FRBNY BLACKBOOK

RESEARCH AND STATISTICS GROUP

FOMC Background Material

March 2013

CONFIDENTIAL (FR) Class II FOMC

FRBNY BLACKBOOK

March 2013

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EXHIBITS

EXHIBIT OVERVIEW

1. Policy Recommendation and Rationale

The economic and financial market developments since the January Blackbook Update have led to no change in our policy recommendation. We recommend that asset purchases continue at the current pace until the end of 2013 and that no change be made to the forward guidance regarding the federal funds rate.

The real economic outlook has been affected by two opposing factors. On the one hand, the recent data releases have been relatively encouraging, indicating that so far the U.S. economy has withstood fairly well the fiscal tightening at the beginning of the year. On the other hand, the implementation of sequestration raises the prospect of additional fiscal drag, which was not anticipated in January. The February labor market report had a number of encouraging aspects; however, the data over the period since the announcement of the new outcome-based purchase program suggest that labor market conditions have improved only marginally, and thus there has not been a substantial improvement in the labor market outlook. The inflation outlook also remains subdued, and measures of inflation expectations are still anchored. Therefore, the economic outlook does not suggest any change in the policy stance.

We also see the efficacy of the current asset purchase program as continuing to exceed the associated costs. To this point, the benefits of the program on financial conditions and the economy, particularly through downward pressures on longer-term interest rates, appear to have been as large (or even a little larger than) expected. At the same time, the costs have been relatively small. Metrics of market functioning indicate little deterioration so far, although we will need to carefully monitor the MBS market. We also have not found compelling evidence that the policy is significantly increasing the risks to financial stability. Consequently, we judge that there is no need to change, or to signal a change, in the current pace of purchases.

Beyond the short-term issue of adjustments to the purchase program, an issue that policymakers will probably need to begin addressing in the coming months is the path of the eventual normalization of policy. In all likelihood, at the point of normalization, the Fed balance sheet will be much larger and have longer duration and a larger share of

MBS than envisioned at the time of the adoption of the “exit strategy principles” in June 2011. As a consequence, we believe that these principles should be reviewed and revised to provide more flexibility. Although there is some room to maneuver in the current principles, the guidelines based on the calendar still seem too strict in the current circumstances and inconsistent with an outcome-based policy framework. Furthermore, the dictated path of exit and sales could prompt a front-loaded snapback in long-term interest rates that is a concern for the FOMC and that could be detrimental for economic performance. The current principles also may not provide the appropriate reduction in duration of the Federal Reserve balance sheet. Thus, it will be important as part of the review to assess the costs and benefits of a more active balance sheet management during the normalization process. Finally, the FOMC should also revisit its desired balance sheet at the end of the normalization process, including whether the balance sheet should be comprised of Treasuries only, as well as its size as it relates to the implementation of interest rate policy, depending on the choice of a corridor or floor system.

Lastly, if the economic data show some further improvement, speculation about an early exit from accommodation will mount. In that case, it will be imperative for the FOMC to communicate its commitment to maintain accommodation for a considerable time after asset purchases end and the economic recovery strengthens, so as to push back against speculation of a premature exit. Such expectations could impair the expansion, as has been the case twice previously. Another such instance could leave the FOMC in a more precarious position if greater accommodation might subsequently be needed.

2. Evolution of Outlook and Risks

2.1 Central Forecast

Intermeeting developments.

Information on the economy received over the intermeeting period has been mixed, but on balance the surprises have been to the upside, and our projection of the rate of growth of real GDP in 2013Q1 has been increased to around 2 ½% (annual rate). At the same time, however, the sequester became effective on March 1. If the sequester remains in effect, as we are assuming in this forecast cycle, fiscal restraint in 2013 is nearly ½ percentage point more than was assumed in January. The largest effects of the sequester are expected to be in the second and third quarters of this year, after which the associated drag begins to diminish. For all of 2013, our forecast for growth of real GDP is 2 ¼% (Q4/Q4), down from 2 ½% in January. Thus, absent the sequester, we see somewhat more forward momentum for the economy, particularly within consumer spending and residential investment where it appears that the easing of monetary policy has begun to gain more traction.

The most significant upside surprise of the intermeeting period has been the fact that, thus far, consumer spending has held up much better than expected in the face of the increase of payroll taxes effective January 1. Real PCE rose 0.14% in January (1.7% annual rate), while the retail sales data for February suggest that real PCE might increase by somewhat over 0.2% in February. Given the pattern of monthly increases over the fourth quarter, the pace of increase in January and February put us on a path for a 2 ¼% to 2 ½% annual rate increase of real PCE in 2013Q1, equal to or somewhat stronger than in the fourth quarter.

The improvement in consumer spending continues to be led by spending on durable goods, particularly motor vehicles. Motor vehicle sales rose again in February, to 15.4 million units (annual rate). The January-February average pace of sales was 15.33 million units versus the fourth quarter average of 15.07 million. Also noteworthy is the fact that domestic nameplate motor vehicles have been steadily gaining market share since the first half of 2009.

There are several potential explanations for the stronger than expected consumer spending, all of which are likely operating to some extent. First, it is possible that the full effect of the tax increase has not yet been realized. The decline of disposable income likely became apparent to many households by mid-January, and it takes some time for spending patterns to adjust. Second, while the increase in taxes has adversely affected spending by some households, improvements in underlying fundamentals, such as growth of hours worked, increased access to credit, and increased wealth through higher equity and home prices, has been even more pronounced than we realized. Included in this improved fundamentals explanation is the fact that interest rates on loans to finance purchases of many types of durable goods are extremely low. Several motor vehicle manufacturers have been offering 0.9% financing for as long as 60 months. The power of such low interest rates to spur economic activity likely increases materially when other relevant factors begin to fall into place. Finally, the data suggest that substantial sums of labor compensation and dividends were pulled forward into December 2012 in anticipation of higher tax rates. This pulling forward of income may be resulting in some pulling forward of consumer spending as well.

We continue to believe, and have built into our forecast, that the tax increase will have a more noticeable effect on consumer spending in coming months, and so the first quarter growth rate of real PCE is not expected to be sustained in the second quarter. A key factor in this expectation is that the personal saving rate is likely to fall to around 2 ¼% in the first quarter, a level that prevailed in 2007. We doubt that this is a sustainable equilibrium under current conditions. Maintaining the Q1 pace of growth of real PCE in the second quarter would, all else equal, involve a further decline of the personal saving rate.

