is composed of 1% trend hours growth and trend productivity growth of around 1 ½% (on a GDP basis, which is equivalent to about 1 ¾% on a nonfarm business sector basis). The Board staff has introduced some significant changes in their estimate of potential and, therefore, of the output gap. The Tealbook estimate of potential for 2010 has been reduced to 2.1% from 2.5% in January while the estimate of potential for 2011 has been reduced by 0.1 percentage point to 2.4%. The estimate for 2012 is unchanged at 2.6%. The rather large reduction in the estimate of potential for 2010 reflects the recent downward revisions of hours worked and the larger-than-expected decline of the labor force participation rate, both of which suggest that the trend rate of growth of hours worked is less than previously thought.

We expect the lower degree of inflation persistence evident since the early 1990s to continue. This assumption is in contrast to the greater degree of inflation persistence assumed in recent Board staff forecasts. In our central scenario, inflation expectations remain well anchored. This assumption is central to our projection of a gradual rise of core inflation back toward the midpoint of the FOMC's objective for core PCE inflation of 1.5% to 2.0%.

The FRBNY outlook for foreign real GDP growth in 2011 has been increased modestly to 3.3% (Q4/Q4 on a GDP-weighted basis) from 3.1% in January, reflecting modest upgrading of growth prospects in both the developed and emerging economies. Projected foreign real GDP growth for 2012 is unchanged at 3.2%. The Board staff projection for

foreign real GDP growth in 2011 is unchanged at 2.9% and for 2010 is modestly lower at 3.3% versus 3.4% in January.

The projected path of oil prices over the forecast horizon has been raised once again. Based on recent futures quotes, we expect an average price of WTI of \$106.50 per barrel for 2011Q4, \$12 per barrel higher than in January and roughly \$20 per barrel higher than in the December Blackbook. The Board assumes \$108 per barrel for 2011Q4, \$13 per barrel higher than in December. Further out, the oil futures curve has a slight downward slope, with both forecasts assuming a price of \$104 for 2012Q4. (Note that while the Brent price quote had been significantly higher than the WTI quote of late, these projections assume that those quotes will converge to their long run relationship over the forecast horizon.)

As is our usual practice, our assumptions regarding federal fiscal policy are the same as that of the Tealbook. As was the case in January, the Tealbook forecast incorporates the fiscal agreement enacted late last year. In addition to the extension of all of the 2001-2003 tax cuts for two years, that agreement includes a two percentage point reduction in the employees share of the OASDI payroll tax and a provision that allows businesses to expense all qualified investment in 2011, followed by 50 percent bonus depreciation on investment put in place in 2012. According to the Joint Committee on Taxation, the two year revenue loss associated with these two provisions is \$112 billion and \$110 billion, respectively. Given the recent passage of HR 1 in the House of Representatives, with the March Tealbook the Board staff has introduced reductions in discretionary budget authority of \$15 billion in FY2011 and \$30 billion in FY2012 relative to that of FY2010. These amounts are viewed as being half way between the President's budget proposal and that of the House. The Board's fiscal impulse measure now suggests that fiscal policy will be neutral in 2011 rather than adding a modest 0.1 percentage point to growth. However, in 2012 fiscal policy is anticipated to subtract 1.1 percentage points from GDP growth (up from 1.0 percentage points in January) as the payroll tax reduction in investment expensing provisions expire, the emergency unemployment benefits are phased out, the grants to state and local governments included in the 2009 stimulus bill

are exhausted, and these reductions in budget authority begin to be reflected in outlays.

The assumed path of equity prices in the Tealbook, which we also adopt, is somewhat higher in the near term due to the fact that those prices have risen more over the intermeeting period than previously expected. Thus, from a higher base than assumed in January, equity prices increase at a 10% annual rate through the end of 2012 with the endpoint value only modestly higher. The main driver of this increase in equity prices is the return of the equity premium to more normal levels.

Also reflecting intermeeting developments, the Board's assumed path of the nominal exchange value of the dollar is lower with a decline of 3.5% in 2011 versus a decline of 2.1% in the January Tealbook. The assumed decline in 2012 is unchanged at 2.3%. Our assumed path of the nominal exchange rate is essentially the same.

Finally, following some firming over the first half of 2010, all widely-followed national home price indices have come under renewed downward pressure. The Core Logic repeat sales home price index (formerly known as the Loan Performance Home Price Index) declined at a 13.5% annual rate in 2010Q4 (based on the seasonally-adjusted index) and fell even more sharply in January. Nonetheless, in the March Tealbook the Board staff has raised somewhat the projected path of home prices over the forecast horizon. The broad picture is unchanged, however, with prices declining 3 ½% in 2011 and then stabilizing in 2012.

The Outlook.

As has been the case for several FOMC cycles, we believe that fiscal and monetary stimulus in combination with the fact that the economy's natural healing process is far along have created conditions for a stepping up of growth to a rate that is above potential. Numerous developments support this position. Financial conditions have improved substantially over the last six months, including a substantial rise in equity values and narrowing of credit spreads. While still tight, lending conditions have begun to ease. Along with this, we are now seeing steady increases in nonmortgage consumer debt as

well as C&I loans on bank balance sheets. Based on historical relationships, the current level of the personal saving rate appears to be about where it should be given current levels of household net worth. Continued favorable growth prospects among our major trading partners along with a lower exchange value of the dollar are expected to produce sustained robust export growth. Improving foreign and domestic demand is likely to induce stronger growth of business investment. While quite low at the moment, housing market activity is likely to begin to recover in the months ahead as the labor market improves and housing affordability remains high.

That being said, developments over the intermeeting period have led us to temper somewhat projected growth in both 2011 and 2012. First, as noted above, crude oil prices have continued to rise over the intermeeting period and the path of oil prices over the forecast horizon is now roughly \$20 per barrel higher than was assumed in December. It is not known for certain how much of this additional increase is related to firming global demand versus real and feared disruptions to supply. Some estimates put the amount due to supply side factors at around \$10 per barrel, but these estimates are very rough. This higher path of oil prices is expected to reduce real final demand and boost headline inflation in 2011. We now expect growth of real GDP of 3.8% (Q4/Q4) in 2011, down from 4.0% in January, with the PCE deflator rising 2 1/4%, up from 1 3/4% in January. But with inflation expectations well anchored and substantial slack remaining, we have held our projection for the rate of increase of the core PCE deflator essentially unchanged at 1.1%. The projected level of the unemployment rate in 2011Q4 is 8.3%, down from 8.6% in January, due to a lower near term path for both the labor force participation rate and the average work week.

For 2012 oil prices are expected to be somewhat lower than in 2011, which provides a modest boost to growth and pushes down the rate of increase of the PCE deflator. (But the level of real GDP at the end of the forecast horizon is somewhat lower than would be the case without the higher oil prices.) Also introduced into this forecast is somewhat greater federal fiscal drag in 2012 due to the assumed reductions of discretionary budget authority discussed above. On net, growth of real GDP in 2012 is projected to be 4%,

essentially unchanged from January. Both the total and core PCE deflators are expected to increase 1.5%, with the unemployment rate declining to 7 ¼%. Again, despite a somewhat lower level of real GDP, the unemployment rate in 2012Q4 is modestly below that projected in January due to a lower path of the labor force participation rate.

2.2 Alternative Scenarios and Risks

The risk assessment worsened somewhat over the intermeeting period in terms of inflation, while it remained the same in terms of real activity. The upside risk to inflation has increased, reflecting the possibility of additional increases in oil prices given turmoil in the MENA region. Such a scenario also presents risks for activity. However, these risks are counterbalanced by a reduction of other downside risks. Specifically, the positive releases over the intermeeting period led to a decreased likelihood of scenarios with a negative effect on growth, such as the *Global Deflation* or the *Fiscal Consolidation*. As a consequence, the overall amount of downside risk to real activity is roughly unchanged from January.

The two scenarios whose likelihood has increased over the intermeeting period are the *Loss of Credibility* and the *Faster Growth* scenarios [Exhibit C-1]. The former captures the upside risk to inflation due to a rapid increase in commodity prices and, in particular, the possibility that inflation expectations may become unmoored following a prolonged divergence between headline and core inflation rates. This scenario has negative consequences for output, capturing the supply shocks implied by higher oil prices. The *Faster Growth* scenario captures the upside risks that the pace of the recovery will be stronger than assumed in the *Central* scenario. This scenario also presents upside risks to inflation, as it implies that demand is stronger than what is assumed in our modal forecasts. The likelihood of both the *Loss of Credibility* and the *Faster Growth* scenarios is in the neighborhood of 10% (specifically, 10% and 14%, respectively). The two most likely scenarios are the *Productivity Boom* and the *Fiscal Consolidation* scenarios, with an associated likelihood in the neighborhood of 30%. The likelihood of both scenarios has decreased modestly, mainly to make room for the increases in the probability of the *Loss of Credibility* and the *Faster Growth* scenarios. Still, both scenarios remain quite

prominent. The paths for core PCE inflation and GDP growth associated with the previously existing scenarios have changed only as a result of changes in the *Central* scenario, as all alternative scenarios are defined relative to our modal forecast [Exhibit C-2].

The changes in our risk assessment result in an upward shift in the 95th percentile of the forecast distribution for core PCE inflation, consistent with an increase in upside inflation risks [Exhibit C-3]. Downside risks to inflation have diminished, especially in the short run, as indicated by the upward move in the 5th percentile of the forecast distribution. Downside risks to real activity have also diminished in the very short run but, on the whole, forecast uncertainty for real activity has not changed much over the intermeeting period. The “Low Inflation/Deflation Probability and Distribution” chart shows that the likelihood of negative inflation over the 2010-2012 period has decreased further over the intermeeting period. The likelihood of a robust recovery, such as the one seen after the 1981-2 recession, has decreased somewhat since January, as shown in the “Scale of Recovery Through End of 2011” chart.

Exhibit C-3 also shows, for comparison, the mean forecasts from the FRBNY DSGE model. The forecasts for inflation are slightly more subdued than in the *Central Scenario*. The forecasts for output are close to the *Central Scenario* in the short run, but the DSGE model does not foresee growth significantly above trend at any time over the forecast horizon.

3. Forecast Comparison

3.1 Comparison with Private Forecasters¹

The FRBNY forecasts for GDP growth lie in the middle of the range of private forecasts for 2011Q1 and at the bottom of this range for 2011Q2. Over longer horizons, 2011 (Q4/Q4) and 2012 (Q4/Q4), the FRBNY forecasts are higher than most private forecasts.

¹ The details of the forecast comparison are in Exhibit B-8. Release dates of the private forecasts discussed in this section are in parentheses: Blue Chip consensus (3/10), SPF (2/11), and Macro Advisers (3/10). Quarterly numbers are SAAR.

FRBNY core inflation projections for 2011Q1 and Q2, 2011 (Q4/Q4), and 2012 (Q4/Q4) are generally close to private forecasts, with the exception of 2012 (Q4/Q4) where it exceeds Macro Advisers' forecasts by about 0.5 percentage point.

Real GDP Growth

Since the last FOMC meeting, private forecasts for 2011Q1 and Q2 have generally been revised up, with the exception of Macro Advisers. The FRBNY forecast for 2011Q1 is now 3.3%, down from 3.6% in the January Blackbook, consistent with Blue Chip (3.4%) and above Macro Advisers (2.8%). Compared to the previous Blackbook, the FRBNY forecast for 2011 (Q4/Q4) is down slightly (by 0.3%) at 3.8% and at the upper end of the range of Macro Advisers (3.7%), Blue Chip (3.2%), and the Median SPF (3.4%). Our forecast for 2012 (Q4/Q4), at 4.0%, is above Macro Advisers (3.4%) and Blue Chip (3.2%).

Inflation

The FRBNY projection for core PCE in 2011Q1, revised up from 0.8% in the January Blackbook to 1.1%, is almost identical to Macro Advisers and the Median SPF. As in the previous Blackbook, our 2011 (Q4/Q4) and 2012 (Q4/Q4) forecasts for core PCE inflation (1.1% and 1.5%, respectively) lie between Median SPF (1.3% and 1.6%, respectively) and Macro Advisers (1.0% and 1.1%, respectively). Our forecast for headline inflation for 2011 (Q4/Q4) is 2.6%, up from 1.6% in the previous Blackbook, and at the upper tail of private forecasts. For 2012 (Q4/Q4), our forecast is slightly up from the previous Blackbook at 2.1%, and is 0.8 percentage point above that of Macro Advisers (1.3%). The FRBNY projection for core CPI in 2011 (Q4/Q4) is 1.5%, up from 1.2% in the January Blackbook, and close to Macro Advisers (1.4%) and the Median SPF (1.3%). For 2012 (Q4/Q4), our forecast is 1.8% which lies at the upper range of the forecasts of Macro Advisers (1.4%) and the Median SPF (1.7%).

4. Robustness of Policy Recommendation

4.1 Sensitivity to Alternative Scenarios and Policy Rules

Our current policy recommendation is to maintain the target range for the federal funds

rate at 0–0.25% through 2012Q2 – as in the January Blackbook. Our recommendation is consistent with the *Baseline* policy rule under the *Central*, *Global Deflation*, *Fiscal Consolidation*, and *Productivity Boom* scenarios [Exhibit D-1]. Under the *Loss of Credibility* scenario, the *Baseline* policy rule suggests anticipating the lift-off to 2011Q3. Under the new *Faster Recovery* scenario the lift-off would occur in 2011Q4.

Exhibit D-2 shows the prescription of various policy rules under the expected value of the forecast distribution. With the expected path for output and inflation, the *Baseline* policy rule prescribes a lift-off in 2012Q1, in line with current market expectations. The *Nutter* rule, which entails a strong response to inflation and no response to the output gap, prescribes a first rate hike in 2011Q3. Conversely, under the *Asymmetric Price Targeting* rule the FFR would remain close to zero until the end of the forecast horizon. Exhibit D-2 also shows the implied nominal FFR ignoring the zero bound for the *Outcome-based* rule. Under the expected value of the forecast distribution, the unconstrained nominal FFR reaches -3% by 2012Q3 and becomes positive again only in 2013Q4.

Exhibit D-3 shows the prescriptions from alternative policy rules under the various scenarios. The *Nutter* rule prescribes a lift-off in the next quarter under the *Loss of Credibility* scenario and an increase by 2012Q1 for all other scenarios. FFR paths under the *Asymmetric Price Targeting* rule are at the lower bound (.25%) throughout the forecast horizon while those for the *Outcome-based* rule are below zero through mid-2012 under all scenarios except for the new *Faster Recovery* scenario, under which the renormalization would occur in 2011.

Exhibit D-1 shows the real FFR rates implied by the *Baseline* rule under the various scenarios, ignoring the zero bound constraint. Under the *Central* scenario this rule implies a slow renormalization of the real rate, increasing from about -4% in the current quarter to zero by 2013. Exhibit D-3 shows the real rate (under alternative scenarios) for *Asymmetric Price Targeting*, the *Nutter*, and the *Outcome-based* rules. We also use the DSGE model to assess the current stance of monetary policy by performing a counterfactual exercise that eliminates current and past policy shocks. We find that the

DSGE model predicts a counterfactual FFR for the current quarter roughly in line with the policy rate.

4.2 Comparison to Market Expectations

The start of the renormalization process implied by FFR futures is 2012Q1, as in January. The implied renormalization process is slightly less gradual than in January, however, with rates above 1% by 2012Q4 and reaching 2% by the end of 2013. Primary dealers' expectation for the path of the fed funds target rate was little changed, with the median dealer expectation for the timing of the first tightening remaining at Q2 2012. On average, respondents assign less probability than in January to the lift-off occurring in 2012Q4 or later (from about 40% to 30%). The average probability of the lift-off occurring before the end of 2011 is still quite small, below 15%. Almost all respondents expect the total cumulative size of the asset purchase program to be between \$600 and \$900 billion, with less than 10% expecting a larger size of between \$900 and \$1200 billion. The median expectation for the size of the year-end SOMA portfolio is \$2.7 trillion for 2011, \$2.25 trillion in 2012, and \$1.75 trillion in 2013.

5. Significant Developments

5.1 Economic Developments

Real Activity. GDP: Output grew 2.8% (saar) in 2010Q4, a downward revision from the first estimate of 3.2%. The drag from inventory investment was unchanged at 3.7 percentage points. Growth of final sales was revised modestly lower, to 6.7%, from the advance estimate of 7.1%, but was still a remarkable figure. Personal consumption expenditures were up 4.1%. The personal saving rate was unchanged at 5.4% with modest downward revisions to both disposable personal income and consumer spending.

Production: The pace of expansion in manufacturing appeared to be fairly well maintained at the beginning of the year. Industrial production decreased 0.1% in January, but manufacturing production rose 0.3% and manufacturing capacity utilization rose to 73.7%, its highest rate since August 2008. Nevertheless, utilization rates remained below

long-run averages, indicating sizable slack in resource utilization, even as capacity growth remains subdued.

Productivity: Output per hour rose at a 2.6% annual rate in 2010Q4, slightly above the pace of increase in the previous quarter (2.3%). Unit labor costs fell -0.6% (annual rate) in 2010Q4; its four-quarter change was -0.1%.

Construction: The value of construction put in place fell 0.7% in January after a decrease of 1.6% in December. A sharp drop in private nonresidential construction more than offset a sizable increase in private residential construction. Mitigating the January decline were moderate upward revisions to the November and December data. These data indicate that the construction sector remains weak and that recovery in the sector will probably be very gradual.

Orders and Shipments: New orders for manufactured goods increased 3.1% in January after rising 1.4% (an upward revision) in December. Excluding transportation, orders increased 0.7% in January after rising 3.0% (a sizable upward revision) in December. Manufacturers' inventories increased 1.3%. The inventories-shipments ratio fell to 1.25. Shipments of nondefense capital goods excluding aircraft fell 1.9% and orders for these goods declined 6.2%. Despite a sharp rise in the headline orders number, the data in today's release were generally softer than suggested by recent ISM and production data.

ISM: The ISM's February manufacturing survey points to further strengthening in that sector, as the headline composite index hit a 6½-year high and the employment index reached its best level since 1973. The ISM non-manufacturing headline index was up marginally in February, reaching a 5½-year high and slightly exceeding expectations. The business activity and employment indexes both rose to multi-year highs.

PCE: Nominal personal consumption expenditures rose 0.2% in January, below the consensus expectation of a 0.4% increase. The personal saving rate rose to 5.8% in January from 5.4% in December. Real PCE fell 0.1% in January, reflecting declines in

real spending on both nondurable goods and services. Total retail sales rose 0.3% in January, while retail sales excluding motor vehicles also increased 0.3%.

Inventories: Total business inventories rose 0.8% in December while the November increase was revised up to 0.4% from the initial estimate of 0.2%. The total business inventory-sales ratio was unchanged in December at 1.25. Nominal inventories in the wholesale sector rose 1.1% in January. The inventory-sales ratio in the wholesale sector fell to a low of 1.13 in January from 1.15 in December.

Home sales/starts: Existing home sales (single-family and condos/coops) increased 2.7% in January to 5.36 million units (saar). Single-family sales rose 2.4% to 4.69 million units. Existing home sales in January approached levels that prevailed prior to the sales surge in the mid-2000s, and the inventories-sales ratio of existing homes has fallen fairly significantly. The overall inventory of existing homes listed for sale was 3.38 million units at the end of January, representing a 7.6 month supply. The inventory of single-family homes was 2.94 million units, equivalent to a 7.5 month supply. Both of these inventories-sales ratios are well below the double-digit levels seen last fall, although they remain elevated compared to more typical levels (between 5 and 6 months). Sales of new single-family homes plunged in January, falling 12.6% to a low level of 284,000 units (annual rate).

Total housing starts rose by 14.6% in January to 596,000 units (saar), well above the consensus expectation of 539,000 units. Revisions to the levels of housing starts in December and November were relatively modest. The increase in housing starts was due entirely to a 77.7% increase in multifamily starts. Housing permits fell 10.4% in January to 562,000 (saar), quite close to the consensus expectation of 559,000. This decline was led by a 23.8% drop in multifamily permits, following a 45.7% increase in December. Single-family permits fell 4.8% in January after having increased over the preceding three months.

Labor: In February, nonfarm payrolls increased by 192,000 as private payroll employment increased by 222,000 and government payrolls declined by 30,000. The report was in line with expectations. Average weekly hours remained unchanged in February at 34.2 hours. With the rise in payrolls, aggregate hours worked by all private employees went up 0.2% in February. Both average hourly and weekly earnings were unchanged. The 12-month change in average hourly earnings was 1.7%, which is still near its low for this cycle. The unemployment rate decreased from 9.0% to 8.9%. The labor force participation rate and the employment-to-population ratio were both unchanged at 64.2% and 58.4%, respectively. The February labor market report was in line with a slow, cautious but steady hiring pattern. Private payroll increases were widespread across industries. Given that total payroll employment currently stands at 130,515,000—well below its December 2007 peak of 137,996,000—a much more aggressive hiring pattern is needed to close the employment gap and to absorb the new entrants into the labor market. The employment-to-population ratio remains at a depressed level of 58.4%, almost 5 percentage points below its most recent peak of 63.3% set in March 2007.

Prices and Income. *CPI:* The CPI increased 0.4% in January. Energy prices were up 2.1% while food prices rose 0.5%. The 12-month change in the headline index was 1.6%, fairly in line with the December reading (1.5%). The core CPI rose 0.2%, up from the 0.1% increases in the previous two months. The 12-month change reached 1.0%, continuing its upward trend since the record low of October (+0.6%).

PCE deflator: The PCE price index rose 0.3% in January and its 12-month change was 1.2%. Both numbers were the same as in December. The core PCE price index rose 0.1% in January. Its 12-month change was 0.8%. While headline PCE inflation continues its recent increase, pushed by energy and food prices, the increase in core prices is still modest and driven only by goods prices. Service prices remain flat.

Personal income: Nominal personal income increased 1.0% in January, well above the consensus expectation of a 0.4% increase. Nominal disposable personal income rose by

0.7% in January, up from 0.4% in December. In real terms, disposable personal income increased 0.4% in January as the total PCE deflator rose by 0.3%, led by higher energy prices.

Home Prices: Including distressed sales, the seasonally-adjusted CoreLogic national home price index fell 1.2% in December, its seventh consecutive monthly decline. Over the year, the index was down 5.5%. Excluding distressed sales, the CoreLogic national home price index rose 0.3% in December—the first increase in seven months. The index was down 2.3% over its year-ago level.

On a seasonally-adjusted basis, the Case-Shiller 20-city composite index fell 0.4% in December, somewhat less than the consensus expectation of a 0.5% decline. On a year-over-year basis this index was down 2.4%. The seasonally adjusted FHFA purchase-only national home price index declined 0.3% in December, in line with the other major home price indices. The 12-month change in December was -3.3%. The November change was revised down from 0.0% to -0.3%.

Trade. The trade deficit widened from a revised \$40.3 billion in December to \$46.3 billion in January. Both export volumes and import volumes increased over the previous month. Export volumes rose 2.5 percent in January in line with their trend growth rate and were up 12.8 percent over the year. Nonoil import volumes were 4.2 percent higher than the previous month, providing some payback for the decline in the previous quarter and resulting in a 16.8 percent increase over the year. Oil volumes were up 3.7 percent this month following a huge decline in the previous quarter, continuing their volatile pattern. These data suggest the net export contribution to GDP growth will add 0.5 percentage points in 2011 Q1.

Foreign Data Releases. Global export, production and confidence data have been mostly encouraging but the jump in oil prices increases the downside risk to the foreign outlook.

Euro area: GDP growth slowed to 1.1 percent (saar) in Q4. Exports and private consumption were the main drivers of growth while investment spending fell. Euro area business and consumer confidence measures continued to rise in February with the economic sentiment index exceeding its long-run average by 8 percent. CPI inflation breached the ECB's 2.0 percent limit for the third consecutive month. CPI inflation was 2.4 percent over the year in February, up from 2.3 percent in January. The increase was due to energy prices, with core inflation at 1.1 percent in January almost unchanged from 1.0 percent in December. Oil prices at current levels will keep inflation above 2.0 percent throughout 2011.

U.K.: GDP fell 2.3 percent (saar) in Q4 with consumption, investment spending and net exports were all drags on growth. The slowdown was likely influenced by poor weather. PMI surveys are consistent with moderate growth in Q1. CPI inflation was 4.0 percent in January, up from 3.7 percent in December. Core inflation saw a smaller rise to 3.0 percent. Inflation will remain well above target throughout the year, driven by a sales tax hike, higher energy prices, and pass-through from past currency depreciation.

Japan: GDP dropped 1.1 percent (saar) in Q4 with declines in consumption, exports, and government spending. Investment spending, though, continued to be fairly robust. Production was up significantly in December and January and a survey of producers' forecasts suggests that manufacturing improved again in February. The PMI confidence measure rose in February but has not fully recovered from the steep drop in Q3 2010, when various government consumption incentives ended. The consumer price index was unchanged over the year in January while the index of core prices was down 0.6 percent.

EM Asia: China manufacturing PMIs showed activity moderating as expected over January-February, though still to strong levels. Export prospects remain favorable, given expectations of relatively firm recoveries in the United States and in the rest of EM Asia. Inflation pressures remain significant due to higher commodity prices, with CPI inflation picking up to 4.9 percent in January from 4.6 percent in December. Moreover, there is some evidence that price pressures have begun to broaden beyond commodities. Activity

indicators for EM Asia excluding China remain strong following generally robust Q4 GDP data. The evidence of stronger private consumption and exports has been especially notable for the ASEAN economies.

Latin America: Brazil's GDP grew 3.0 percent (saar) in Q4 2010, a modest pick-up from 1.6 percent in Q3. Data on retail and auto sales point to softening demand and suggest that the central bank's tightening measures are beginning to take hold. Inflation remains a concern. Consumer prices rose 6.0 percent over the year in February and a pick-up in wholesale agriculture inflation underscores pipeline pressures. Mexican GDP expanded by 5.0 percent in Q4, a modest acceleration from Q3. Export-oriented manufacturing activity is showing signs of picking up again after a slowdown in H2 2010. Inflation eased to 3.8 percent over the year in January and is expected to come in just below the official 4.0 percent target ceiling this year.

5.2 Financial Markets

Domestic Financial Markets. In the period from the January FOMC meeting and until mid February, Treasury yields and the expected path of policy rates shifted upward while equity markets trended higher following strong corporate earnings and a string of economic data releases confirming investors' views of an ongoing recovery. Since mid February, however, rising oil prices related to the geopolitical developments in the MENA region have led equity markets to give back much of the initial gains and policy expectations have returned to the levels of late January. Treasury yields remain up slightly from the last FOMC meeting and market-based measures of expected inflation over the next five years have increased, while expected inflation 5 to 10 years out are essentially unchanged.

Nominal Interest Rates: Ten-year treasury yields rose to their highest levels since April 2010, reaching 3.75% on February 8, before retreating towards the end of February. As of March 9, the ten-year yield of 3.47% was up 5 bps since the last FOMC meeting. The yield on the 2-year note reached 86 bps on February 8, its highest level since May 2010,

but has since partially retraced and is currently up a modest 6 bps over the intermeeting period, closing at 0.69% on March 9. (Exhibit A-3: Treasury Yields)

Expected Policy Rate Path: The expected path of the fed funds rate inferred from futures markets shifted up significantly between the last FOMC meeting and mid February but has since retraced much of the initial upward move (Exhibit A-5: Policy Expectations). Market prices are currently consistent with a target federal funds rate of 0.0-0.25% through the end of 2011. Professional forecasters have revised up their expected policy paths over the medium term to levels closer to those implied by market prices. The median expectation from the Blue Chip Financial Forecasts Survey for the first quarter of 2012 was 0.47% in March, up slightly from 0.45% in February. (Exhibit A-5: Policy Expectations)

Inflation Compensation: Market-based measures of expected inflation over the next five years increased since the last FOMC meeting, whereas expected inflation 5 to 10 years out stayed largely unchanged. The 0-5 year inflation compensation rose 24 basis points to 2.30% on March 9, and is now near the average of the 2-2.75% range observed in the years before the crisis. Meanwhile, 5-10 year inflation compensation was essentially unchanged over the intermeeting period, at 2.98% on March 9. The 5-10 year measure is within the range observed in recent years, suggesting that inflation expectations remain well-anchored. (Exhibit A-4: Real Yields and Implied Inflation)

Equity Markets: Equity markets rose modestly over the intermeeting period with the S&P 500 up about 1.8%. The S&P 500 has now risen roughly 25% from its summer 2010 lows and is at its highest level since September 2008. Implied equity volatility as measured by the VIX rose abruptly in mid February and is now at about 20%, up sharply from its level at the beginning of the intermeeting period and close to the levels prevailing in the Fall of 2010. (Exhibit A-6: Equity)

Credit Spreads: Credit spreads declined moderately over the intermeeting period. Spreads on A-rated corporates, for example, narrowed 12 basis points to 133 basis points.

Spreads on financials also narrowed moderately, with A-rated and BBB-rated spreads coming in 6 and 26 basis points, to 181 basis points and 301 basis points, respectively. (Exhibit A-7: Credit)

Money Markets: Most measures of money market stress were little changed over the intermeeting period. The FX basis implied by euro/dollar swap spreads, which may be indicative of stresses on overseas borrowers of U.S. dollars, has ticked down in recent weeks after peaking in late December. (Exhibit A-9: Money Markets)

Foreign Financial Markets. Euro Area: Euro area peripheral sovereign debt has diverged between the larger and smaller sovereign countries over the intermeeting period. Spanish and Italian 2-year sovereign yields are around 20 basis points lower, while Greek, Irish, and Portuguese 2-year yields are higher by 250, 160, and 40 basis points, respectively. Some contacts attribute Spain's outperformance to the expectation that euro area officials will increase the lending capacity of the EFSF during their March 11 and 24/25 summits to €440 billion, enough to cover a possible Spanish request for aid. In contrast, many market participants believe the smaller peripherals have underperformed due to rising doubts about policymakers' intent to lower aid funding costs and to broaden the mandate of the EFSF. Most market participants believe Portugal will officially request aid funding in the near term. The ECB purchased just over €1 billion in sovereign debt over the intermeeting period, bringing total purchases to €77.5 billion. The euro appreciated 1.5 percent against the U.S. dollar over the intermeeting period due to heightened expectations of an ECB rate hike in the near term. Euro area equity indices decreased marginally in part due to concern about the impact of political instability in MENA and higher oil prices.

Japan: Although short-term rates remain anchored as expectations regarding the Bank of Japan's accommodative monetary policy stance have not changed, longer-term yields have been somewhat volatile following S&P's decision to downgrade Japan's long-term sovereign credit rating to AA- from AA on January 27. S&P cited concerns about Japan's high government debt ratios, persistent deflation, and the belief that the

government lacks a coherent strategy to address the country's fiscal problems. However, long-term Japanese government bond (JGB) yields are little changed since the January FOMC meeting as Japan's strong external balance sheet, high national saving rate, and solid domestic funding base (95 percent of JGBs are domestically owned) moderate concerns about the country's fiscal problems. Over the intermeeting period, the Japanese yen was unchanged against the U.S. dollar, trading slightly below the pre-intervention level of ¥83 per dollar.

Emerging Asia: The Chinese yuan appreciated 0.4 percent against the dollar over the intermeeting period, with 12-month appreciation implied by NDFs remaining unchanged at just over 2 percent. Equity performance was uneven, with Chinese H-shares up 4 percent. EM Asian 5-year local yields declined a bit over the period, partially retracing the large rise in mid-January.

Latin America: Latin American currencies appreciated by 1 percent against the dollar. The Chilean peso gained 3 percent, partially retracing the currency's depreciation in the wake of the central bank's reserve purchase program announcement in early January. Latin American equity markets declined by 1 percent on average, while 5-year local yields rose 30 basis points.

5.3 Global Economic Policy

Euro Area: The ECB kept the policy rate at 1.0 percent at its March meeting but signaled that a rate hike is likely in April. President Trichet described the current stance of monetary policy as "very accommodative" and said that "upside risks to price stability" warranted "strong vigilance" – an ECB code phrase that has historically signaled an imminent rate hike. Trichet, though, indicated that while a rate hike in April was "possible but not certain," one should "certainly not" interpret this as the beginning of a tightening cycle. The median analyst expectation is for a 25 basis point rate increase in April, followed by two further increases this year. In addition, the Bank announced that its refinancing operations will continue to be conducted with full allotment at least until mid-July 2011. The policy of only modest purchases of peripheral government securities

continues with the ECB making no purchases in the first week of March and buying € 368 million in the week ending February 28. The cumulative amount of peripheral debt purchased now totals €77.5 billion.

Japan: The Bank of Japan left its overnight call rate unchanged at “around 0.0 to 0.1 percent” at its February monetary policy meeting. Additionally, the Bank raised its assessment of the economy, as was widely expected. Specifically, the Bank noted that “Japan’s economy is gradually emerging from the current deceleration phase.” The previous statements described the economy as showing “sign[s] of a moderate recovery, but the recovery seems to be pausing.” This represents the first upward revision since the May 2010 meeting.

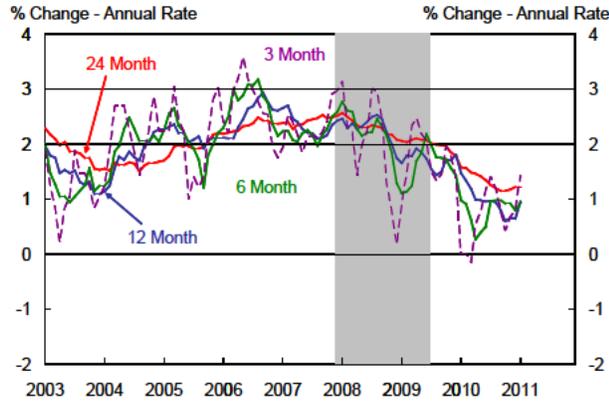
EM Asia: The pace of monetary tightening in EM Asia has increased, reflecting concerns over the inflation outlook. Authorities in China hiked policy rates by 25 basis points for the third time since September and also raised bank reserve requirements by 50 basis points following four similar hikes beginning last November. India, Korea, and Thailand continued ongoing tightening campaigns over the intermeeting period while Indonesia made its first move. While reserve accumulation in EM Asia outside China picked up in February from subdued January levels, it remained below recent historical norms.

Latin America: The median expectation is that Mexico’s central bank will hold rates steady until January 2012, although a growing number of analysts are projecting a Q4 rate hike. In Brazil, the central bank raised its policy rate by 50 basis points in early March to 11.75 percent, following a 50 basis points hike in January. The recent rate hikes follow a six month pause in the wake of 200 basis points of tightening in the middle of last year. Analysts are currently anticipating an additional 75 basis points through 2011. Speculation has increased that authorities will introduce measures aimed at containing currency appreciation pressures.

A. Significant Developments

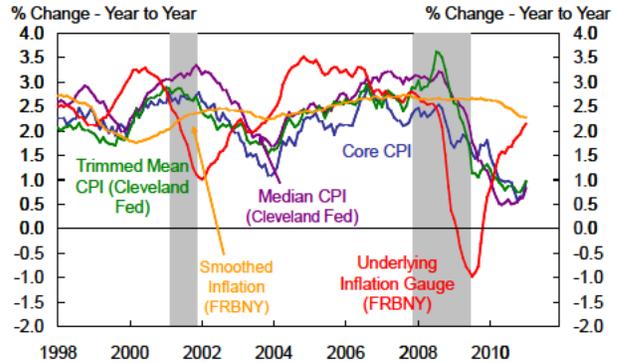
Exhibit A-1: Measures of Trend Inflation

Core CPI Inflation over Various Horizons



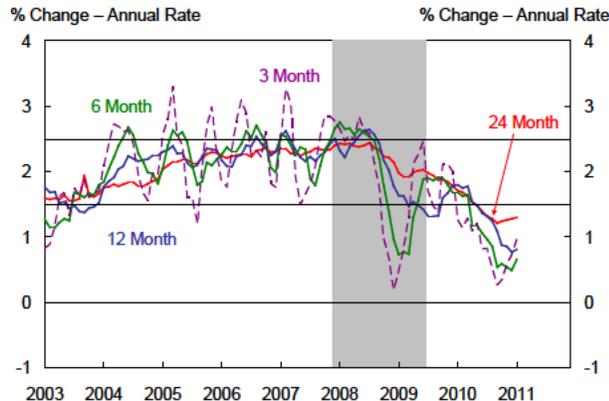
Source: Bureau of Labor Statistics

Alternative Measures of CPI Inflation



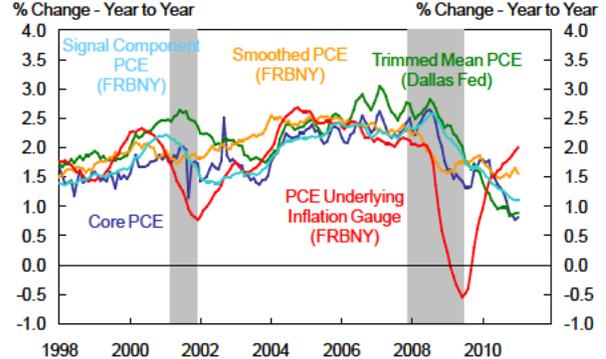
Source: Bureau of Labor Statistics, Cleveland Fed, MMS Function (FRBNY), and Swiss National Bank

Core PCE over Various Horizons



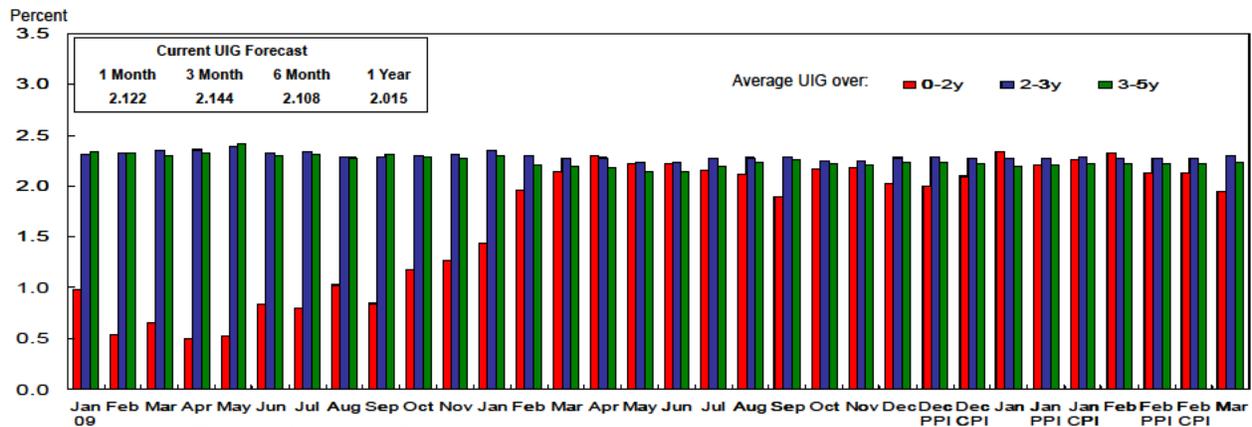
Source: Bureau of Economic Analysis

Alternative Measures of PCE Inflation



Source: Bureau of Economic Analysis, Cleveland Fed, MMS Function (FRBNY), and Swiss National Bank