Another source of recent strength has been residential investment, which rose at a 17.4% annual rate in the fourth quarter and is expected to continue to increase at roughly that pace in 2013. As of January, a three-month moving average of single-family housing starts was up 20% over year ago levels to just under 600,000 units (seasonally-adjusted annual rate). Over the same period, a three-month moving average of multi-family housing starts was up 44% to just over 300,000 units, and a three-month moving average of total sales of new and existing single-family homes has increased nearly 11%. The CoreLogic national home price index rose for the thirteenth consecutive month in January and was up 9.7% on a year-over-year basis. This is the largest 12-month increase of this price index since April of 2006. The rise of home prices is now broad based, with only 10 percent of counties continuing to experience year-over-year price declines.

Recent data pertaining to the supply side of the economy have also looked somewhat brighter. Based on data for January and February, total hours worked by private sector employees are increasing at a 2% to 2 ½% annual rate in the first quarter, up from 1.7% in the fourth quarter and 1.5% in the second quarter. The ISM manufacturing index rose to 54.2 in February after averaging around 50 in November and December. The ISM nonmanufacturing index has been on a gradual uptrend for about the past six months, reaching 56 in February from a recent low of 52.7 last June. In both cases, the recent improvement has been led by increases in new orders, including new export orders. Also in both cases, the February levels are near those that prevailed in the middle of the last decade.

But as noted above, not all recent data have been upbeat. Private nonresidential construction fell sharply in January after posting a decent increase in the fourth quarter. Construction at the state and local level also fell in January on the heels of a significant decline in the fourth quarter. State and local government employment has resumed a downward trend after rising modestly in 2012Q3--the first quarterly increase since the third quarter of 2008. Spending by the federal government is expected to decline again in the first quarter, although not as deeply as in the fourth quarter. Finally, although orders for nondefense capital goods have increased sharply in recent months, shipments fell by 1.1% in January. Even the increase in orders is somewhat less than meets the eye, being heavily concentrated in just two categories—construction equipment and turbines.

The recent price data continue to be subdued. The 12-month change of the total PCE deflator slowed to 1.2% in January. As recently as the third quarter of 2011 that rate was nearly 3%. The 12-month change of the core PCE deflator also continued to slow, to 1.3% from 1.4% in December from a recent high of 2% in March of 2012. The 12-month change of nonpetroleum import prices has moved to just slightly above zero in recent months after being in negative territory for much of the second half of 2012. But the resumed appreciation of the exchange value of the dollar will likely exert downward pressure on import prices in coming months. (The 12-month change of the total CPI rose to 2.0% in February from 1.6% in January due to a huge spike in energy prices. The 12-month change of the core CPI edged up to 2.0% in February from 1.9% in January, reflecting some firming in a broad array of non-energy services prices.)

Conditioning assumptions.

Our estimate of potential GDP growth is around 2 ¼%, reflecting trend growth of productivity of 1 ¼% and trend growth of hours worked of 1%. The Board staff estimates of potential for 2013 and 2014 are unchanged at 1.9% and 2.1%, respectively.

We expect the lower degree of inflation persistence evident since the early 1990s to continue, in contrast to what is usually assumed in the Board staff forecasts. In our central scenario, inflation expectations remain well anchored. This assumption is central to our projection that core PCE inflation will gradually move up to the FOMC's objective of 2.0% by 2014. In contrast, the Tealbook forecast expects core PCE inflation to remain below 2% over the entire forecast horizon.

In both the Tealbook and Blackbook, projections of global real GDP growth in 2013 have been lowered modestly—to 2.7% (Q4/Q4) from 2.8% (Q4/Q4) in the case of the Blackbook and to 2.6% from 2.8% in the case of the Tealbook. In both cases, the main source of this modestly lower projected growth rate is some downgrading of growth prospects in the euro area and in China, which is only partially offset by somewhat stronger projected growth in Japan. In 2014, both forecasts expect global growth to move somewhat higher to around 3% led primarily by a firming of growth in the euro area.

In both the Tealbook and the Blackbook forecasts, the nominal exchange value of the dollar is projected to rise 0.8% in 2013 rather than decline around 1%, as was assumed in January. For 2014, both forecasts expect the dollar to decline by around 1 ¾%, somewhat more than in the January forecast. On net, the exchange value of the dollar is still expected to be on a downward trend, but the level of that trend has been moved somewhat higher over the entire forecast horizon.

Both spot and futures prices of oil have moved somewhat lower over the intermeeting period. Accordingly, we have lowered our assumed path of oil prices over the forecast horizon by an average of $2 per barrel in 2013 and 2014. We now expect the WTI price per barrel to average $92.50 in 2013Q4 and $90 in 2014Q4. The Board's projected path is quite similar to ours.

Our standard practice has been to adopt the same federal fiscal assumptions as in the Tealbook. However, in this forecast cycle we are deviating from that practice by assuming that the sequester remains in effect over the forecast horizon. In contrast, the Board staff is assuming that a "modified sequester" will be agreed upon in the near future which will reduce the amount of spending cuts in 2013 and 2014 by about half. But even this assumption results in more fiscal drag in 2013 than they had been assuming. Their fiscal impetus measure for 2013 has been revised to -1.1 percentage points from the previous estimate of -0.9 percentage points. For 2014, fiscal impetus is unchanged at -0.7 percentage points. Under our assumptions the corresponding values would be around -1.4 and -0.8, respectively. To put these numbers in perspective, the Congressional Budget Office has recently released new estimates of federal revenues and outlays without automatic stabilizers. The change in the structural deficit for 2013 is +1.8 percentage points of potential GDP, which falls to +1.4 percentage points in 2014. Of course, this measure does not take into account relevant fiscal multipliers.

We also routinely adopt the Tealbook assumptions regarding equity and home prices. Equity prices are currently about 4% higher than they were at the time of the January Tealbook, a larger than anticipated gain. From that higher starting point, equity prices are expected to rise at a 9% annual rate in 2013 and 2014, about as assumed in January. The net result is a somewhat higher path of equity prices over the forecast horizon. A much more significant change has been made to the assumed path for home prices. The increase of the CoreLogic national home price index over the past six months has continued to surprise to the upside, apparently due to tight supply conditions. The Board now expects that index to rise 8% in 2013, rather than 4 ½% in January and then to slow to 4% in 2014, up from 3 ½% in January. The net result is a substantial shift upward in the path of home prices through the end of 2014.

The Outlook.

As mentioned above, with the introduction of the sequester into our modal forecast, the projected rate of growth for 2013 has been lowered somewhat, to 2 ¼% (Q4/Q4) from 2 ½% in January. However, our estimate of the 2013 fiscal drag from the sequester is around 0.4 percentage points. Thus, absent the sequester there has been a modest improvement in the growth prospects for 2013. Moreover, we now see the risks around our forecast as more nearly balanced than was the case in January. Monetary policy appears to be gaining more traction in stimulating consumer spending and the housing market. This fact, coupled with a perceived decline of tail risks associated with the fiscal crisis in the Euro Area, have increased risk appetites somewhat, leading to a sharper rise of equity prices than previously expected. Thus, even if the sequester remains in effect, by the second half of 2013 and into 2014 we expect to see the economy gather more forward momentum, with stronger monthly average job gains and sustained declines of the unemployment rate. For 2014, we anticipate a growth rate around 3 ½%, with business fixed investment providing a more substantial growth contribution. Under our forecast, the unemployment rate averages 6 ½% by the fourth quarter of 2014, although this assumes an essentially flat labor force participation rate.