Exhibit A-2: Underlying Inflation Gauge (UIG)

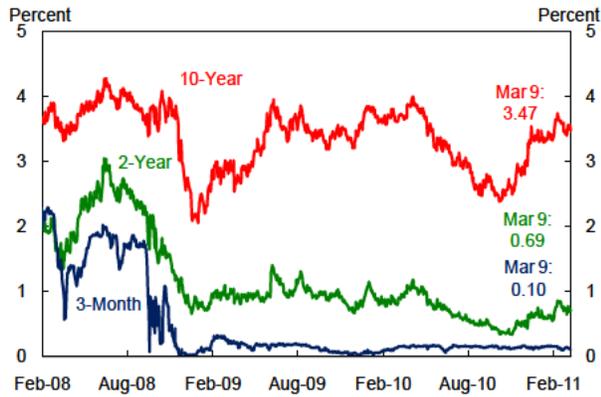


Source: MMS Function (FRBNY) and Swiss National Bank

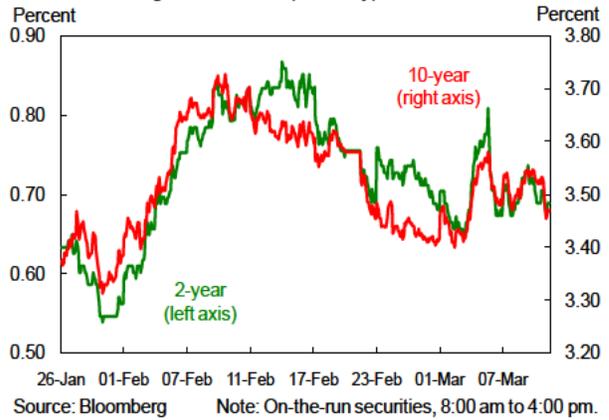
A. Significant Developments

Exhibit A-3:
Treasury Yields

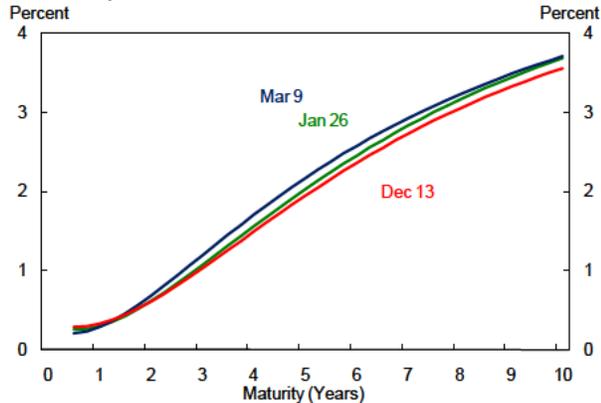
Short- and Long-Term Rates



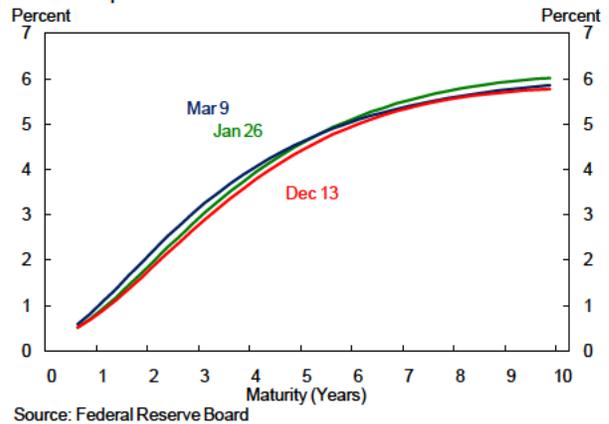
Short- and Long-Term Rates (Intraday)



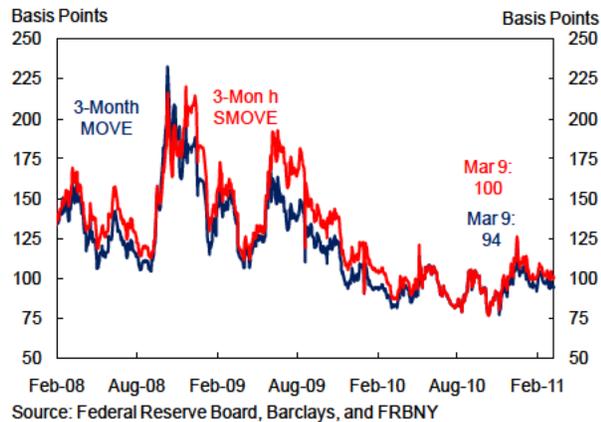
Zero Coupon Yield Curves



Zero Coupon Yield Curves: One-Year Forward Rates



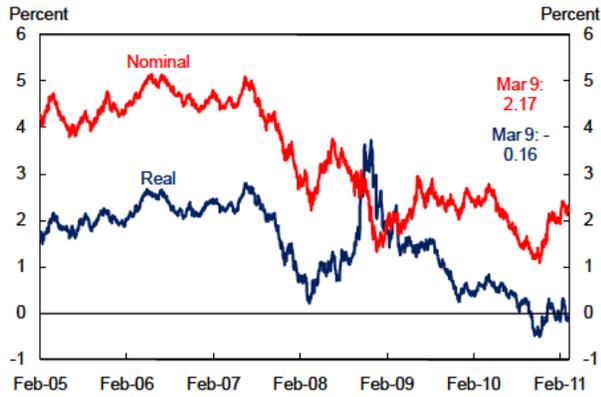
Option and Swaption Volatility Expectations



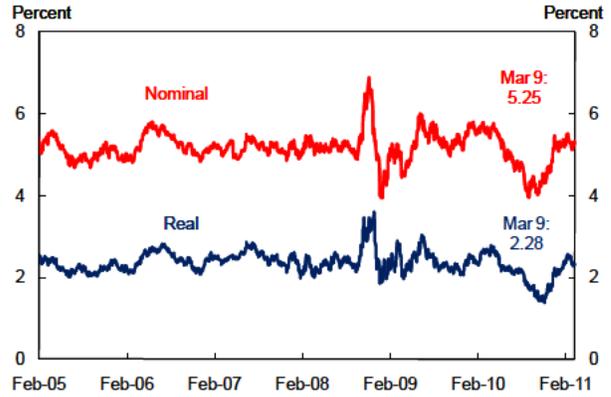
A. Significant Developments

Exhibit A-4: Real Yields and Implied Inflation

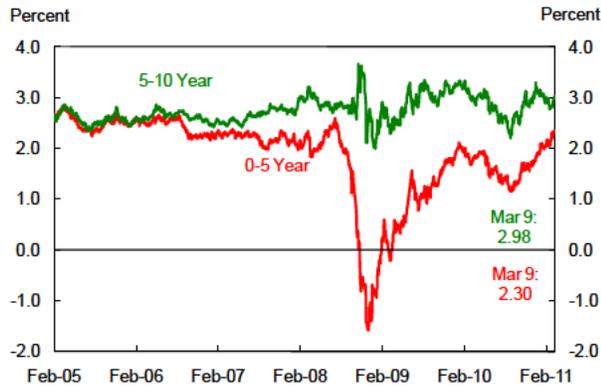
5 Year Spot Rate



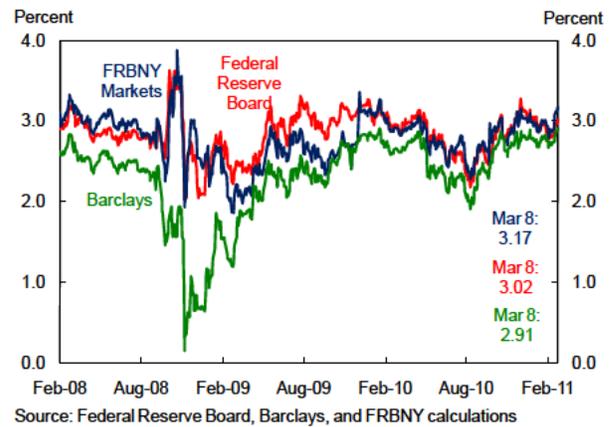
5-10 Year Forward Rates



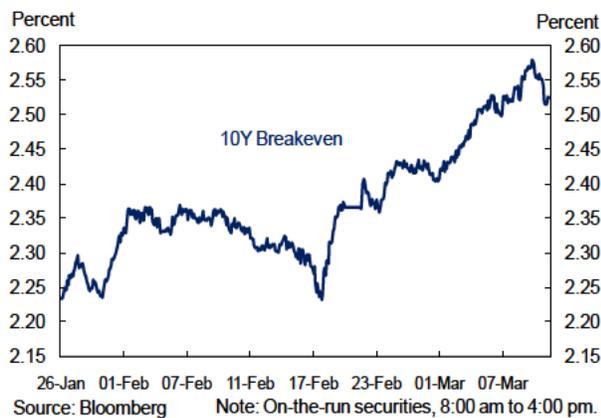
TIPS Implied Inflation Compensation: 0-5, 5-10 Year Horizons



Alternative Measures of 5-10 Year Implied Inflation Compensation



10-Year Breakeven Inflation Compensation (Intraday)



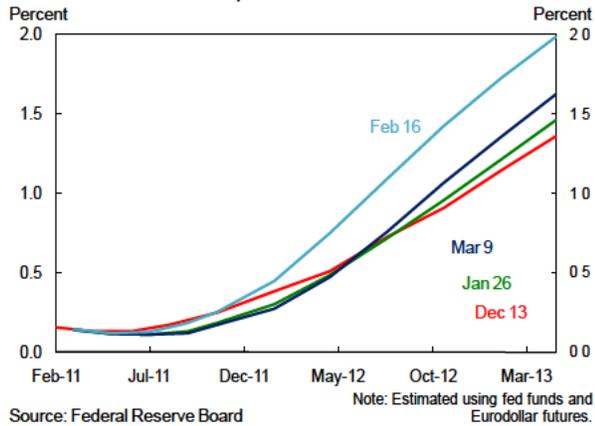
Implied Inflation from Inflation Swaps: 0-5, 5-10 Year Horizon



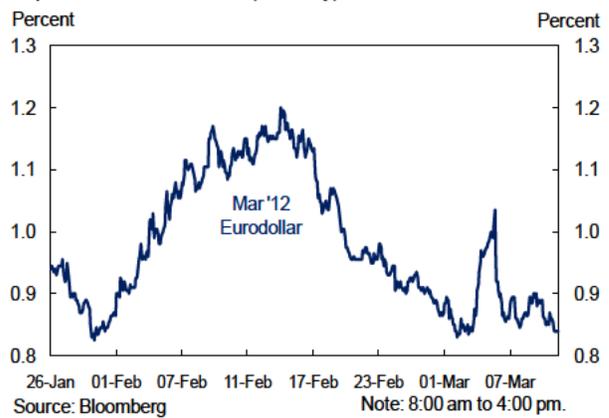
A. Significant Developments

Exhibit A-5: Policy Expectations

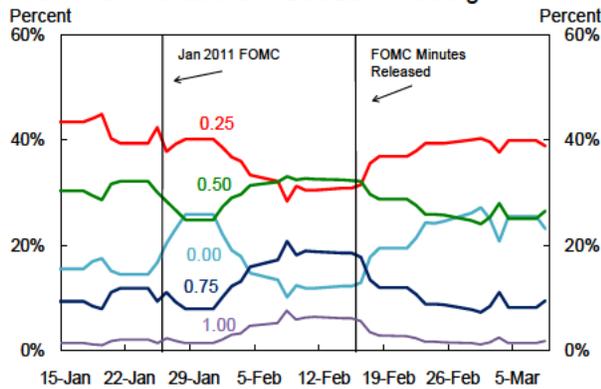
Fed Funds Futures Implied Rates



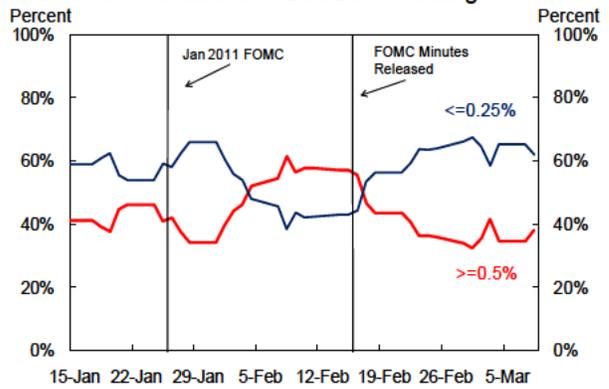
Implied Eurodollar Rates (Intraday)



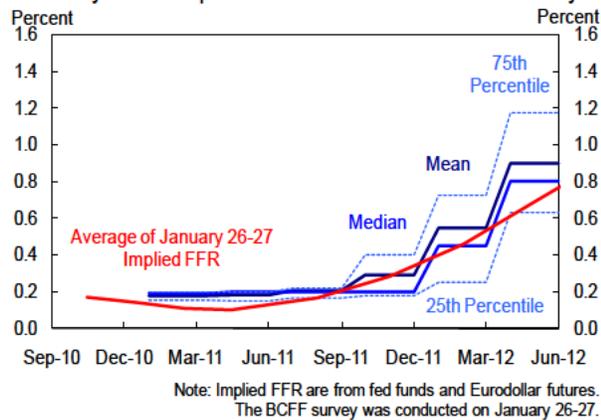
Fed Funds Probabilities: Dec 2011 Meeting



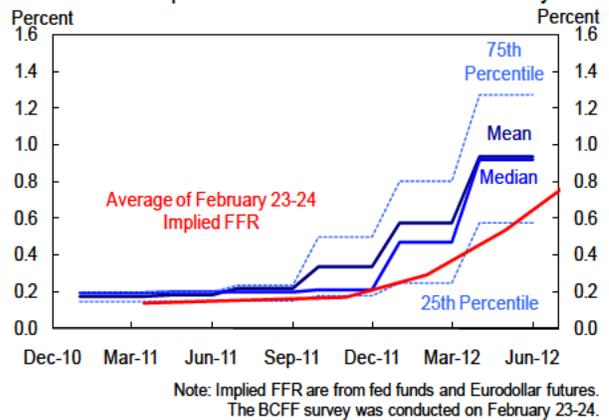
Fed Funds Probabilities: Dec 2011 Meeting



February 2011: Expected Fed Funds from BCFF Survey



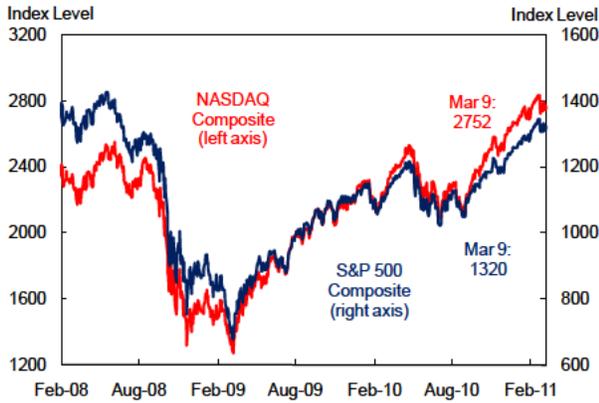
March 2011: Expected Fed Funds from BCFF Survey



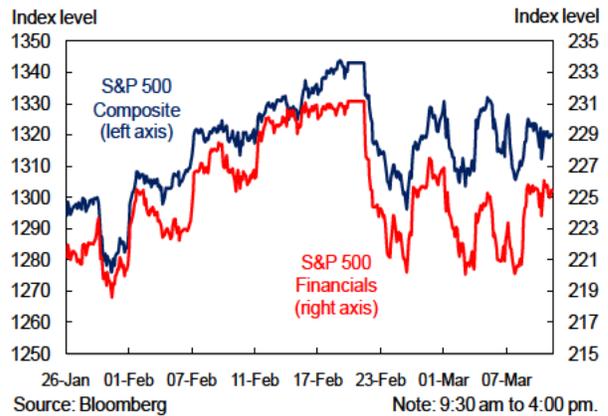
A. Significant Developments

Exhibit A-6:
Equity

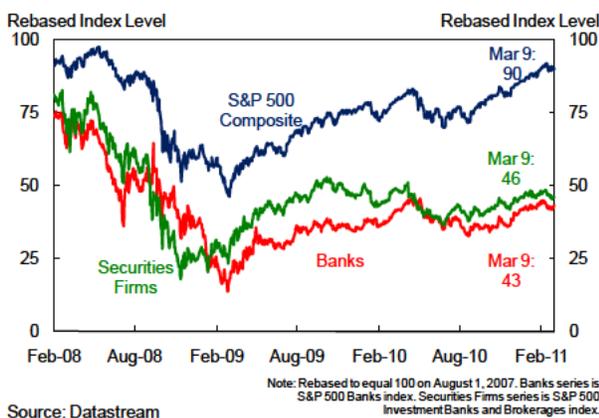
Equity Index Levels



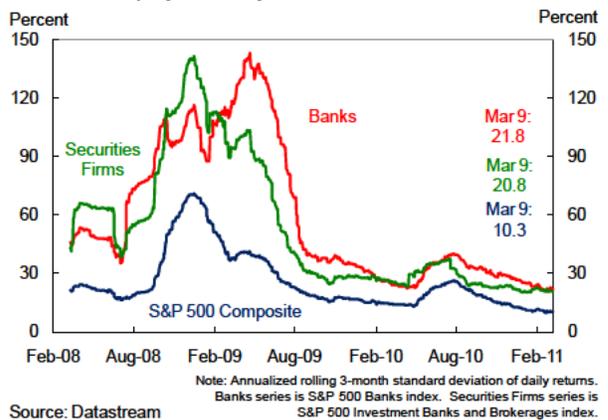
S&P 500 Indices (Intraday)



Equity Performance



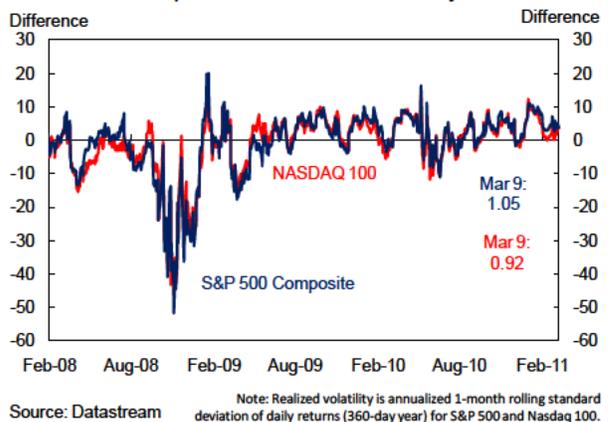
Historical Equity Volatility



Equity Index Implied Volatility: 1-Month



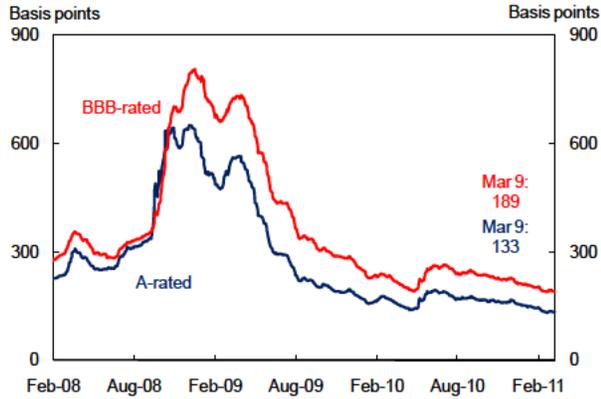
Difference of Implied and Realized Volatility