That being said, the amount of fiscal drag being imposed on the US economy in 2013 is quite substantial. Based on CBO's estimate of the change in the fiscal deficit, there have been only two previous occasions in the period since 1960 when fiscal policy became this restrictive, and in both of those cases the unemployment rate was substantially lower than it is now. We cannot ignore the possibility that the current expansion is derailed by the increase in taxes and reductions of spending that have been put in place.

As has been the case for some time, we expect a subdued pace of inflation in 2013, with gradual acceleration taking place in 2014. The current amount of measured slack in the economy continues to exert downward pressure on inflation, while inflation expectations remain well anchored. Year-over-year growth of nonpetroleum import prices has been essentially zero and may turn negative again in coming months due to the recent appreciation of the dollar. For all of 2013, we expect the total PCE deflator to rise around 1 ¾% (Q4/Q4) while the core rises around 1 ½%. In 2014, as the economy begins to establish greater forward momentum with slack being absorbed at a more rapid pace, we expect both total and core inflation to move gradually higher to around 2%. In addition to the decline in slack, well anchored inflation expectations and the expected decline of the exchange value of the dollar contribute to this firming in the rate of increase of prices.

2.2 Alternative Scenarios and Risks

The assessment of risks to the outlook has changed somewhat since the last FOMC meeting, with a slight reduction of downside risks to activity in the near-to-medium term compared to the January Blackbook Update. Over the medium term, risks for both activity and inflation are roughly balanced. We continue to condition the assessment of risks to the outlook on the assumed path of policy in our recommendation, which removes some of the downside risks to the outlook while adding to the upside.

Relatively encouraging data releases motivated the decrease in some of the downside risks to real economic activity in the near and medium term. The housing market continues to show a steady recovery, the manufacturing sector exhibits signs of improvement, and retail sales have been more robust than expected. This suggests that the economy is coping reasonably well with the fiscal tightening due to ATRA. In addition, labor market conditions continue to improve, albeit at a relatively slow pace. Thus, we increased the likelihood of the *Faster Growth* scenario, which has now become our most likely alternative scenario, with a probability of about 35 percent. [Exhibit C-1]. The fiscal measures undertaken with ATRA and the implementation of sequestration resulted in less uncertainty with respect to fiscal policy. We therefore decreased the weight on the *Fiscal Consolidation* scenario somewhat, but potentially strong adverse effects from fiscal policy remain a risk, due to the uncertainty on the impact of sequestration on household spending. Hence, *Fiscal Consolidation* is the second most likely alternative scenario with a probability of just over 25 percent. Changes in the other scenarios relative to the January Blackbook Update are minor.

The forecast for GDP growth towards the end of 2013 under the *Central* scenario has been modestly downgraded relative to the January Blackbook Update. Because the paths under the alternative scenarios are defined relative to the *Central* scenario outlook, late-2013 growth forecasts under the alternative scenarios have also moved down somewhat in comparison with the January Blackbook Update [Exhibit C-2]. Projections for core PCE inflation in 2013 have been modestly upgraded.

As a result of the changes in the scenario probabilities, the forecast distribution for activity in the medium term has now become more symmetric compared to the January Blackbook Update. The forecast distribution for core PCE inflation, on the other hand, has remained virtually unchanged [Exhibit C-3].

Finally, Exhibit C-3 also displays the baseline forecasts from the FRBNY-DSGE model (orange line). The DSGE forecasts remain near the mean and modal forecasts in the near-term, but continue to be noticeably below the expected values in 2014-15.

3. Forecast Comparison

3.1 Comparison with Private Forecasters[1]

Real GDP Growth. The FRBNY projection for real GDP growth for 2013Q1 falls within the range of private forecasts for that quarter, and it is somewhat lower than that of private forecasters for 2013Q2. On a year-over-year basis, we revised down the FRBNY growth projection for 2013 by 0.2% relative to the previous FOMC meeting, while the projection for 2014 was revised down by 0.1%. The FRBNY estimate of 2.3% GDP growth in 2013 is consistent with private forecasts, whereas the FRBNY estimate of 3.5% growth in 2014 is somewhat higher than that of private forecasters.

Inflation. The FRBNY year-over-year forecast of core CPI inflation for 2013 remains at 2.0% – slightly above that of private forecasters, while the projection for 2014 was upgraded by 0.2 percentage points to 2.4%, which is also higher than corresponding private forecasts. The FRBNY year-over-year projection for core PCE inflation in 2013 was revised up by 0.2 percentage points to 1.5%, which is within the range of private forecasts. The FRBNY projection for core PCE inflation in 2014, on the other hand, was downgraded by 0.1% to 1.9% , and this is similar to projections from private forecasters. The near term FRBNY core PCE inflation projections for 2013Q1 and 2013Q2 both stand at 1.4%, and for 2013Q2 this is lower than pivate forecasters' estimates, despite having been upgraded relative to the last FOMC meeting. Our projections for CPI inflation in 2013 have been upgraded significantly – with values of 2.1% for 2013Q1, 3.3% for 2013Q2, and 2.5% for 2013Q4/Q4. These 2013 CPI inflation projections are substantially higher than those of private forecasters. The FRBNY CPI projection for 2014 was also revised up, and it is above those of private forecasters for 2014Q4/Q4.

[1] The details of the forecast comparison are in Exhibit B-8. Quarterly numbers are SAAR.

3.2 FRBNY-DSGE Model Forecast

The FRBNY model forecasts are obtained using data released through 2012Q4, augmented for 2013Q1 with the FRBNY staff forecasts for real GDP growth, core PCE inflation, and growth in total hours, and with values of the federal funds rate and the spread between Baa corporate bonds and 10-year Treasury yields based on 2013Q1 observations. The expected future federal funds rates are constrained to equal market expectations, as measured by the OIS rates, through 2015Q2. The 2013Q1 staff projections and OIS rates are those available on March 4, 2013.