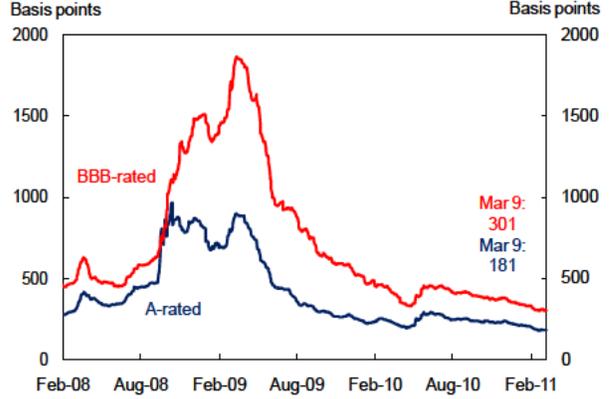
A. Significant Developments

Exhibit A-7:
Credit

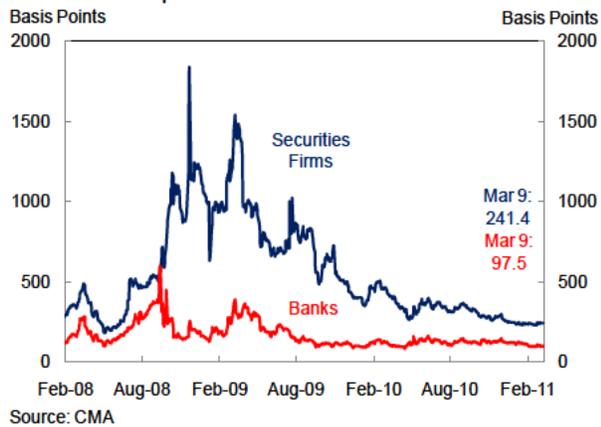
Credit Spreads - All Corporates



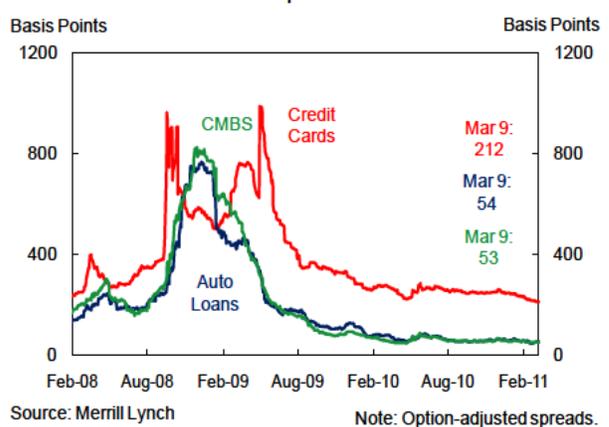
Credit Spreads - Financials



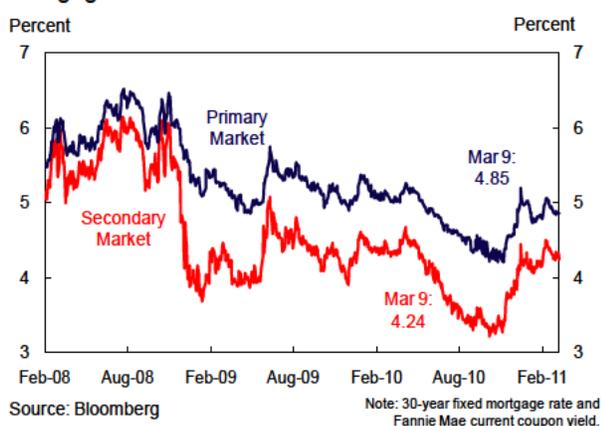
Sector CDS Spreads



AAA-Rated ABS/CMBS Spreads



Mortgage Market Rates



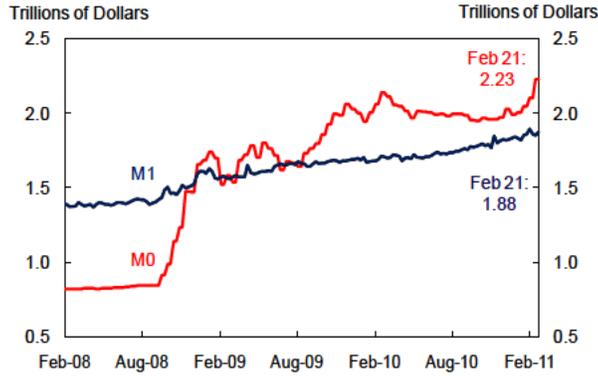
5-Year Agency Debt Spreads



A. Significant Developments

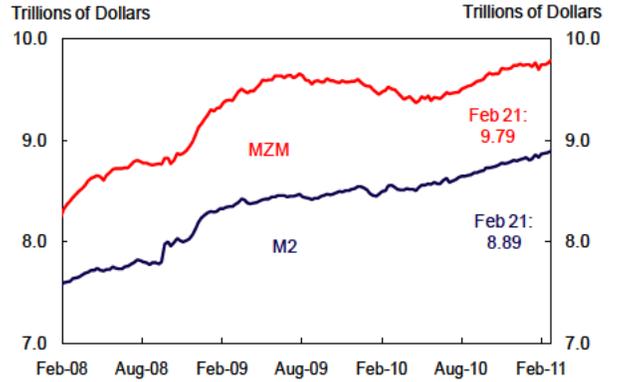
Exhibit A-8: Money and Banking

Measures of Money Supply: M0, M1



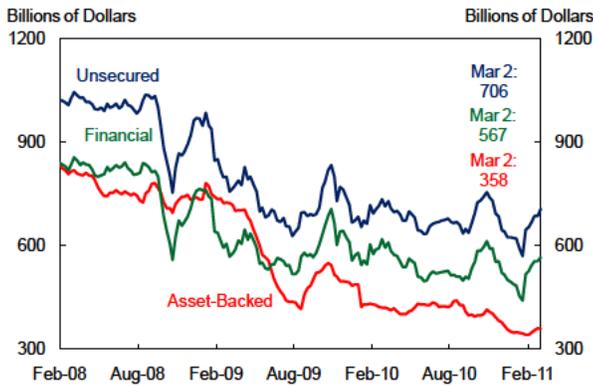
Source: Federal Reserve Board, Haver

Measures of Money Supply: M2, MZM



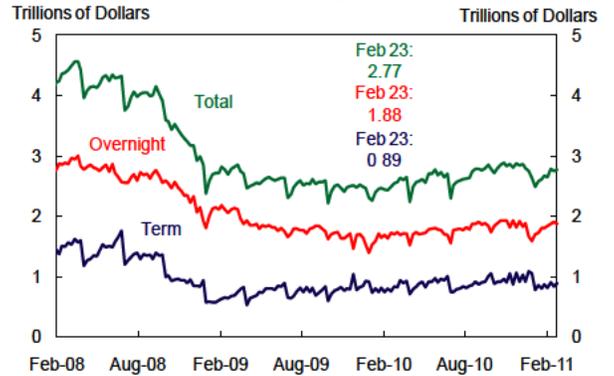
Source: Federal Reserve Board, Haver

Commercial Paper Outstanding



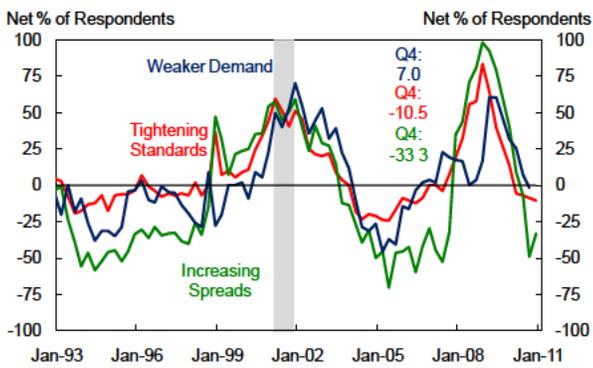
Source: Federal Reserve Board

Primary Dealer Repurchase Agreements Outstanding



Source: Federal Reserve Board

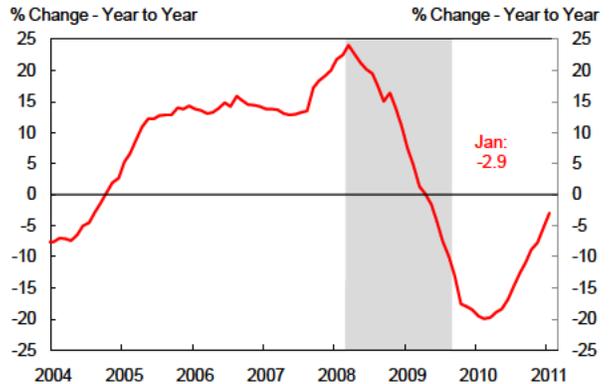
Bank Lending Practices



Source: Federal Reserve Board

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

Commercial and Industrial Loans Outstanding

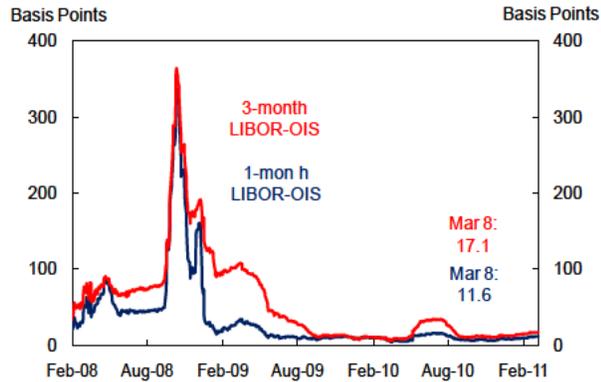


Source: Federal Reserve Board

A. Significant Developments

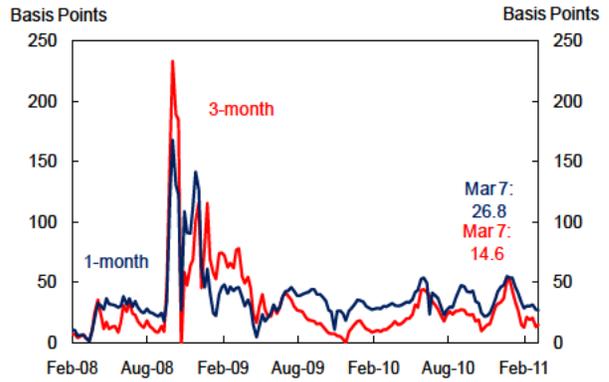
Exhibit A-9:
Money Markets

Libor to OIS



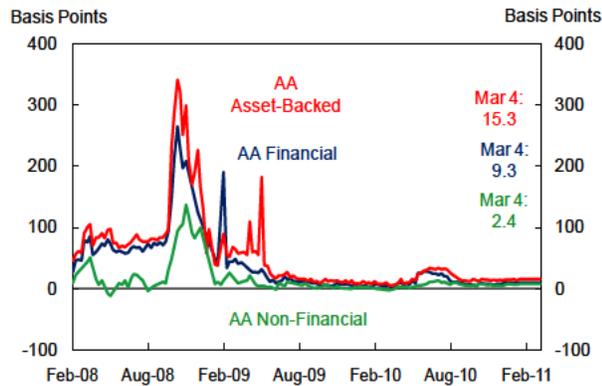
Source: Federal Reserve Board, Bloomberg

Euro-Dollar Swap Implied Basis Spreads



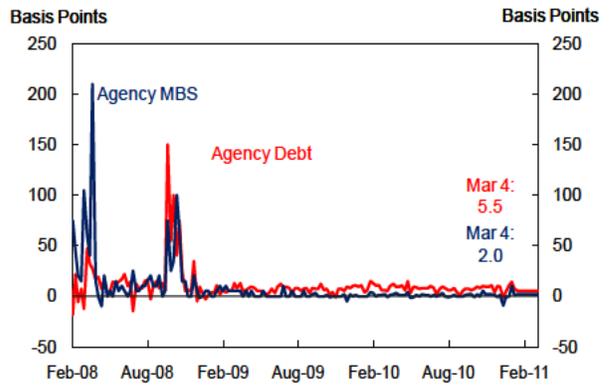
Source: Reuters, Tullett

3-Month CP Rates over OIS



Source: Federal Reserve Board, Haver, Bloomberg

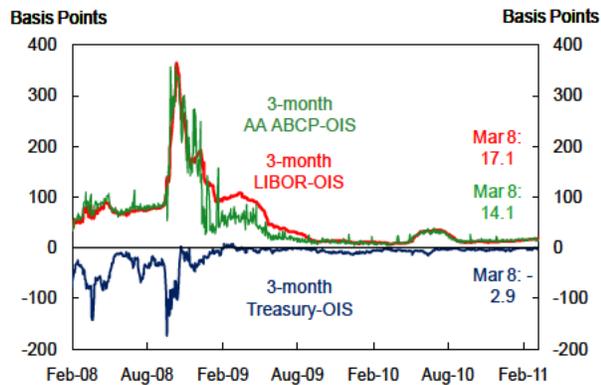
Overnight Financing Spreads



Source: Bloomberg

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

Money Market Spreads

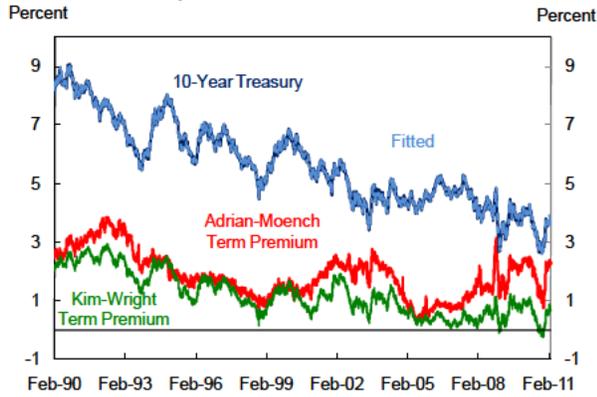


Source: Federal Reserve Board, Bloomberg

A. Significant Developments

Exhibit A-10:
Estimates of Term Premia in Treasury Yields

10-Year Treasury and Term Premia



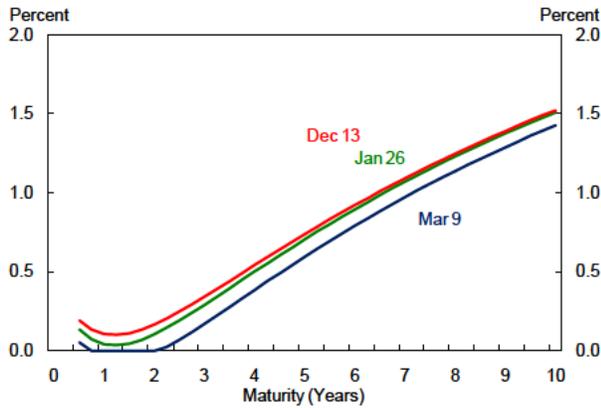
Source: FRBNY calculations, Federal Reserve Board

10-Year Treasury and Term Premia



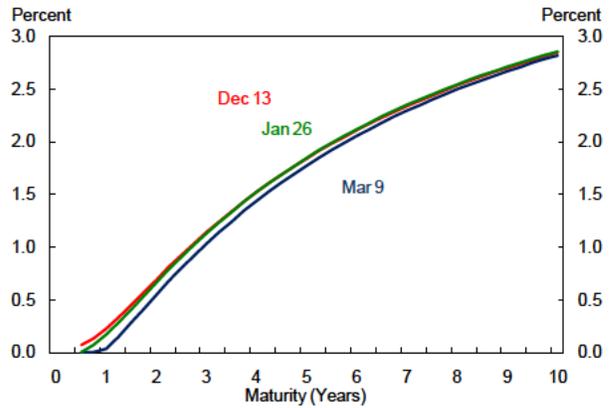
Source: FRBNY calculations, Federal Reserve Board

Risk Neutral Yield Curves



Source: FRBNY calculations (Adrian-Moench)

Risk Neutral One-Year Forward Curves



Source: FRBNY calculations (Adrian-Moench)

Term Premium for 10-Year Treasury and 6-Month MOVE Index

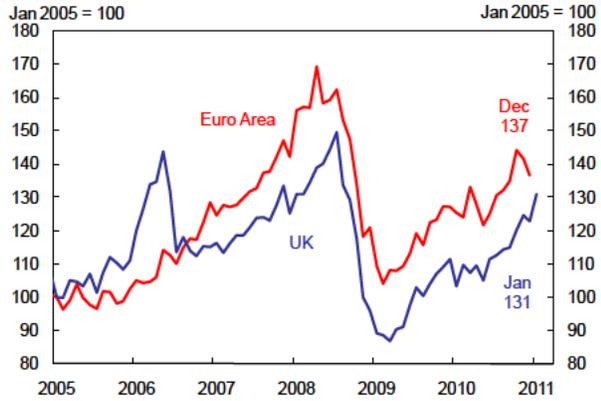


Source: FRBNY calculations, Haver, Merrill Lynch

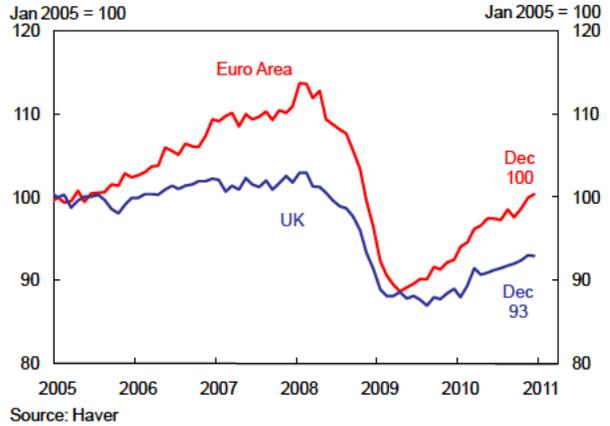
A. Significant Developments

Exhibit A-11: Exports and Industrial Production

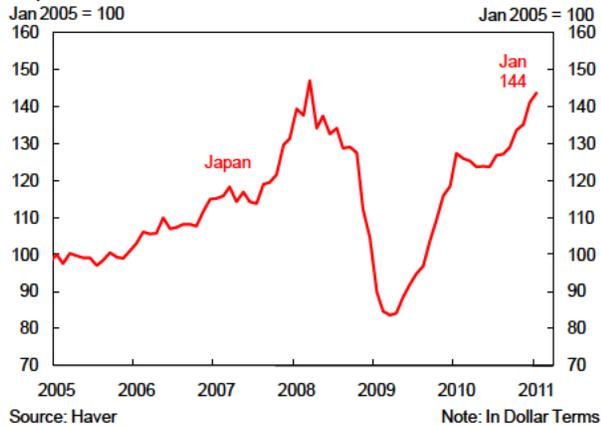
Exports



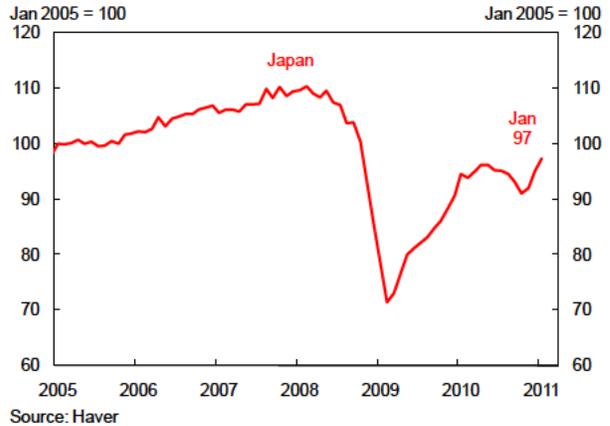
Industrial Production



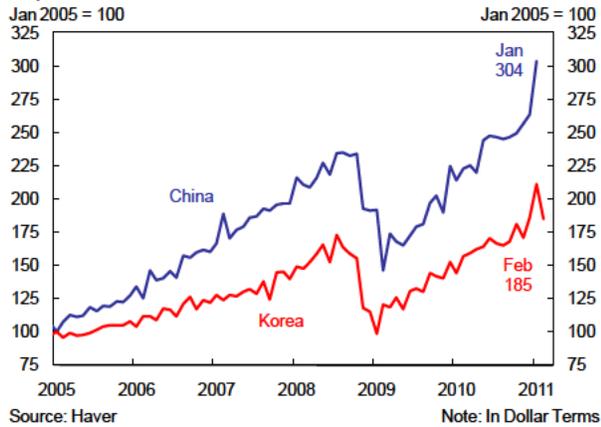
Exports



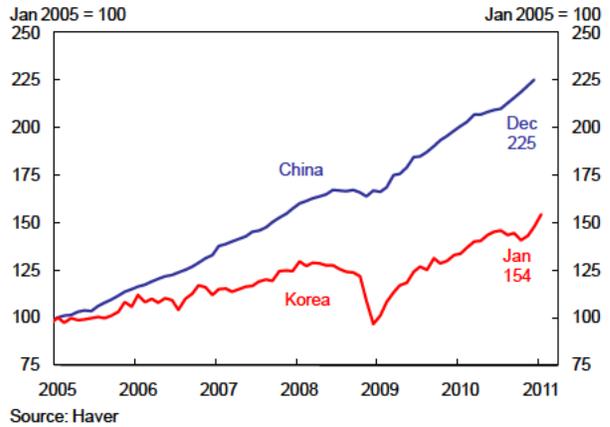
Industrial Production



Exports



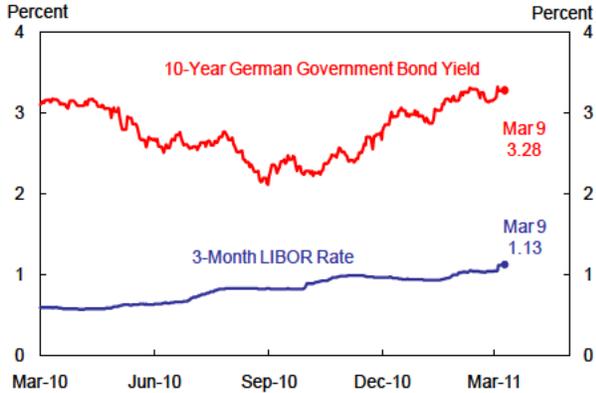
Industrial Production



A. Significant Developments

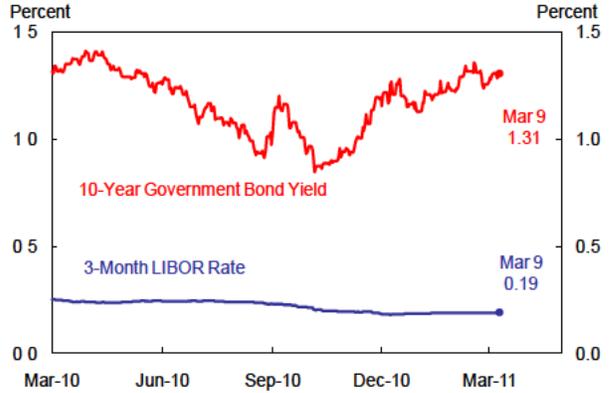
Exhibit A-12:
Global Interest Rates and Equity Markets

Euro Area Short- and Long-Term Interest Rates



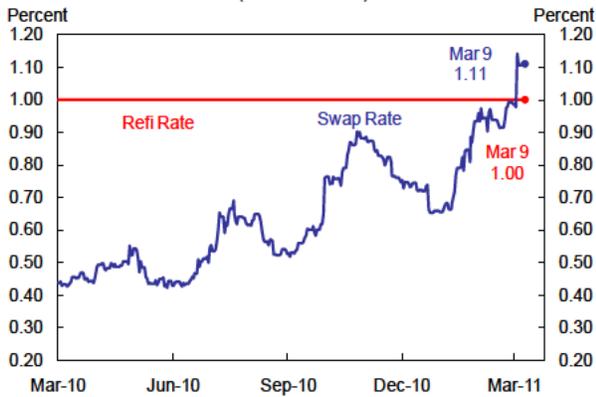
Source: Bloomberg

Japan Short- and Long-Term Interest Rates



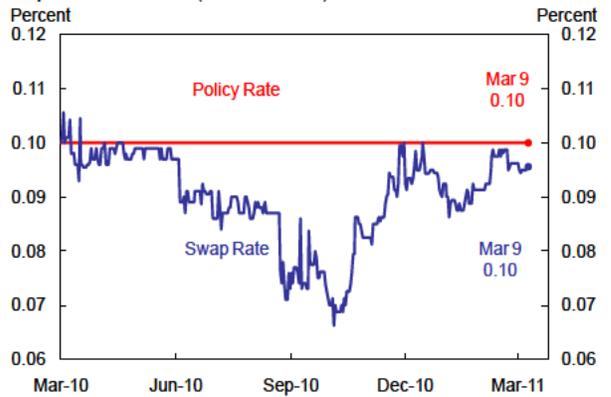
Source: Bloomberg

Euro Area: OIS Rate (Six Months)



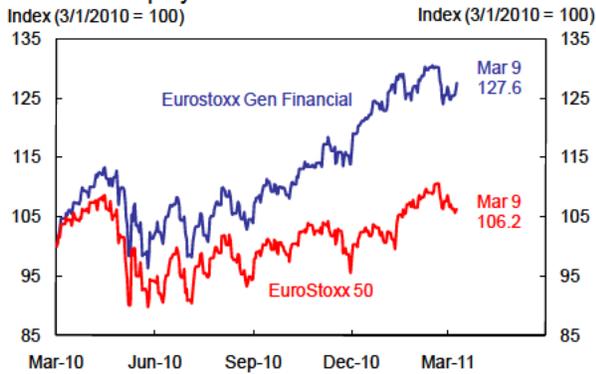
Source: Bloomberg

Japan: OIS Rate (Six Months)



Source: Bloomberg

Euro Area Equity Price Indices



Source: Bloomberg

Japan Equity Price Indices



Source: Bloomberg

A. Significant Developments

Exhibit A-13:
Exchange Rates

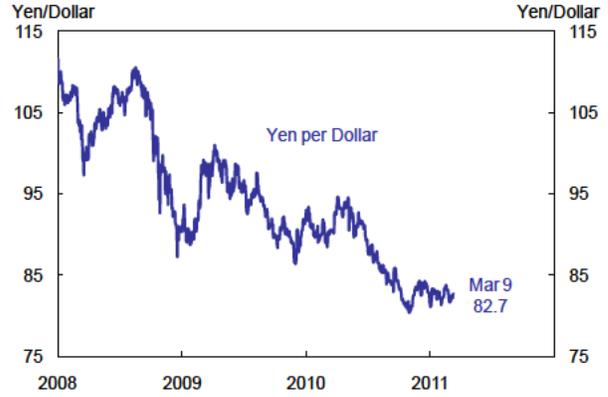
Dollar-Euro Exchange Rate



Source: Bloomberg

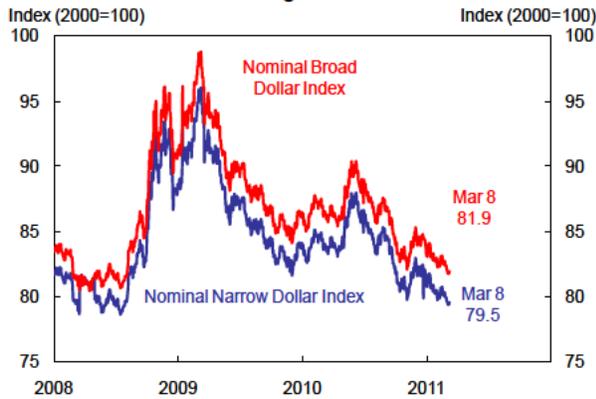
Note: Exchange rate scale is inverted.

Yen-Dollar Exchange Rate



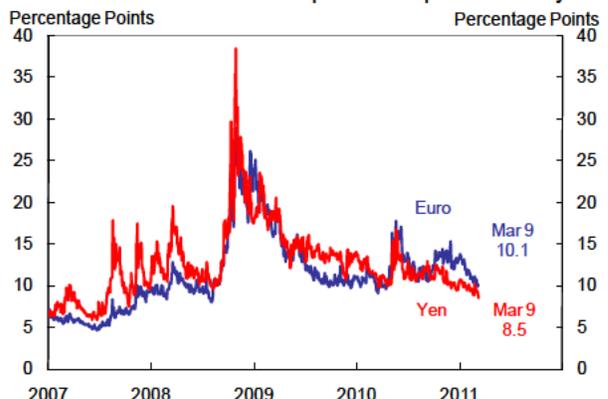
Source: Bloomberg

Nominal Effective Exchange Rates



Source: Bloomberg and JPMorgan

Euro and Yen One-Month Implied FX Option Volatility



Source: Bloomberg

Euro Area and Japan Effective Exchange Rates



Source: Bloomberg and JPMorgan

China Exchange Rates



Source: Bloomberg

B. FRBNY Forecast Details

Exhibit B-1: Quarterly and Annual Projections of Key Variables

| | Core PCE Inflation | | | Real GDP Growth | | | Unemployment Rate* | | | Fed Funds Rate** | | |
|--------------|--------------------|-----|-----|-----------------|-----|-----|--------------------|------|------|------------------|--------|--------|
| | Dec | Jan | Mar | Dec | Jan | Mar | Dec | Jan | Mar | Dec | Jan | Mar |
| 2010 | | | | | | | | | | | | |
| Q1 | 1.2 | 1.2 | 1.2 | 3.7 | 3.7 | 3.7 | 9.7 | 9.7 | 9.7 | 0-0.25 | 0-0.25 | 0-0.25 |
| Q2 | 1.0 | 1.0 | 1.0 | 1.7 | 1.7 | 1.7 | 9.7 | 9.6 | 9.6 | 0-0.25 | 0-0.25 | 0-0.25 |
| Q3 | 0.8 | 0.5 | 0.5 | 2.5 | 2.6 | 2.6 | 9.6 | 9.6 | 9.6 | 0-0.25 | 0-0.25 | 0-0.25 |
| Q4 | 0.6 | 0.3 | 0.5 | 3.2 | 4.0 | 2.8 | 9.7 | 9.6 | 9.6 | 0-0.25 | 0-0.25 | 0-0.25 |
| 2011 | | | | | | | | | | | | |
| Q1 | 0.9 | 0.8 | 1.1 | 3.1 | 3.6 | 3.3 | 9.4 | 9.3 | 9.0 | 0-0.25 | 0-0.25 | 0-0.25 |
| Q2 | 1.0 | 1.0 | 1.1 | 3.7 | 3.6 | 3.2 | 9.1 | 9.1 | 8.7 | 0-0.25 | 0-0.25 | 0-0.25 |
| Q3 | 1.1 | 1.1 | 1.1 | 3.2 | 3.1 | 2.3 | 9.0 | 8.9 | 8.5 | 0-0.25 | 0-0.25 | 0-0.25 |
| Q4 | 1.2 | 1.2 | 1.2 | 6.0 | 5.9 | 6.6 | 8.3 | 8.6 | 8.3 | 0-0.25 | 0-0.25 | 0-0.25 |
| 2012 | | | | | | | | | | | | |
| Q1 | 1.3 | 1.3 | 1.3 | 4.4 | 4.1 | 3.7 | 7.7 | 8.3 | 8.0 | 0-0.25 | 0-0.25 | 0-0.25 |
| Q2 | 1.4 | 1.4 | 1.4 | 3.6 | 3.5 | 3.4 | 7.4 | 8.1 | 7.8 | 0-0.25 | 0-0.25 | 0-0.25 |
| Q3 | 1.5 | 1.5 | 1.5 | 3.2 | 3.0 | 2.8 | 7.3 | 7.7 | 7.6 | 0.25 | 0.25 | 0.25 |
| Q4 | 1.6 | 1.6 | 1.6 | 5.3 | 5.6 | 6.0 | 6.8 | 7.4 | 7.3 | 0.5 | 0.5 | 0.5 |
| Q4/Q4 | | | | | | | | | | | | |
| 2009 | 1.7 | 1.7 | 1.7 | 0.2 | 0.2 | 0.2 | 3.1 | 3.1 | 3.1 | 0.0 | 0.0 | 0.0 |
| 2010 | 0.9 | 0.8 | 0.8 | 2.8 | 3.0 | 2.7 | -0.3 | -0.3 | -0.3 | 0.0 | 0.0 | 0.0 |
| 2011 | 1.0 | 1.0 | 1.1 | 4.0 | 4.0 | 3.8 | -1.4 | -1.0 | -1.3 | 0.0 | 0.0 | 0.0 |
| 2012 | 1.5 | 1.5 | 1.5 | 4.1 | 4.1 | 4.0 | -1.5 | -1.2 | -1.0 | 0.5 | 0.5 | 0.5 |

Note: Columns reflect the forecast dates. Numbers in gray are from previous Blackbooks, and numbers in italics are released data.

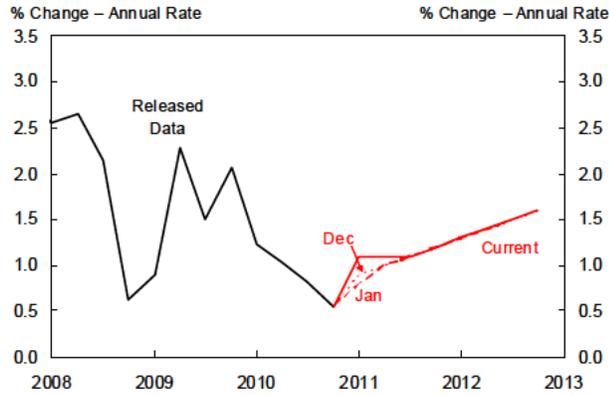
*Quarterly values are the average rate for the quarter. Yearly values are the difference between Q4 of the previous year and Q4 of the listed year.

**Quarterly values are the end-of-quarter value. Yearly values are the difference between the end-of-year value in the previous year and the end-of-year value in the listed year.

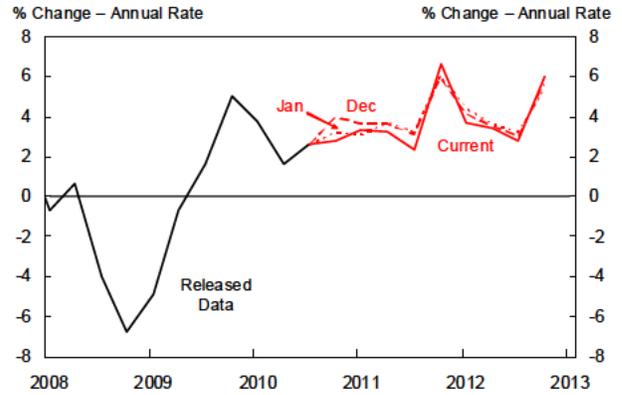
B. FRBNY Forecast Details

Exhibit B-2: Evolution of Projected Quarterly Paths of Key Indicators and Forecast Assumptions

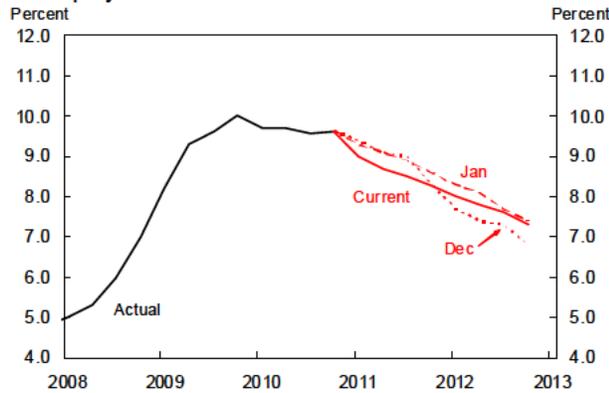
Core PCE Inflation



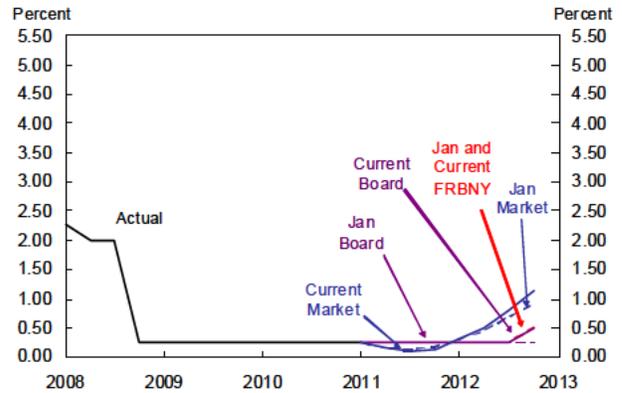
Real GDP Growth



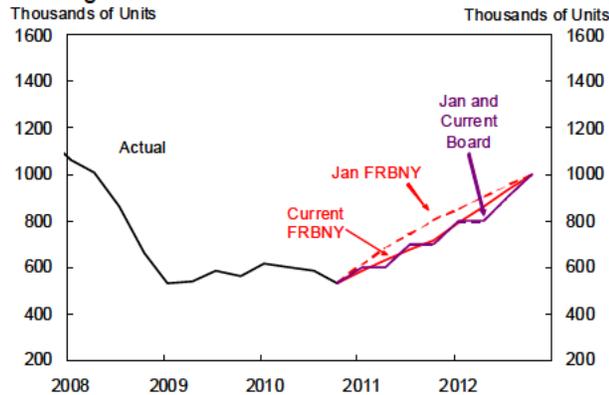
Unemployment Rate



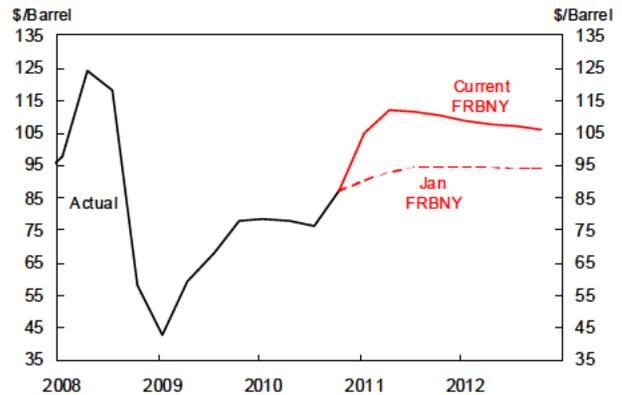
Federal Funds Rate



Housing Starts



Crude Oil



Source: MMS and IR Functions (FRBNY) and Federal Reserve Board
 Note: Jan Oil Forecast is for WTI; Current Oil Forecast is for Brent

B. FRBNY Forecast Details

Exhibit B-3: Near-Term Projections

| | Quarterly Growth Rates (AR) | | Quarterly Growth Contributions (AR) | |
|---|-----------------------------|---------------|-------------------------------------|----------------|
| | 2011Q1 | 2011Q2 | 2011Q1 | 2011Q2 |
| OUTPUT | | | | |
| Real GDP | 3.3 (3.6) | 3.2 (3.6) | 3.3 (3.6) | 3.2 (3.6) |
| Final Sales to Domestic Purchasers | 1.8 (2.9) | 3.1 (3.3) | 1.8 (3.0) | 3.1 (3.4) |
| Consumption | 2.7 (2.7) | 3.2 (2.9) | 1.9 (1.9) | 2.2 (2.0) |
| BFI: Equipment and Software | 8.0 (12.0) | 8.0 (14.0) | 0.6 (0.8) | 0.6 (1.0) |
| BFI: Nonresidential Structures | -8.0 (0.0) | 2.0 (2.0) | -0.2 (0.0) | 0.1 (0.1) |
| Residential Investment | 8.0 (5.5) | 5.0 (5.2) | 0.2 (0.1) | 0.1 (0.1) |
| Government: Federal | -2.2 (0.6) | -0.6 (0.6) | -0.3 (0.1) | 0.3 (0.1) |
| Government: State and Local | -2.2 (0.6) | -0.6 (0.6) | -0.3 (0.1) | -0.1 (0.1) |
| Inventory Investment | -- -- | -- -- | 0.9 (-0.2) | 0.2 (0.3) |
| Net Exports | -- -- | -- -- | 0.5 (0.8) | -0.2 (-0.0) |
| INFLATION | | | | |
| Total PCE Deflator | 3.0 (2.5) | 2.5 (1.3) | | |
| Core PCE Deflator | 1.1 (0.8) | 1.1 (1.0) | | |
| PRODUCTIVITY AND LABOR COSTS* | | | | |
| Output per Hour | 4.0 (2.4) | 2.0 (2.2) | | |
| Compensation per Hour | 2.0 (1.3) | 2.2 (1.3) | | |
| Unit Labor Costs | -2.0 (-1.2) | 0.2 (-1.0) | | |

Note: Numbers in parentheses are from the previous Blackbook.