Output growth in 2012Q4 and 2013Q1 (as projected by the FRBNY staff) was in line with the DSGE model forecasts produced in December, hence our output projections are essentially the same as in the December Blackbook [Exhibit E-1]. The model still projects a lackluster recovery in economic activity, with output growth in the neighborhood of 2 percent throughout the forecast horizon. Growth forecasts for 2013, 2014 and 2015 (Q4/Q4) are 2.3, 1.9 and 1.4 percent, respectively, marginally below the rates of 2.7, 2.3 and 1.6 percent reported in December [Exhibit B-8]. Core PCE inflation in 2013Q1 (again, as projected by the staff) turned out a bit higher than in the December DSGE projections, lifting up the near-term inflation forecast slightly, but leaving the medium and long-run projections unchanged. The model predicts core PCE inflation to remain below the FOMC long-run goal of 2 percent throughout the forecast horizon. Specifically, core PCE inflation projections for 2013, 2014 and 2015 (Q4/Q4) are 1.1, 1.3 and 1.5 percent, respectively, compared to 0.9, 1.2 and 1.5 percent in December. Relative to the FRBNY central forecast, the DSGE model forecasts a similar evolution of output through mid-2013, but is far less optimistic afterwards. The inflation forecasts are 50 to 75 basis points below the FRBNY staff forecasts throughout the horizon.

According to the DSGE estimates, there is significant uncertainty around real GDP growth over the forecast horizon, with 68 percent bands covering the interval 0.1 to 3.7 percent in 2013 (Q4/Q4), -1.7 to 4.5 percent in 2014 (Q4/Q4), and -2.1 to 4.3 percent in 2015 (Q4/Q4). The forecast distribution for inflation moved up slightly relative to December, and the 68 percent probability bands are within 0.4 and 2.2 percent throughout 2015. Uncertainty around the real activity forecast in the DSGE model, as measured by the width of the 90% probability interval, is slightly lower through 2013 than in the FRBNY forecast distribution, but it has more downside risk beginning in 2014. Correspondingly, uncertainty around the inflation forecast also shows more downside risk beginning in 2014.

The FRBNY DSGE forecast is driven by two main factors. On the one hand, the headwinds from the financial crisis, as captured by the effect of shocks to credit spreads and to the marginal efficiency of investment (MEI), result in a subdued recovery, low real marginal costs, and consequently low inflation. The impact of these shocks on the recovery is long-lasting and starts to wane only in mid-2013. On the other hand, accommodative monetary policy, and forward-guidance in particular, has played an important role in counteracting those financial headwinds, contributing to lift output and inflation. However, the impact of policy on the *level* of output starts to wane by the end of 2012, so that output is now on its way back to where it would have been without the policy stimulus, although it remains above that level. As a result, the contribution of policy to *growth* is negative going forward, which largely explains why output growth is still below trend by the end of 2015.

The model views the federal funds rate at the zero lower bound as mostly driven by the endogenous response of policy to the weak economy. In fact, by the end of 2012 the historical rule would imply a rate that is slightly below 25 basis points. However, by early 2015 the effect of forward guidance on rates becomes noticeable, implying a federal funds rate path below the historical rule by about one percentage point.

4. Robustness of Policy Recommendation

4.1 Sensitivity to Alternate Scenarios and Policy Rules

Our current policy recommendation implies a target range for the federal funds rate of 0 – 0.25% until mid-2015. This level of accommodation goes beyond what is implied by the *Baseline* policy rule under all scenarios [Exhibit D-1], which reflects our assessment that standard Taylor-type rules are not good approximations of optimal policy when policy is constrained by the zero lower bound. Instead, a commitment to maintain rates at a low level for longer than prescribed by standard rules is necessary to provide the appropriate level of accommodation.

In exhibit D-2, we report on the prescriptions from various policy rules using the expected value of the forecast distribution as an input. The path implied by the Baseline policy rule shows a liftoff in 2014Q3, slightly later than the liftoff date implied by data at the time of the last FOMC meeting. The *Nutter* rule, which puts weight on inflation only, prescribes a policy rate close to 0.75% by 2013Q2, again somewhat later than at the time of the last FOMC meeting. Exhibit D-2 also shows the implied nominal FFR under the *Outcome-based* rule, ignoring the zero bound constraint. Under the expected value of the forecast distribution, the unconstrained nominal FFR remains negative throughout the forecast horizon – reaching -6% by about mid-2014.

Exhibit D-3 displays the prescriptions from alternative policy rules under the various alternative scenarios. FFR paths under the *Asymmetric Price Targeting* rule continue to be at the lower bound (0.25%) throughout the forecast horizon. The *Nutter* rule prescribes a liftoff in the first half of 2013 under all scenarios. For the *Outcome-based* rule, which ignores the zero lower bound, the paths are at or below zero through the end of 2015 for most scenarios; one exception is the *Faster Recovery* scenario, where the path moves above zero in 2015Q4.

4.2 Comparison to Market Expectations

The expected FFR path derived from overnight index swaps (OIS) quotes moved up relative to its path at the time of the January Blackbook Update, and it is now consistent with a 2015Q2 liftoff. The median of the modal forecasts from the Primary Dealers Survey suggests a similar timing of the first increase in the FFR target, which is unchanged from the previous survey. The average probability distribution of the timing of the first increase in the FFR target also remained largely unchanged over the intermeeting period, but its dispersion was further reduced, with some probability moving mostly to 2015H1 from 2015H2. The mode of the distribution remained at 2015 H2 with a probability slightly above 25%, while probabilities of about 23% and 15% were placed on 2015H1and 2016H1, respectively. Other dates received a probability of 10% or less.

The median of the distribution of the date in which dealers expect asset purchases to end remained unchanged relative to the last FOMC meeting at 2014Q1. However, the fraction of respondents expecting an end to purchases in 2014Q2 increased from less than 10% to more than 30%. In addition, there is currently no probability attached to ending asset purchases before 2013Q3 (it was 10% in January), which is in contrast to the Tealbook assumption of an end to the Federal Reserve's balance sheet expansion in 2013Q2. Furthermore, dealers were asked about their expected path of monthly asset purchases going forward. The median expectation for the monthly pace of Treasury purchases is for them to decrease for the first time after the December 2013 FOMC meeting from $45 billion to $35 billion per month and for them to decrease further to $20 billion a month a year from now. As for the monthly purchases of agency securities, the median expectation is that they will terminate a year from now. The median expected size of Treasury and agency MBS purchases throughout the life of the program remains roughly unchanged at 600 billion dollars for Treasuries and 623 billion dollars for agency securities (this estimate includes agency securities purchased in 2012).

5. Significant Developments

5.1 Economic Developments

Foreign Data Releases. *Euro area*: Significantly lower consumption and investment spending accounted for most of the steep Q4 decline in euro area GDP. Inventories were a drag on output for the sixth consecutive quarter. Manufacturing has been on a downward trend since Q3 2011, with the index in January down 3 percent over the year. The economic sentiment index rose for the fourth straight month in February, although it remains well below 2011 levels and 10 percent below its long-run average. The composite PMI rose in December and January but the index surprised on the downside in February. The unemployment rate reached an all-time high of 11.9 percent in January.