*Nonfarm business sector.

B. FRBNY Forecast Details

Exhibit B-4: Real GDP and Inflation Projections

| | Q4/Q4 Growth Rates | | | Q4/Q4 Growth Contributions | | |
|---|--------------------|----------------|----------------|----------------------------|---------------|---------------|
| | 2010 | 2011 | 2012 | 2010 | 2011 | 2012 |
| OUTPUT | | | | | | |
| Real GDP | 2.7 (3.0) | 3.8 (4.0) | 4.0 (4.1) | 2.7 (3.0) | 3.8 (4.0) | 4.0 (4.1) |
| Final Sales to Domestic Purchasers | 2.8 (2.9) | 2.8 (3.4) | 3.2 (3.4) | 2.9 (3.0) | 2.9 (3.5) | 3.3 (3.4) |
| Consumption | 2.6 (2.6) | 2.9 (3.0) | 3.1 (3.0) | 1.9 (1.9) | 2.0 (2.1) | 2.2 (2.1) |
| BFI: Equipment and Software | 16.3 (16.2) | 10.2 (13.0) | 8.0 (8.0) | 1.1 (1.0) | 0.7 (0.9) | 0.6 (0.8) |
| BFI: Nonresidential Structures | -4.7 (-6.5) | 0.9 (3.0) | 8.0 (8.0) | -0.1 (-0.2) | 0.0 (0.1) | 0.2 (0.1) |
| Residential Investment | -4.7 (-4.2) | 6.5 (5.9) | 13.7 (13.0) | -0.1 (-0.1) | 0.1 (0.1) | 0.3 (0.2) |
| Government: Federal | 4.8 (6.1) | 0.4 (1.5) | -0.7 (1.6) | 0.4 (0.5) | 0.0 (0.1) | -0.1 (0.1) |
| Government: State and Local | -1.2 (-1.0) | -0.6 (0.6) | 0.9 (1.3) | -0.2 (-0.1) | -0.1 (0.1) | 0.1 (0.1) |
| Inventory Investment | -- -- | -- -- | -- -- | 0.3 (0.8) | 0.6 (0.2) | 0.1 (0.2) |
| Net Exports | -- -- | -- -- | -- -- | -0.5 (-0.7) | 0.4 (0.4) | 0.6 (0.4) |
| INFLATION | | | | | | |
| Total PCE Deflator | 1.2 (1.2) | 2.3 (1.7) | 1.5 (1.8) | | | |
| Core PCE Deflator | 0.8 (0.8) | 1.1 (1.0) | 1.5 (1.5) | | | |
| Total CPI Inflation | 1.2 (1.1) | 2.6 (1.6) | 2.1 (2.0) | | | |
| Core CPI Inflation | 0.6 (0.6) | 1.5 (1.2) | 1.8 (1.7) | | | |
| GDP Deflator | 1.4 (1.4) | 1.9 (1.4) | 1.6 (1.7) | | | |

Note: Numbers in parentheses are from the previous Blackbook.

B. FRBNY Forecast Details

Exhibit B-5: Projections of Other Key Economic Variables

| | Q4/Q4 Growth Rates | | |
|---|--------------------|--------------------|----------------|
| | 2010 | 2011 | 2012 |
| INTEREST RATE ASSUMPTIONS | | | |
| Federal Funds Rate (End-of-Year) | 0-0.25 (0-0.25) | 0-0.25 (0-0.25) | 0.5 (0.5) |
| 10-Year Treasury Yield (Avg. Q4 Level) | 2.9 (2.9) | 3.9 (3.8) | 4.5 (4.4) |
| PRODUCTIVITY AND LABOR COSTS* | | | |
| Output | 3.6 (3.9) | 5.0 (5.2) | 5.3 (5.2) |
| Hours | 1.6 (2.1) | 2.6 (3.1) | 3.5 (3.5) |
| Output per Hour | 1.9 (1.7) | 2.4 (2.1) | 1.7 (1.8) |
| Compensation per Hour | 1.8 (1.3) | 2.2 (1.4) | 2.7 (2.3) |
| Unit Labor Costs | -0.1 (-0.4) | -0.1 (-0.7) | 1.0 (0.6) |
| LABOR MARKET | | | |
| Unemployment Rate (Avg. Q4 Level) | 9.6 (9.6) | 8.3 (8.6) | 7.3 (7.4) |
| Participation Rate (Avg. Q4 Level) | 64.4 (64.4) | 64.7 (64.8) | 65.2 (65.3) |
| Avg. Monthly Nonfarm Payroll Growth (Thous.) | 58 (82) | 277 (278) | 328 (356) |
| INCOME | | | |
| Personal Income | 3.9 (3.7) | 6.4 (5.2) | 4.9 (5.5) |
| Real Disposable Personal Income | 2.3 (2.2) | 3.4 (3.8) | 3.0 (2.8) |
| Personal Saving Rate | 5.4 (5.3) | 6.1 (6.1) | 6.1 (5.8) |
| Corporate Profits Before Taxes | 16.0 (7.0) | 5.0 (4.8) | 4.8 (4.8) |

Note: Numbers in parentheses are from the previous Blackbook.

*Nonfarm business sector.

B. FRBNY Forecast Details

Exhibit B-6: FRBNY and Tealbook Forecast Comparison

| | FRBNY (Q4/Q4) | | | Board (Q4/Q4) | | |
|--|------------------|------------------|----------------|------------------|------------------|----------------|
| | 2010 | 2011 | 2012 | 2010 | 2011 | 2012 |
| OUTPUT | | | | | | |
| Real GDP | 2.7 (3.0) | 3.8 (4.0) | 4.0 (4.1) | 2.8 (2.9) | 3.7 (3.8) | 4.4 (4.4) |
| GDP Growth Contributions | | | | | | |
| Final Sales to Domestic Purchasers | 2.9 (3.0) | 2.9 (3.5) | 3.3 (3.4) | 3.0 (3.0) | 3.3 (3.8) | 3.8 (3.9) |
| Consumption | 1.9 (1.9) | 2.0 (2.1) | 2.2 (2.1) | 1.9 (1.9) | 2.3 (2.5) | 2.8 (2.7) |
| BFI | 0.9 (0.9) | 0.8 (1.0) | 0.8 (0.9) | 1.0 (0.9) | 0.9 (1.0) | 0.7 (0.8) |
| Residential Investment | -0.1 (-0.1) | 0.1 (0.1) | 0.3 (0.2) | -0.1 (-0.1) | 0.2 (0.2) | 0.3 (0.3) |
| Government | 0.2 (0.4) | 0.0 (0.2) | 0.0 (0.2) | 0.2 (0.3) | -0.1 (0.1) | 0.0 (0.1) |
| Inventory Investment | 0.3 (0.8) | 0.6 (0.2) | 0.1 (0.2) | 0.4 (0.5) | 0.2 (0.0) | 0.3 (0.3) |
| Net Exports | -0.5 (-0.7) | 0.4 (0.4) | 0.6 (0.4) | -0.5 (-0.5) | 0.3 (0.1) | 0.3 (0.2) |
| INFLATION | | | | | | |
| Total PCE Deflator | 1.2 (1.2) | 2.3 (1.7) | 1.5 (1.8) | 1.2 (1.2) | 1.9 (1.3) | 1.1 (1.0) |
| Core PCE Deflator | 0.8 (0.8) | 1.1 (1.0) | 1.5 (1.5) | 0.8 (0.8) | 1.2 (1.0) | 1.2 (1.0) |
| INTEREST RATE ASSUMPTION | | | | | | |
| Fed Funds Rate (End-of-Year) | 0-0.25 0-0.25 | 0-0.25 0-0.25 | 0.5 (0.5) | 0-0.25 0-0.25 | 0-0.25 0-0.25 | 0.5 0-0.25 |
| PRODUCTIVITY AND LABOR COSTS* | | | | | | |
| Output per Hour | 1.9 (1.7) | 2.4 (2.1) | 1.7 (1.8) | 2.0 (1.7) | 1.4 (1.5) | 1.7 (1.9) |
| Compensation per Hour | 1.8 (1.3) | 2.2 (1.4) | 2.7 (2.3) | 1.8 (1.5) | 2.1 (1.9) | 2.5 (2.3) |
| Unit Labor Costs | -0.1 (-0.4) | -0.1 (-0.7) | 1.0 (0.6) | -0.2 (-0.2) | 0.6 (0.4) | 0.7 (0.4) |
| LABOR MARKET | | | | | | |
| Unemployment Rate (Avg. Q4 Level) | 9.6 (9.6) | 8.3 (8.6) | 7.3 (7.4) | 9.6 (9.6) | 8.6 (8.9) | 7.5 (7.8) |
| Participation Rate (Avg. Q4 Level) | 64.4 (64.4) | 64.7 (64.8) | 65.2 (65.3) | 64.5 (64.5) | 64.3 (64.6) | 64.4 (64.6) |
| Avg. Monthly Nonfarm Payroll Growth (Thous.) | 58 (82) | 277 (278) | 328 (356) | 58 (83) | 208 (217) | 300 (308.3) |
| SAVING | | | | | | |
| Personal Saving Rate (Avg. Q4 Level) | 5.4 (5.3) | 6.1 (6.1) | 6.1 (5.8) | 5.4 (5.4) | 5.8 (6.0) | 5.2 (5.2) |
| HOUSING | | | | | | |
| Housing Starts (Avg. Q4 Level, Thous.) | 534 (538) | 720 (740) | 1000 (1000) | 500 (500) | 700 (700) | 1000 (1000) |

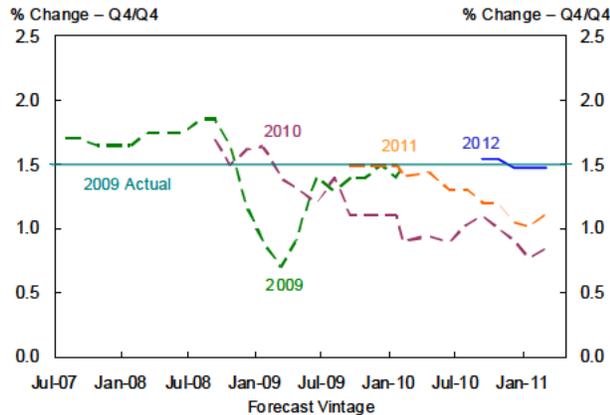
B. FRBNY Forecast Details

**Exhibit B-7: Evolution of FRBNY
and Board Forecasts since Mid-2007**

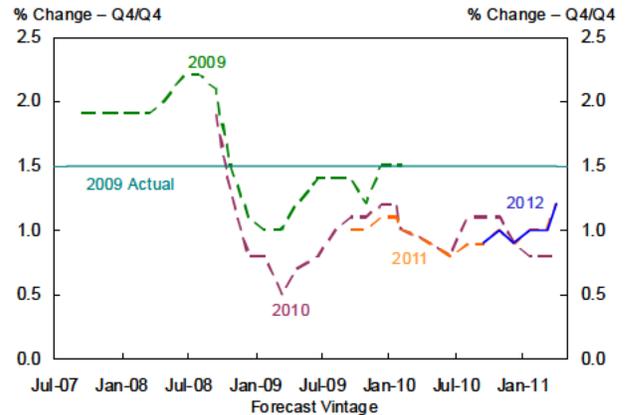
FRBNY

Board

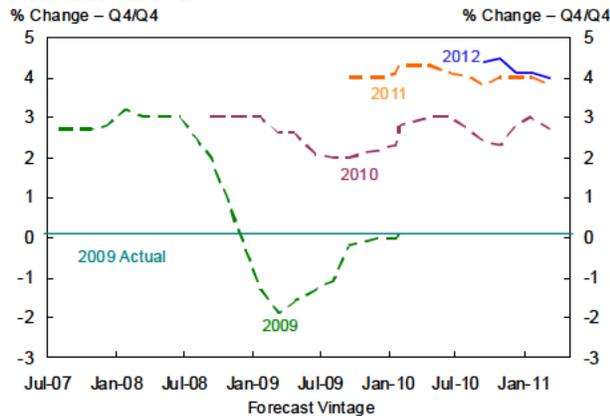
Core PCE Inflation



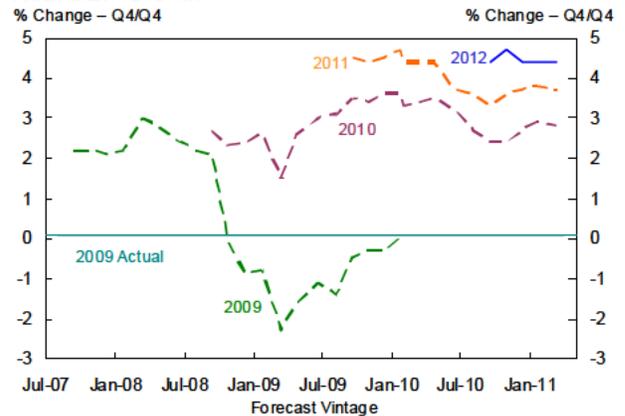
Core PCE Inflation



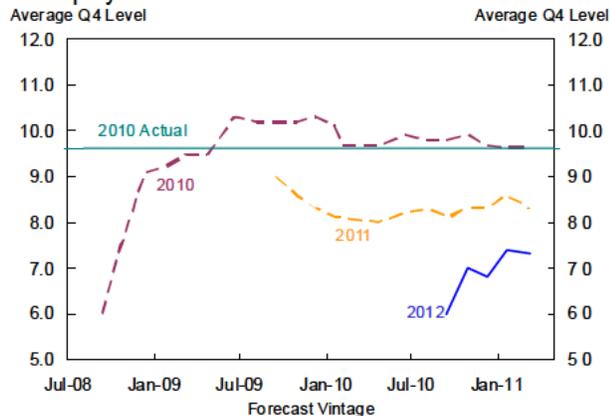
Real GDP Growth



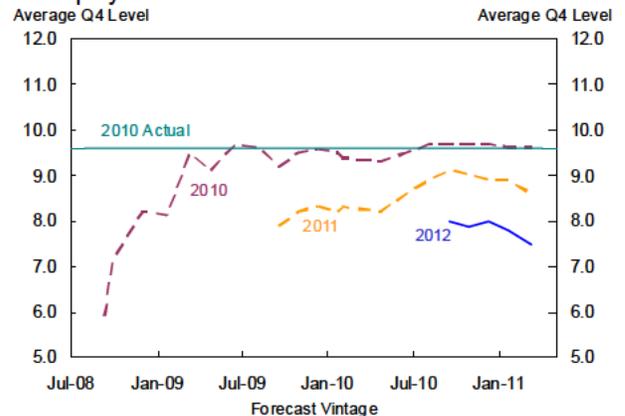
Real GDP Growth



Unemployment Rate



Unemployment Rate



Note: Forecast vintage is the date the forecast was produced.

B. FRBNY Forecast Details

Exhibit B-8: Alternative GDP and Inflation Forecasts

| | | Real GDP Growth | | | |
|----------------|--------------|-----------------|--------------|--------------|--------------|
| | Release Date | 2011Q1 | 2011Q2 | 2011 Q4/Q4 | 2012 Q4/Q4 |
| FRBNY | 3/10/2011 | 3.3 (3.6) | 3.2 (3.6) | 3.8 (4.1) | 4.0 (4.1) |
| Blue Chip | 3/10/2011 | 3.4 (3.2) | 3.4 (3.3) | 3.4 (3.3) | 3.2 (3.2) |
| Median SPF | 2/11/2011 | 3.6 (2.4) | 3.5 (2.7) | 3.4 (2.8) | -- -- |
| Macro Advisers | 3/10/2011 | 2.8 (4.0) | 3.9 (3.9) | 3.7 (4.0) | 3.4 (3.6) |

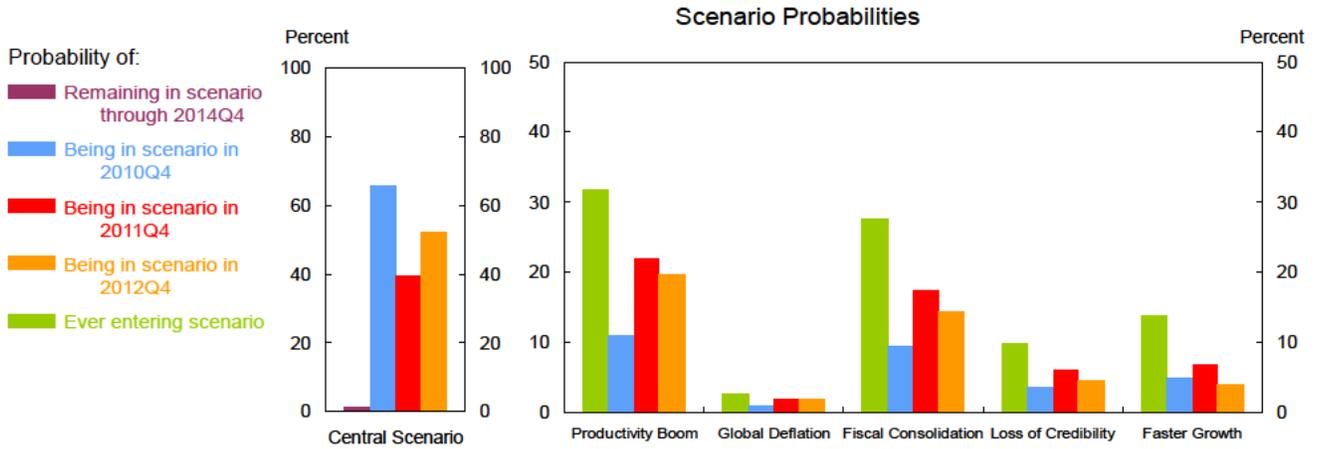
| | | Core PCE Inflation | | | |
|----------------|--------------|--------------------|--------------|--------------|--------------|
| | Release Date | 2011Q1 | 2011Q2 | 2011 Q4/Q4 | 2012 Q4/Q4 |
| FRBNY | 3/10/2011 | 1.1 (0.8) | 1.1 (1.0) | 1.1 (1.0) | 1.5 (1.5) |
| Median SPF | 2/11/2011 | 1.0 (1.1) | 1.3 (1.1) | 1.3 (1.2) | 1.6 (1.6) |
| Macro Advisers | 3/7/2011 | 1.0 (0.7) | 1.0 (0.8) | 1.0 (0.8) | 1.1 (1.0) |

| | | CPI Inflation | | | |
|----------------|--------------|---------------|--------------|--------------|--------------|
| | Release Date | 2011Q1 | 2011Q2 | 2011 Q4/Q4 | 2012 Q4/Q4 |
| FRBNY | 3/10/2011 | 4.1 (1.6) | 2.8 (1.4) | 2.6 (1.6) | 2.1 (2.0) |
| Blue Chip | 3/10/2011 | 3.4 (2.0) | 2.0 (1.5) | 2.4 (1.8) | 2.2 (2.0) |
| Median SPF | 2/11/2011 | 2.5 (1.6) | 1.3 (1.3) | 1.7 (1.6) | 2.0 (1.9) |
| Macro Advisers | 3/7/2011 | 4.2 (1.9) | 2.7 (1.0) | 2.3 (1.2) | 1.3 (1.0) |