Japan: Output was essentially unchanged in Q4 and was up only 0.4 percent over the year. Plunging exports, flat investment spending, and a substantial drag from inventories were behind the weak reading. Export volumes rose by 2 percent in January after

Key Data Releases

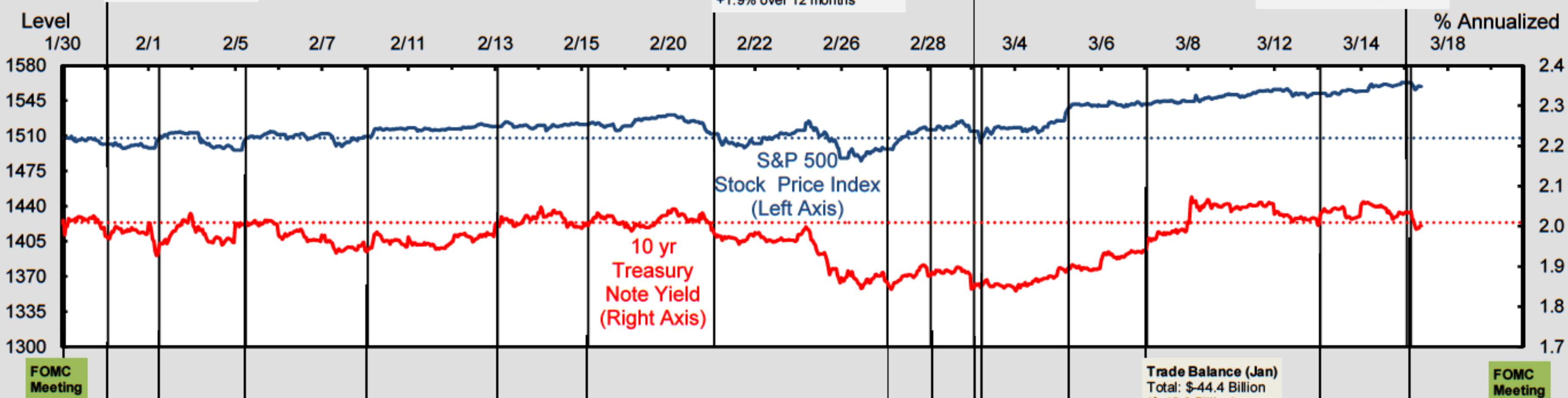
Price Releases

PCE Price Index (Dec)
Overall:
-0.05%
+1 3% over 12 months
Core:
+0.01%(+0.1%)
+1.4% over 12 months

Consumer Price Index (Jan)
Overall:
+0.03% (+0.1%)
+1.6% over 12 months
Core:
+0.3% (+0.1%)
+1.9% over 12 months

PCE Price Index (Jan)
Overall:
+0.02%
+1.2% over 12 months
Core:
+0.1%(+0.1%)
+1.3% over 12 months

Consumer Price Index (Feb)
Overall:
+0.7% (+0 5%)
+2.0% over 12 months
Core:
+0 2% (+0 2%)
+2.0% over 12 months



Real Activity Releases

Gross Domestic Product (Advance Estimate for 2012Q4)
Real GDP: -0.1% (+1.1%)

ISM Non-Manufacturing (Jan)
Composite index: -0.5 to 55.2
(-0.7 points to 55.0)

ISM Manufacturing (Jan)
Composite index:
+2.9 to 53.1
(+0.5 at 50.7)

Construction Spending (Dec)
Construction Spending: +0 9% (+0.7%)
+7 8% over 12 months

Personal Income (Dec)
Personal Income:
Nominal +2.6% (+0 8%)
Nominal disposable +2.7%
Real Disposable +2 8%
PCE:
Nominal +0.2% (+0.3%)
Real +0 2%

Trade Balance (Dec)
Total: -$38.5 Billion
(-$46 Billion)

Advance Retail Sales (Jan)
Total:
+0.1% (+0.1%)
+4.4% over 12 months
Ex-auto:
+0.2% (+0.1%)
+3.6% over 12 months

Industrial Production & Capacity Utilization (Jan)
IP:
-0.1% (+0 2%)
+2.1% over 12 months
CU:
-0 2 pp to 79.1% (78.9%)

Advance Durable Goods (Jan)
New Orders:
-5.2% (-4 8%)
-0.5% over 12 months
Shipments:
-1.2%
+3.7% over 12 months

Gross Domestic Product (2rd Estimate for 2012Q4)
Real GDP: +0.1% (+0.5%)

Personal Income (Jan)
Nominal -3.6% (-2.6%)
Nominal disposable -4.0 %
Real Disposable -4.0%
PCE:
Nominal +0.2% (+0 2%)
Real +0.1%

Construction Spending (Jan)
Construction Spending: -0.2% (+0.4%)
+7.1% over 12 months

ISM Manufacturing (Feb)
Composite index:
+1.1 to 54 2
(-0.6 at 52.5)

ISM Non-Manufacturing (Jan)
Composite index: +0.8 to 56.0
(-0.2 points to 55.0)

Trade Balance (Jan)
Total: $-44.4 Billion
($-42.6 Billion)

Advance Retail Sales (Feb)
Total:
+1.1% (0 5%)
+4.6% over 12 months
Ex-auto:
+%1.0 (0 5%)
+3.9% over 12 months

Industrial Production & Capacity Utilization (Feb)
P:
+0.7% (+0.4%)
+2 5% over 12 months
CU:
+0.4 pp to 79.6% (79.4%)

Note
Blue shading: Data release encouraging/positive.
Red shading: Data release discouraging/negative.
Beige shading: Data release was neutral.
Gray shading: No attempt to sign the impact.
Numbers in parentheses are the median of the Bloomberg survey.

Source: Bloomberg
On-the-run securities, 8:00AM - 4:00PM.
S&P 500 Stock Price Index: 9:30AM - 4:00PM.

bottoming out in November and December. Sales to Europe and China remain well below year-ago levels. The manufacturing sector improved in December and January, but the index was still 6.5 percent below its year-ago level. Private consumption extended Q4's upward climb, posting 0.5 percent growth in January.

Asia: Initial Q1 data for China have been somewhat less robust than expected. January and February readings for trade and investment were strong, with investment supported by buoyant growth in shadow financing and a recovering property sector. However, consumption and production data were soft and manufacturing PMIs remain below long-term averages. Data for the rest of Asia, including PMI readings stabilizing at subdued levels in January and February, suggest that growth is moderating in Q1.

Latin America: Brazilian data suggest a brewing recovery after 1.4 percent growth in 2012. A key positive development is that investment spending picked up in Q4 after five quarters of decline. Growth in Mexico slowed in H2 2012 after a strong H1, with industrial activity especially weak.

5.2 Financial Markets

Domestic Financial Markets.

Nominal Interest Rates: Treasury yields fluctuated somewhat over the intermeeting period, but on balance the yield curve was unchanged since the January FOMC. The 10-year Treasury yield currently stands at 2.02 percent, only marginally higher than on the day of the last FOMC, but more than 30 basis points higher than at the time of the December 2012 meeting. Over the same time period, 5-year Treasury yields increased by about 22 basis points while maturities of two years or less remained unchanged since mid-December. In sum, the Treasury yield curve is little changed since the last FOMC meeting, but has steepened some since the December FOMC. The FRBNY staff model of the term structure associates almost all of the increase in Treasury yields at the long end of the curve since December to a rise in Treasury term premia rather than to changes in expected future policy rates. Option implied volatilities in Treasury and swap markets as measured by the 3-month MOVE and SMOVE indices decreased somewhat since the January FOMC, but are largely unchanged with respect to their mid-December 2012 levels. More importantly, they remain at levels close to their historical lows observed in mid-2007. [Exhibit A-3: Treasury Yields]

Real Yields and Inflation Compensation: Similar to nominal Treasuries, TIPS yields were relatively volatile over the intermeeting period, but remained flat on balance since the January FOMC. With respect to the December FOMC, 5-year TIPS yields rose from negative 1.69 to negative 1.51 percent while 10-year TIPS yields remained largely unchanged. As a consequence, the 5-10-year real forward rate increased markedly from around zero in mid-December to about 50 basis points currently. Short-dated implied measures of inflation compensation declined slightly since the January FOMC meeting, while longer-dated breakeven rates were largely unchanged. Compared to the December FOMC meeting, both near- and longer-term breakevens remained roughly constant, with inflation compensation over the next 5 years at 2.43% and over the next 5- to 10-years at 2.84%. Both measures are close to their recent historical averages (excluding the crisis period), suggesting that inflation expectations remain well-anchored. [Exhibit A-4: Real Yields and Implied Inflation]

Expected Policy Path and Short-term Funding Markets: The expected path of the federal funds rate as inferred from market and survey data has not changed materially since the January FOMC. While expectations are still that the federal funds rate will remain at its effective zero lower bound until the end of 2014, market prices now seem to imply an expected liftoff sometime in early 2015. Market quotes derived from Overnight Index Swaps (OIS) currently imply fed funds rate expectations of about 0.37% for February 2015, about 0.56% for August 2015, and about 1.1% for August 2016. Survey responses from the Blue Chip Financial Forecasts' February and March 2013 panels (survey period: January 23-24 and February 20-21) also show that market participants expected the federal funds rate to remain at the effective zero lower bound until at least mid-2014 (when the forecasting horizon for survey participants ends), with little uncertainty around this estimate. However, compared to the last update, the distribution of forecasts among survey participants has become slightly more skewed towards higher future rates. The O/N Treasury repo rate has recently fluctuated in a range between 5 and 15 basis points, well below the interest on excess reserves, which it shortly exceeded for the first time last fall. [Exhibit A-5: Policy Expectations]

Equity Markets: Broad stock market indices continued their recent rise over the intermeeting period. The S&P500 gained 3.5% since the January FOMC and almost 10% since the December FOMC. In early March, the Dow Jones Industrial Index broke through its all-time record levels marked in October 2007 and continued to increase in recent days. Implied equity volatility, as measured by the VIX, is currently trading below 12, which is substantially lower than its long-run mean of about 20. While it has remained subdued in recent months, the index briefly spiked up on February 25, largely reflecting uncertainty about the outcome of the Italian election on that day. [Exhibit A-6: Equity]

Credit Spreads: Broad measures of corporate credit spreads moved sideways since the January FOMC meeting, with levels remaining low compared to post-crisis averages. Investment grade and high yield corporate bond spreads to comparable maturity Treasuries currently stand at 145 basis points and 475 basis points, respectively, their lowest levels since the financial crisis. Primary and secondary mortgage market rates increased somewhat in the intermeeting period and are currently recorded at 3.71 percent and 2.70 percent, respectively. The spread between the two rates has continued to decline since its peak right after the September 2012 FOMC and is now back to levels observed in June 2012. [Exhibit A-7: Credit]

Foreign Financial Markets. *Euro Area*: The results of the Italian parliamentary election were the most significant driver for euro area financial markets over the intermeeting period. Italian national parliamentary elections in late February left no clear path to form a government. This raised doubts about progress toward further structural reforms and fiscal consolidation efforts. The resulting political uncertainty led to a rise in Italian sovereign debt yields of up to 50 basis points over the period, most of which occurred in the immediate aftermath of the elections. Other peripheral euro area debt markets were only affected moderately by developments in Italy, with corresponding yields extending their declines. Market participants continue to view the potential implementation of the Outright Monetary Transactions (OMTs) program as providing an undercurrent of support to euro area financial assets. Presidential elections in Cyprus resulted in the victory of a relatively market-friendly candidate, clearing the way for agreement on an aid program. The euro depreciated against most major currencies, including a 3 percent fall against the U.S. dollar. Equities declined by one percent, with bank and Italian indices underperforming the broader EuroStoxx index.

Japan: Price action in Japanese financial markets has been dominated by a build-up of expectations of further monetary policy easing in the near future. Following testimony by the Bank of Japan's new incoming leadership in the Japanese parliament earlier this month, market participants expect that the Bank will pursue further policy easing in order to achieve its 2 percent price stability target within two years. In particular, increased purchases of Japanese government bonds (JGBs) and extension of the remaining maturity of those bond purchases are expected. As a consequence, the yen depreciated against most major currencies since the last FOMC meeting, including an 8 percent weakening relative to the U.S. dollar, and equity values rose by about 13 percent. In the government bond market, volatility increased significantly, with the 2- to 30-year curve flattening by almost 30 basis points over the past month, as longer-dated JGB yields declined substantially.

Emerging Asia: Weaker economic data in India and mixed news on the Chinese economy resulted in EM Asian currencies that were little changed or slightly weaker against the dollar. Amongst the weaker currencies were the Indian rupee, which depreciated 2 percent against the dollar over the intermeeting period, as well as the Korean won and the Singaporean dollar, both of which weakened by 1 percent. Equity markets in the region were mixed: Chinese shares fell 5 percent, while Philippine and Thai share indexes rose 8 and 6 percent, respectively.

Latin America: Since the last FOMC meeting, Latin American equities declined by about 2 percent and currencies generally strengthened against the U.S. dollar. In particular, the Mexican peso appreciated by about 3 percent relative to the dollar, following the central bank's decision to cut policy rates by 50 basis points and its explicit characterization of the move as a one-off event.