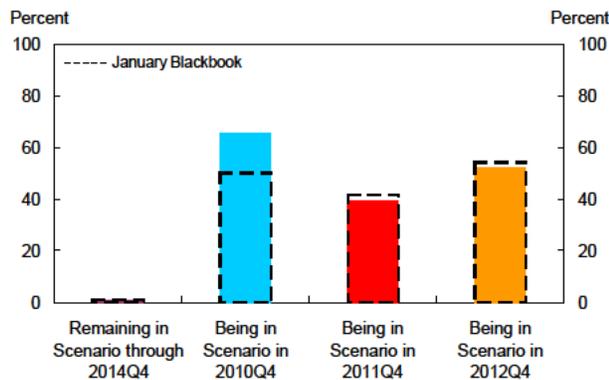
| | | Core CPI Inflation | | | |
|----------------|--------------|--------------------|--------------|--------------|--------------|
| | Release Date | 2011Q1 | 2011Q2 | 2011 Q4/Q4 | 2012 Q4/Q4 |
| FRBNY | 3/10/2011 | 1.4 (1.1) | 1.4 (1.1) | 1.5 (1.2) | 1.8 (1.7) |
| Median SPF | 2/11/2011 | 1.0 (1.1) | 1.2 (1.3) | 1.3 (1.3) | 1.7 (1.7) |
| Macro Advisers | 3/7/2011 | 1.6 (0.7) | 1.6 (1.0) | 1.4 (0.9) | 1.3 (1.1) |

C. FRBNY Forecast Distributions

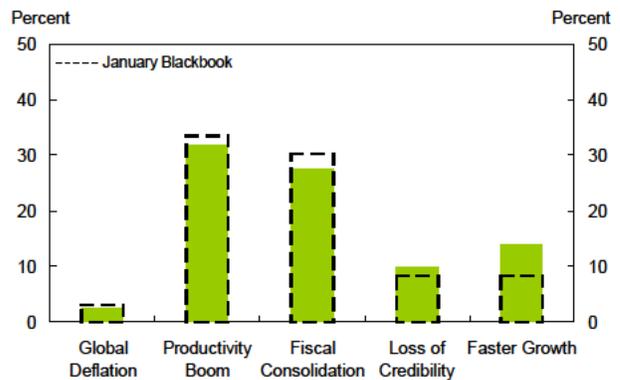
**Exhibit C-1:
Risks**



Change in Central Scenario Probabilities



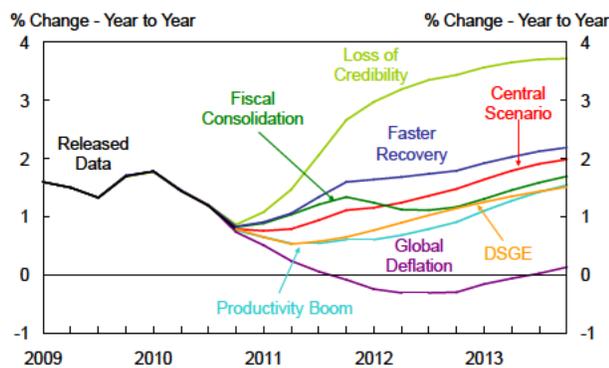
Change in Alternative Scenario Probabilities*



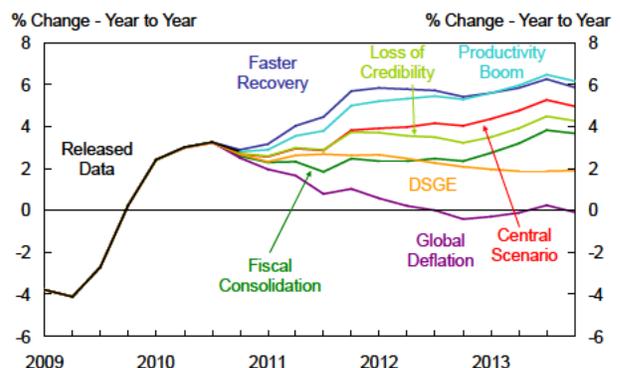
*Probability of ever reaching scenario

**Exhibit C-2: Projections
under Alternative Scenarios**

Core PCE Inflation under Alternative Scenarios



Real GDP Growth under Alternative Scenarios

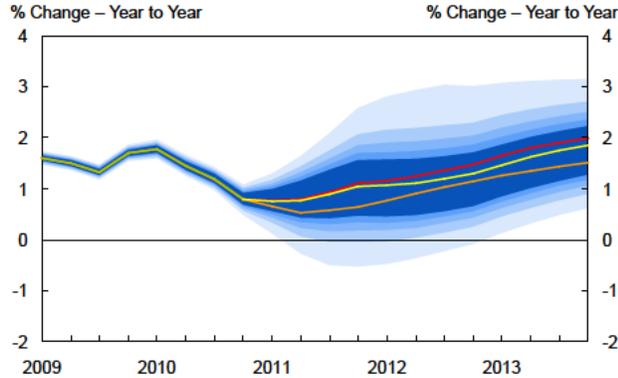


Source: MMS Function (FRBNY)

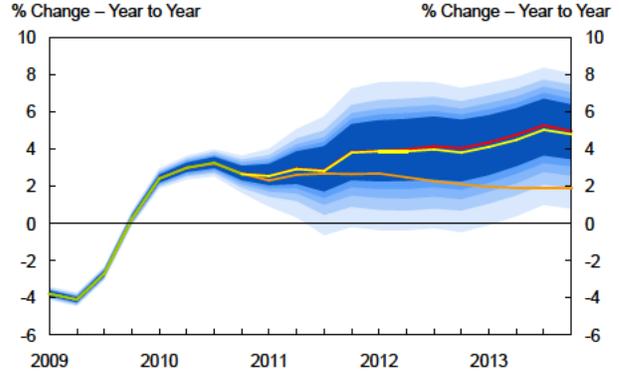
C. FRBNY Forecast Distributions

Exhibit C-3: Inflation and Output Forecast Distributions

Core PCE Inflation Forecast Distribution

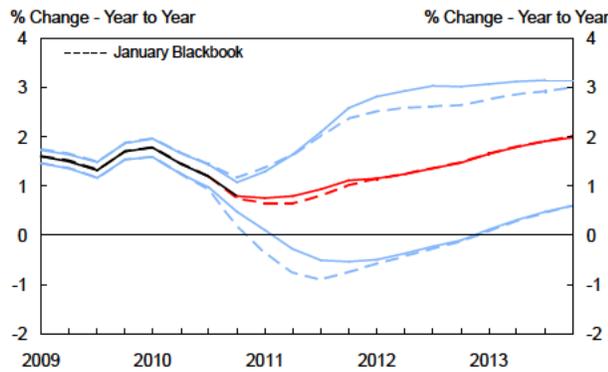


Real GDP Growth Forecast Distribution

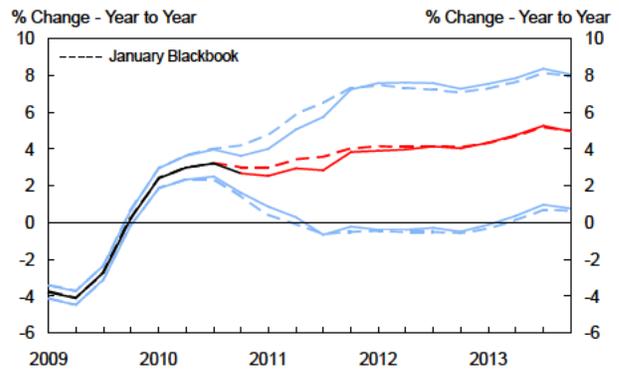


The yellow line represents the expected value of the forecast distribution, the red line represents the FRBNY central projection, the orange line represents the DSGE forecast, and the green line represents released data. The shading represents the 50, 60, 70, 80 and 90 percent probability that the four-quarter change will be within the respective range.

Change in Core PCE Inflation Forecast Distribution

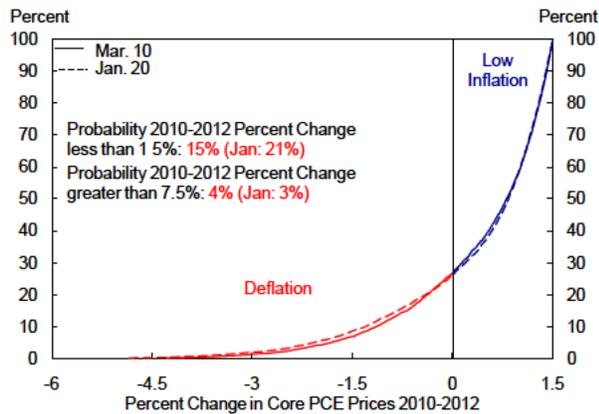


Change in Real GDP Growth Forecast Distribution

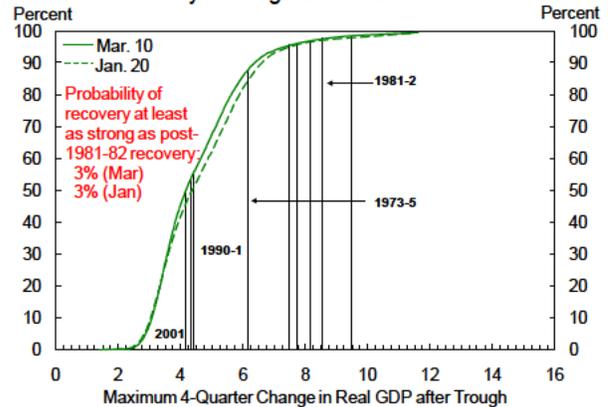


The blue lines are the 90% chance the four-quarter change will be within the lines, the red line is the central scenario projection, and the black line is released data. Dashed lines represent forecasts from the previous Blackbook.

Low Inflation/Deflation Probability and Distribution



Scale of Recovery Through End of 2011

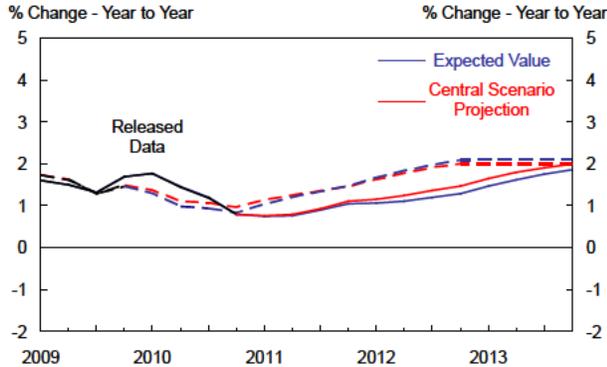


Source: MMS Function (FRBNY)

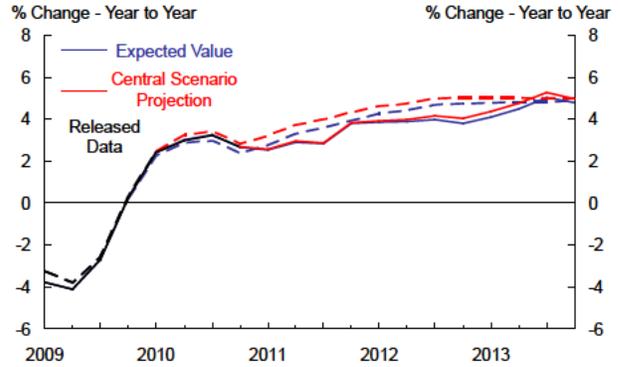
C. FRBNY Forecast Distributions

Exhibit C-4: Evolution and Performance of Inflation and Output Forecast Distributions

One-Year Comparison of Core PCE Inflation Forecast

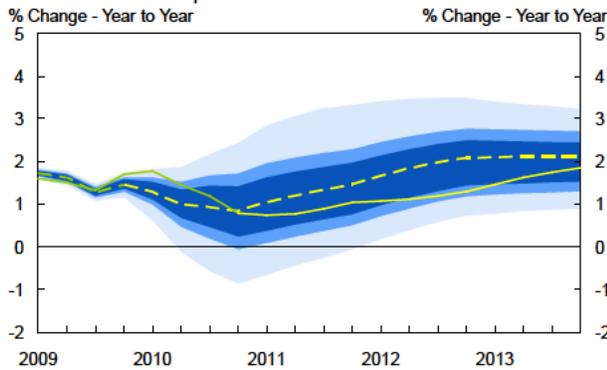


One-Year Comparison of Real GDP Growth Forecast

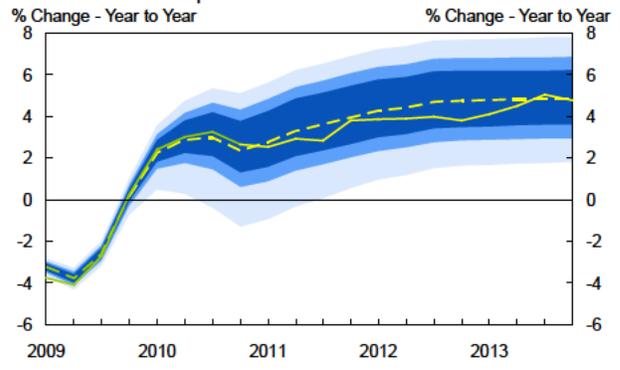


The solid lines represent the current central scenario projection and expected value, while the dashed lines represent those from the year-ago Blackbook.

One-Year Comparison of Core PCE Inflation Forecast Distribution and Expected Value



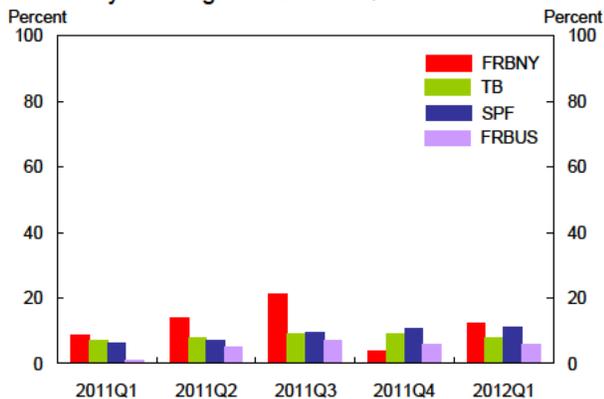
One-Year Comparison of Real GDP Growth Forecast Distribution and Expected Value



The solid yellow line is the **current** expected value of the forecast distribution, while the dashed yellow line is the expected value from the year-ago Blackbook. The shading represents the 50, 70 and 90 percent probability intervals from the year-ago forecast. The green lines are released data.

Exhibit C-5: Probability of a Negative Growth Quarter

Probability of a Negative-Growth Quarter

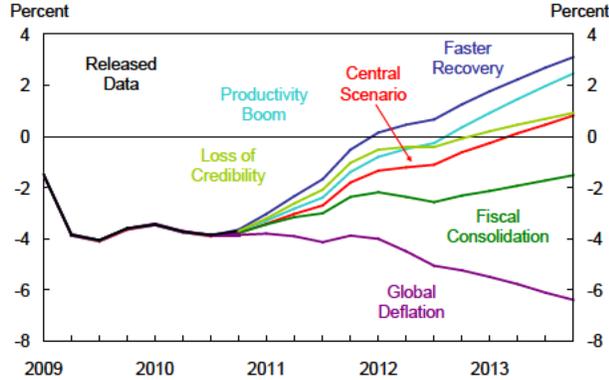


Source: MMS Function (FRBNY)

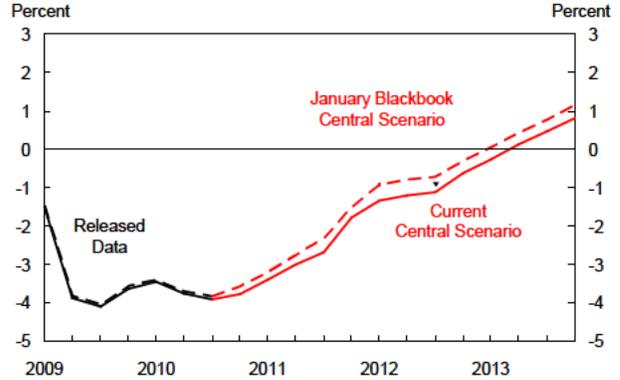
D. FRBNY Fed Funds Rate Projections

**Exhibit D-1: *Baseline*
Policy Rule Analysis**

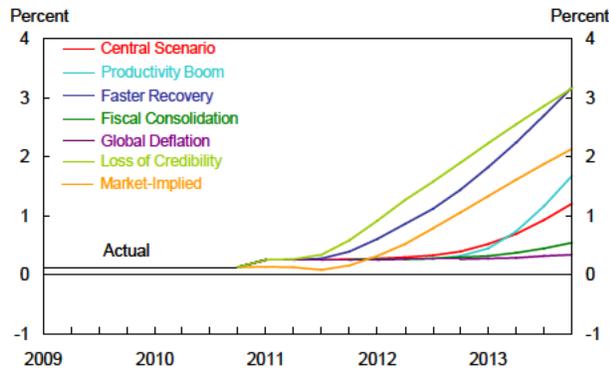
Real FFR under Alternative Scenarios



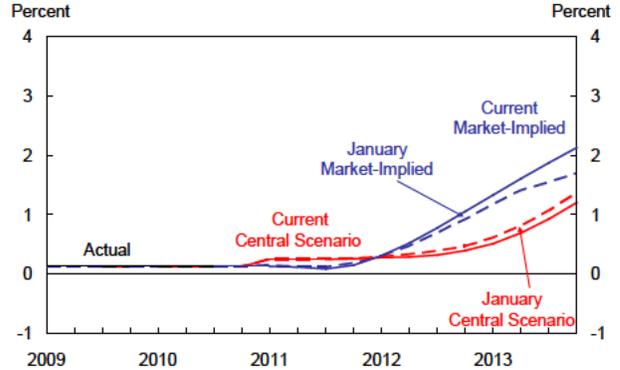
Change in Central Scenario Real FFR



Nominal FFR under Alternative Scenarios

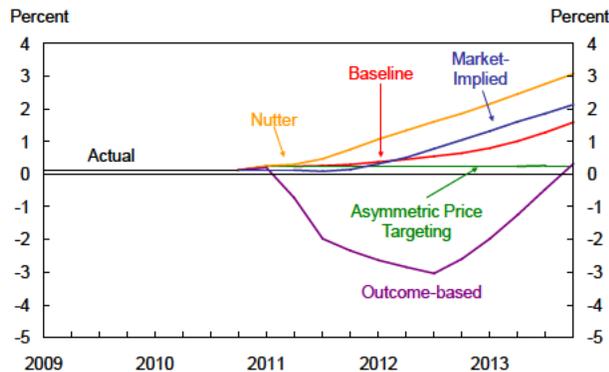


Change in Central Scenario and Market-Implied Nominal FFR



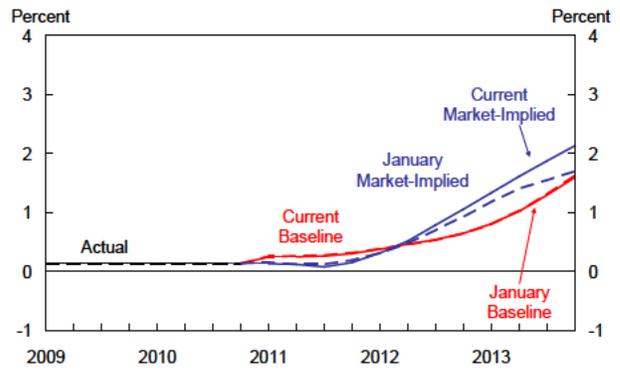
**Exhibit D-2: Alternative Policy Rules under
Expected Value of Forecast Distribution**