5.3 Global Economic Policy

Euro Area: The ECB has been keeping its main policy rate unchanged after cutting it 25 basis points to 0.75 percent at its July meeting. The ECB lowered its growth forecast for 2013 slightly, but stated that the revision “mainly reflects a more negative carry-over effect from the outcome for real GDP in the fourth quarter of 2012.” The policy statement also highlighted that the risks to activity are still on the downside and that policy will remain "accommodative as long as needed,” with a "full allotment of liquidity provision" until it finds its way into the real economy. Euro area banks began to repay funds drawn from the ECB’s two 3-year longer-term refinancing operations. Banks have thus far repaid approximately €228 billion out of the €1 trillion in gross liquidity, and approximately 40 percent in net terms. Overall, the repayments to date have been slightly below expectations; current excess liquidity remains well above levels that market participants now expect would materially affect EONIA rates.

Japan: After announcing in January a doubling of its inflation target to 2 percent and a plan to implement open-ended asset purchases at a fixed pace starting in 2014, the Bank of Japan kept its policy rate in a range of 0.0-0.10 percent and the size of its asset purchase program at ¥101 trillion at its February and March meetings. The March meeting was the last one to be led by Governor Shirakawa. On March 2, the government nominated Haruhiko Kuroda to become the new Governor of the Bank of Japan, with Kikuo Iwata and Hiroshi Nakaso as deputy governors. They are viewed as supporters of aggressive easing measures.

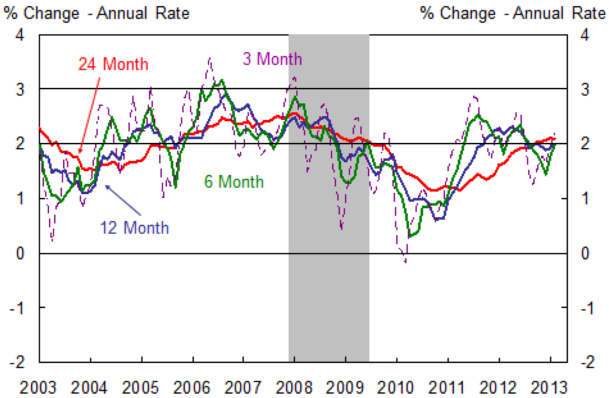
EM Asia: Monetary policies in the EM Asia region remained largely on hold since the last FOMC meeting and are expected to stay largely on hold in 2013. India is an exception, with markets pricing in 85 basis points of easing given weak growth. Reserve accumulation by EM Asian central banks outside China has been modest, despite strong inflows. These inflows have been offset in part by lower current account surpluses (or larger deficits) and stronger private outflows. Large foreign exchange purchases by Chinese banks ($110 billion) in January increased speculation that large hot money inflows have resumed and that Chinese authorities will report sizeable reserve purchases when Q1 data are released in April.

Latin America: Mexico's central bank cut its policy rate by 50 basis points earlier this month to 4.0 percent after keeping it unchanged for almost four years. The accompanying policy statement stressed that the move should not be interpreted as the start of an easing campaign. The central bank highlighted the risk of capital flow volatility given ongoing easing in the advanced economies. In Brazil, the central bank remained on hold, leaving its policy rate at a historically low 7.25 percent. It did signal a more hawkish stance, however, by removing language implying that it will hold rates steady for a "sufficiently long period of time." Market participants now expect a rate hike as soon as April.

A. Significant Developments

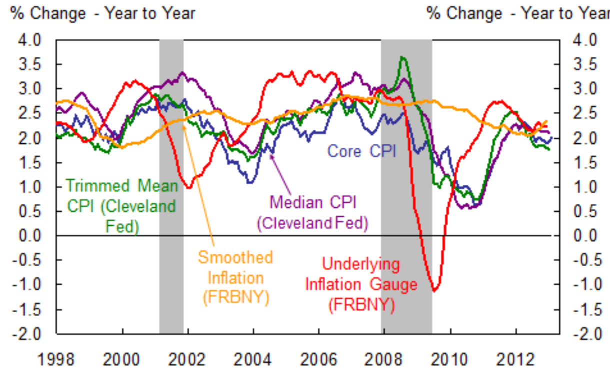
Exhibit A-1:
Measures of Trend Inflation

Core CPI Inflation over Various Horizons



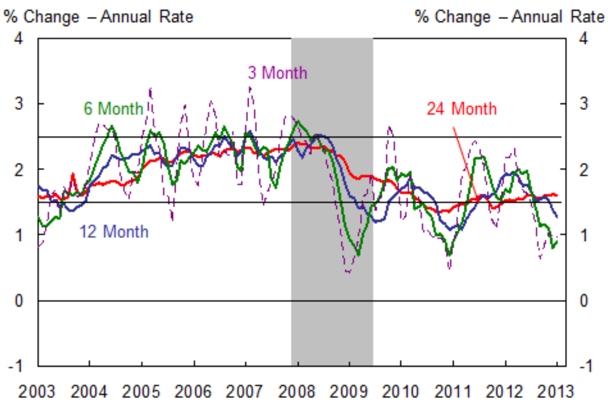
Source: Bureau of Labor Statistics

Alternative Measures of CPI Inflation



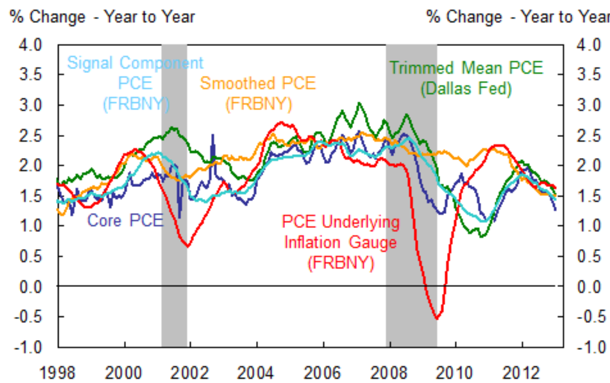
Source: Bureau of Labor Statistics, Cleveland Fed, MMS Function (FRBNY), and Swiss National Bank

Core PCE over Various Horizons



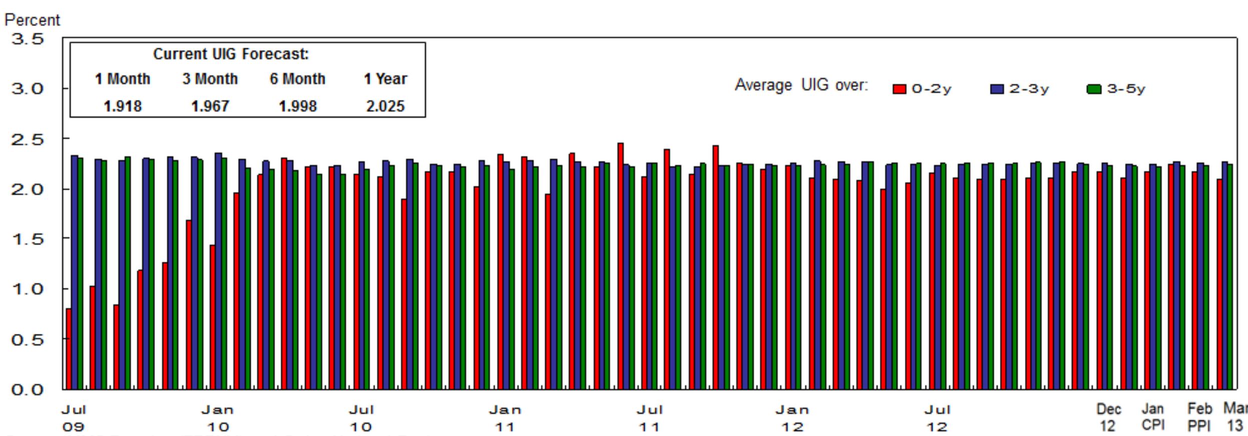
Source: Bureau of Economic Analysis

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)