Nominal FFR using Alternative Policy Rules*



*Evaluated using yellow line from C-3

Change in *Baseline and Market-Implied Nominal FFR**



*Evaluated using yellow line from C-3

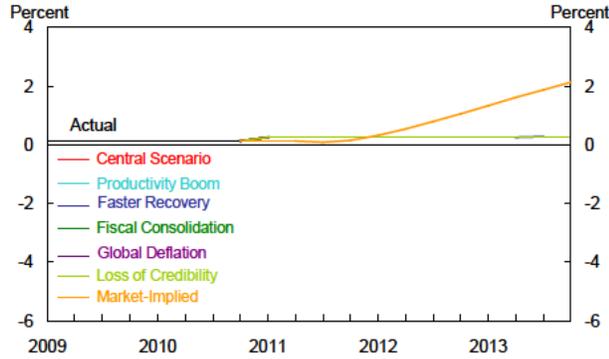
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

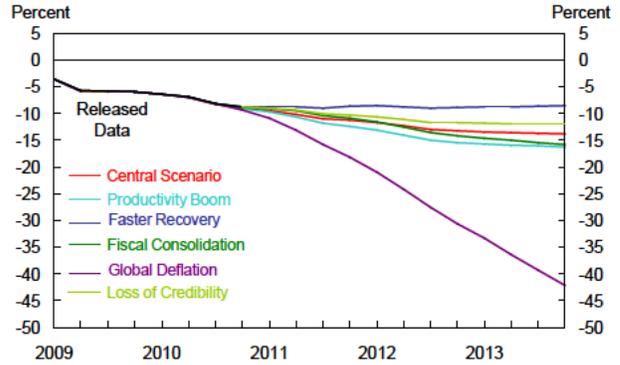
Exhibit D-3: Alternative Policy Rule Analysis

Policy Rule: *Asymmetric Price Targeting*

Nominal FFR under Alternative Scenarios

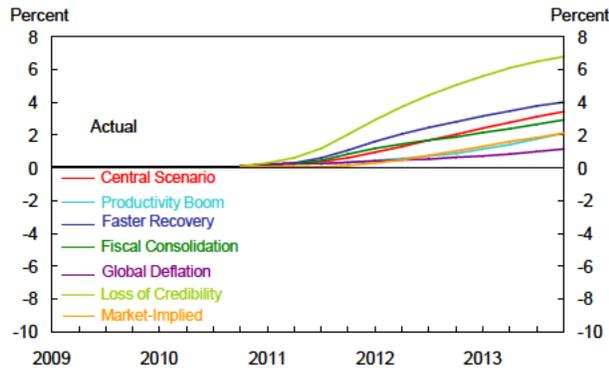


Real FFR under Alternative Scenarios

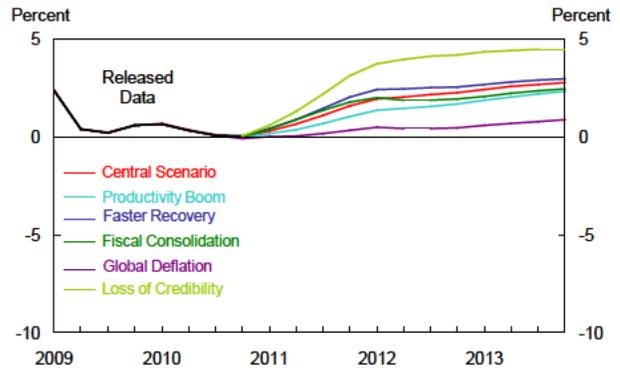


Policy Rule: *Nutter*

Nominal FFR under Alternative Scenarios

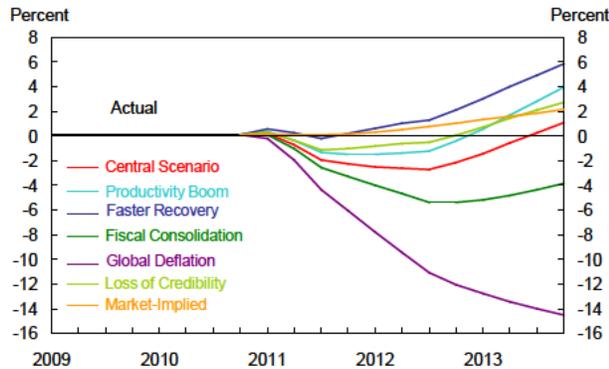


Real FFR under Alternative Scenarios

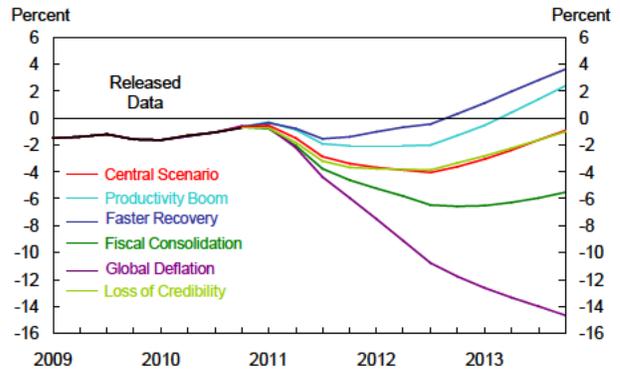


Policy Rule: *Outcome-based*

Nominal FFR under Alternative Scenarios



Real FFR under Alternative Scenarios



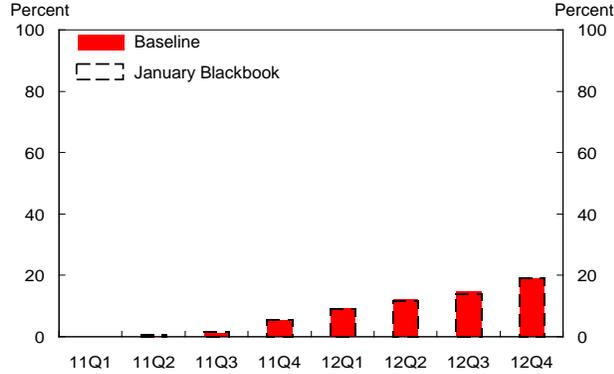
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

Exhibit D-4: FFR Probabilities

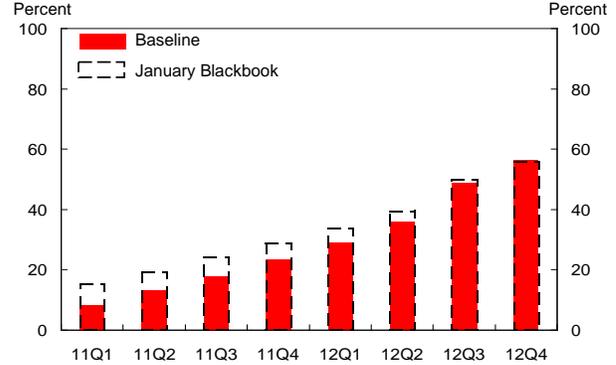
Probability of FFR above 0.5% for Next Year

FRBNY Forecast Distributions

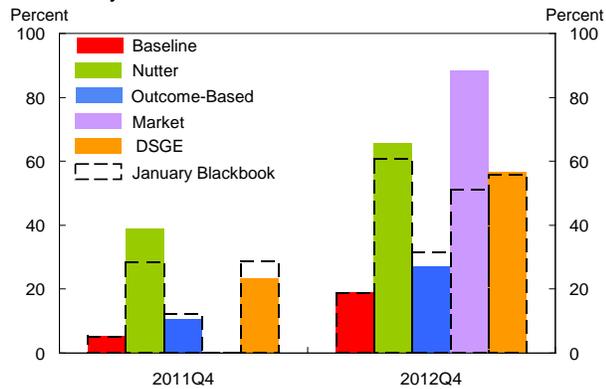


Probability of FFR above 0.5% for Next Year

FRBNY DSGE Model



Probability of FFR above 0.5% for Next Year



Note: Probability displayed is probability of FFR being above 0.5% in quarter noted and remaining above 0.5% in subsequent four quarters. DSGE results are shown for model including zero bound restriction.

Source: MMS Function (FRBNY)

Alternative Scenario Descriptions

In this abbreviated version of the Exhibit C documentation, we include brief descriptions of the alternative scenarios used in this Blackbook. Full documentation, including a description of the methodology, is included in the Appendix.

Our first alternative scenario considers the impact of above-trend productivity growth. Our current assumption of trend productivity growth is around 1.75% on a nonfarm business sector basis. Sustained productivity growth above this assumption would have important consequences for the economy. Typically, because below-trend productivity growth also has important consequences, we have included an alternative scenario that incorporates that assumption (*Productivity Slump*). However, because the near-term consequences of that scenario and the *Fiscal Consolidation* scenario are similar, we have combined those two scenarios into a single revamped *Fiscal Consolidation* scenario, which allows us to add a new scenario (*Faster Growth/Recovery*). We also currently consider four additional scenarios. In one (*Faster Growth/Recovery*), the recent “headwinds” subside more quickly than expected, leading to stronger aggregate demand effects from monetary and fiscal policy. In another (*Loss of Credibility*), the public and investors lose confidence in the current stances of monetary and fiscal policy. In the other two (*Global Credit Crunch* and *Global Deflation*), the recent stresses in global financial and economic conditions continue to have an impact on U.S. economic conditions; the differences between the two mainly reflect differing assessments of how protracted the negative effects could be.

Alternative 1: *Productivity Boom*

After a lull in the mid-2000s, productivity growth has been robust and above our current estimate of trend productivity growth. This rapid growth raises the possibility that the lull in productivity growth in mid-decade was a cyclical development and that medium- and long-term productivity growth will be closer to that of previous post-WWII periods of high productivity growth (pre-1973 and the mid-1990s through the mid-2000s). As such, we could see persistent productivity growth above our assumed trend, implying a higher potential growth rate for output and thus expected real output growth that is higher

than our current estimate. (A higher potential growth rate may also imply that the output gap that opened during the 2007-2009 recession is larger than we currently estimate). Strong productivity growth would also limit labor cost pressures and thereby help to subdue inflation.

Alternative 2: *Fiscal Consolidation*

Events in Europe in 2010 and so far in 2011 concerning the fiscal position of several euro zone countries raise issues about the possible economic consequences if similar concerns were to develop about the sustainability of the U.S. government's fiscal position. The *Fiscal Consolidation* scenario envisions a situation in which concerns on the part of investors about the fiscal sustainability of the United States leads to an increase in long term interest rates and term premia that contribute to a decline in output growth below that of the central forecast. As the U.S. government responds to those concerns by reducing government spending and/or raising taxes, the consequent decline in aggregate demand would imply that growth of real activity continues to be weak. In this scenario inflation temporarily rises above the central forecast, in part due to a likely depreciation of the dollar and possible increases in inflation expectations². [As stated earlier, the near-term implications of this scenario are similar to those of a supply shock or productivity slump, which is one reason we have folded in the weight of the old *Productivity Slump* scenario into this scenario.] However, after several quarters, with the government embarking on a credible fiscal consolidation, inflation declines below the central forecast as a consequence of the drop in aggregate demand and output growth.

Alternative 3: *Faster Growth/Recovery*

The recovery from the 2007-09 recession has been quite weak, especially given the severe drop in real activity during the recession. Factors behind the slow pace of recovery include the continued stress faced by financial markets and institutions as they slowly mend from the financial crisis and a slow process of repairing household balance sheets damaged in the financial crisis and recession. However, the relative strength in

² Some economic models imply that if the public and investors see the fiscal situation as unsustainable, they could raise inflation expectations because of the possibility that part of the long-term fiscal budget gap is closed through higher inflation.

recent real PCE and other aggregate demand indicators raise the possibility that the process of mending may be beginning to reach an end. The *Faster Growth/Recovery* scenario envisions a situation where these factors that have inhibited growth subside more quickly than anticipated by policymakers. In particular, the diminution of these factors would lead to a stronger impact from accommodative monetary policy and from the fiscal stimulus associated with the fiscal agreement passed in December 2010, leading to faster growth in aggregate demand. In that case, real GDP growth could be higher than anticipated, and inflation pressures could materialize more quickly.

Alternative 4: *Loss of Credibility*

In the wake of the monetary and fiscal stimulus used to combat the 2007-2009 recession, some commentary has focused on the possibility that these policies could lead to higher inflation expectations and eventually to higher inflation. The continued elevated levels of some commodity prices are consistent with such commentary. Even though the FOMC has made its commitment to low rates contingent on “subdued inflation trends” and “stable inflation expectations,” it is possible that market participants may begin to believe that the FOMC is not credibly committed to keeping inflation around the presumed implicit target level, especially if the unemployment rate remains high. In addition, concerns about the possible influence of continued high fiscal deficits on monetary policy could lead investors and the public to question FOMC credibility on inflation: FRBNY survey evidence suggests that, for at least some market participants, increases in government debt lead to higher inflation expectations, regardless of the reason for the increased debt. If the concerns about credibility were to become widespread, they would likely cause a rise in inflation and inflation expectations above forecast.

Alternative 5: *Global Credit Crunch*

Although financial markets are generally notably healthier than they were during the most extreme periods of the financial crisis, continued impairments in some markets as well as general economic uncertainty may be keeping credit availability very tight. In addition, consumers suffered wealth losses during the crisis, of which only a small part has been recovered, and volatility in equity markets is still elevated. Most central banks are maintaining what would appear to be very accommodative policy stances. This

combination of factors suggests that the neutral rate is still lower than it was before the financial turmoil began (we estimate it to be between 3.00% and 3.75% over the near-term). Even though the current FFR is well below our lower estimate of the neutral rate, tight credit conditions, continued stresses in global financial markets, and a still-significant chance of a further deterioration in global economic conditions create a risk that output growth will fall significantly below the level projected in the central forecast; this development would likely be accompanied by inflation below the level in the central forecast. Nevertheless, under this scenario we assume that financial markets will begin to function more normally and that, as they do, the economy will exit the *Global Credit Crunch* scenario and begin growing faster than its potential growth rate. The strong output growth experienced when the economy leaves the scenario should result in a closing of the output gap over time.

Alternative 6: *Global Deflation*

Recent price level indicators point to low inflation in many regions of the world. With inflation at such levels, sluggish growth in some parts of the world, concerns about the future of the euro zone, and continued financial market uncertainty suggest that there is some risk of global deflation going forward. This possibility is further exacerbated as many central banks around the world have their policy rates at or very near their lower bounds. The *Global Deflation* scenario reflects the possibility that the U.S. and the rest of the world may get mired in a liquidity trap for a prolonged period of time, resulting in both inflation and output growth far below the levels projected in the central forecast. Because of the difficulty of exiting such a situation, we see the *Global Deflation* scenario as quite persistent. Unlike the *Global Credit Crunch* scenario, the economy does not generally “bounce back” from *Global Deflation* to close the output gap. Instead, the U.S. is much more likely to experience a prolonged period of essentially no growth, and in many simulations in which the economy enters the *Global Deflation* scenario the level of output in 2013 does not surpass the 2009Q2 peak.

The implications for inflation and output of the various scenarios can be summarized as follows:

1. *Productivity Boom*: inflation below central forecast, output above central forecast.

-
2. *Fiscal Consolidation*: inflation initially above and then below central forecast, output below central forecast.
 3. *Faster Growth/Recovery*: inflation above central forecast, output above central forecast.
 4. *Loss of Credibility*: inflation far above central forecast, output slightly below central forecast.
 5. *Global Credit Crunch*: inflation below central forecast, output significantly below central forecast.
 6. *Global Deflation*: inflation far below central forecast, output far below central forecast.

Policy Rule Descriptions

In this abbreviated version of the Exhibit D documentation, we include a description of policy rules used in this Blackbook. Full documentation, including the methodology description, is included in the Appendix.

In both our *Baseline* and alternative policy rule specifications, the policy rate responds to deviations of inflation from target and of output from potential (except for the *Nutter* rule, which ignores output deviations), while incorporating some degree of inertia. For each of the FFR paths and each of the policy rules, we determine these deviations using the inflation and output paths generated in Exhibit C.

Baseline Policy Rule Specification:

$$i_t = \rho i_{t-1} + (1 - \rho) \left[i^* + \varphi_\pi (\pi_t - \pi^*) + \varphi_x x_t \right]$$

$\rho = 0.8$ (interest rate smoothing parameter)

$i^* = 3.75$ in short - term, moving to 4.25 (neutral FFR)

$\pi^* = 1.75$ (core PCE inflation target)

$\varphi_\pi = 1.5$ (weight on inflation deviations)

$\varphi_x = 0.5$ (weight on output gap)

π_t : core PCE, 4 - quarter average

x_t : output gap, using 2.7% potential growth rate, moving to 2.6%

i_{t-1} : interest rate in previous quarter

The two variants of the *Baseline* rule that we use are the *Asymmetric Price Targeting* and *Nutter* rules. The *Asymmetric Price Targeting* rule is designed to combat deflation by instituting price-level targeting. This rule reacts more slowly than the *Baseline* rule to initial increases in inflation, maintaining a lower policy rate for a longer period of time.³ In each quarter over the forecast horizon, the rule reacts to the cumulative gap between a 1.5% price level path and the actual path on the downside; the rule is asymmetric because price-level targeting is only implemented on the downside. When the cumulative gap in

³ All of the policy rules are subject to an effective lower bound of 0.25%.

inflation is greater than 1.5% per year, the policy rule reverts to targeting the gap between four-quarter changes in inflation and the inflation objective, just as in the *Baseline* rule.

The *Nutter* rule reacts more strongly than the *Baseline* rule to changes in inflation. Specifically, the *Nutter* rule increases the weight on deviations of core PCE inflation from the target ($\varphi_\pi = 2$ instead of 1.5). The *Nutter* rule does not react to changes in the output gap.

In addition to the *Baseline* rule and the two variants, we also consider the FFR paths generated by the Board staff's *Outcome-based* rule. The most significant difference between the three FRBNY rules and the *Outcome-based* rule is that the FRBNY rules offer a prescription for future behavior based on policymaker preferences and views of the economy, whereas the *Outcome-based* rule is a statistical description of the average of past FOMC behavior. Specifically, the *Outcome-based* rule calculates an FFR for a given quarter as a function of the FFR in the previous two quarters, the current quarter's four-quarter core PCE inflation, and the output gap for the current and the previous quarter using parameters estimated from real-time historical data (1988-2006)⁴.

We also want to compare the policy paths and distributions calculated using these rules with the market-implied path and distribution. In these charts, we use the standard path of market policy expectations derived from fed funds and Eurodollar futures contracts that is pictured in Exhibit A-5. For Exhibit D-4, we construct a distribution for the market-implied path by assuming it has a normal distribution centered at the standard, market-implied path, with a standard deviation derived from options markets (pictured in Exhibit A-6).

Using a weighting scheme, it is possible to combine the *Baseline* and the two variants into an *Average* rule that may better reflect market beliefs about FOMC preferences and views of the structure of the economy than does any individual rule. (That is, we can think of the market-implied path as reflecting an amalgam of different perceived FOMC

⁴ *Outcome-based* rule: $i_t = 1.20*i_{t-1} - 0.39*it-2 + 0.19*(1.17 + 1.73*\pi_t + 3.66*x_t - 2.72*x_{t-1})$

preferences, etc.) Each cycle we construct the *Average* rule by taking the weighted average of the *Baseline* rule and the two FRBNY-derived variants that matches the market-implied path as closely as possible. (We do not currently display the *Average* rule or the weights used to calculate the *Average* rule in the Blackbook). Examining the change in the weights used to construct the *Average* rule from one cycle to the next can provide insight into the reasons behind shifts in the market path not explained by changes in the outlook.