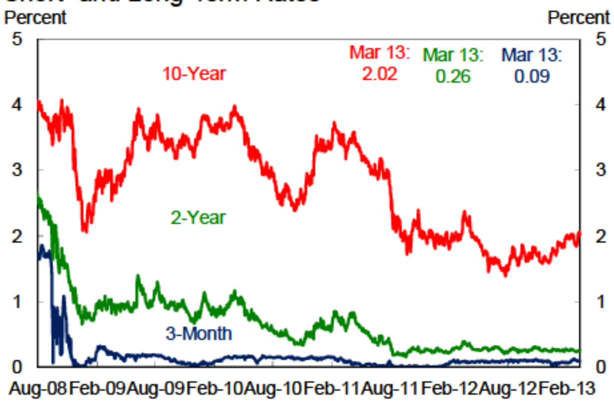


Source: MMS Function (FRBNY) and Swiss National Bank

A. Significant Developments

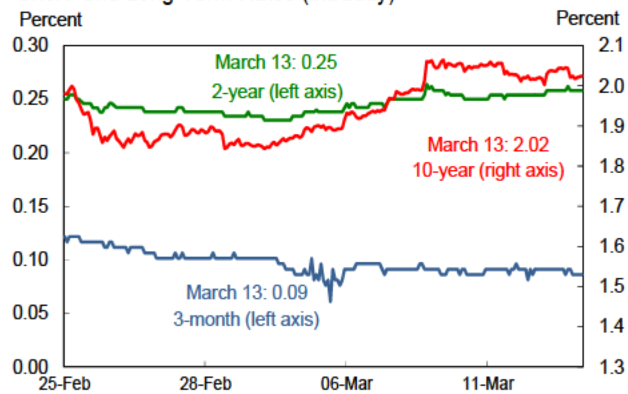
Exhibit A-3:
Treasury Yields

Short- and Long-Term Rates



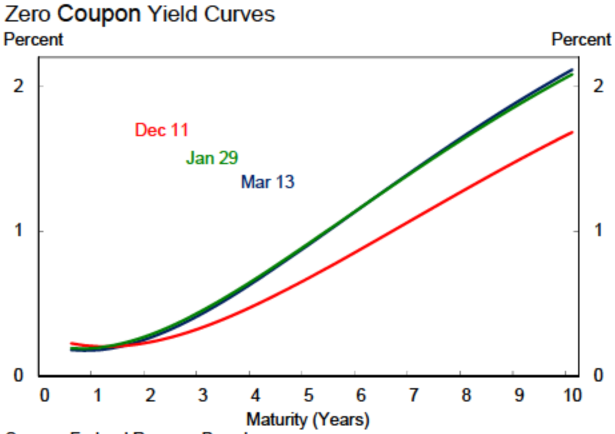
Source: Bloomberg   Note: Yields of on-the-run securities.

Short- and Long-Term Rates (Intraday)



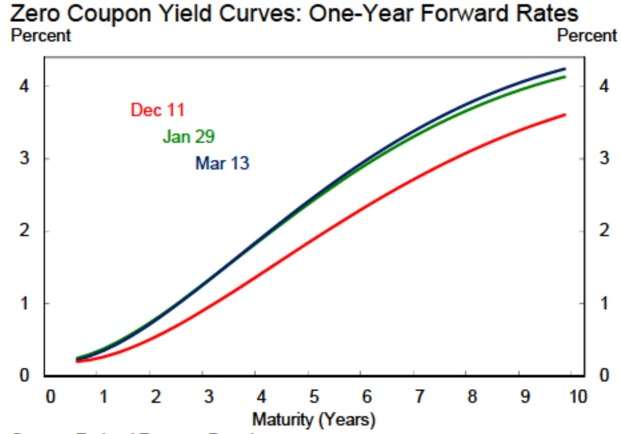
Source: Bloomberg   Note: On-the-run securities, 8 00 am to 4:00 pm.

Zero Coupon Yield Curves



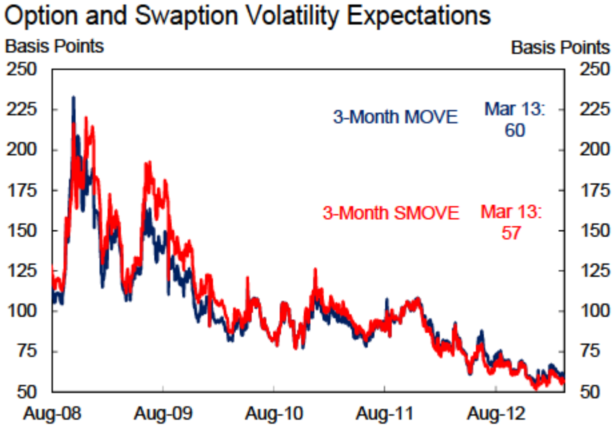
Source: Federal Reserve Board

Zero Coupon Yield Curves: One-Year Forward Rates



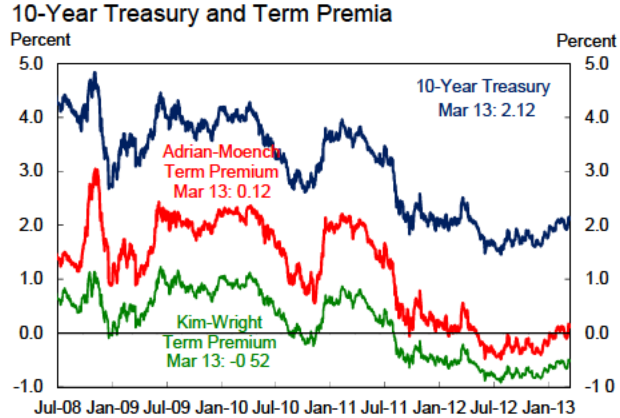
Source: Federal Reserve Board

Option and Swaption Volatility Expectations



Source: Federal Reserve Board, Barclays, and FRBNY staff

10-Year Treasury and Term Premia

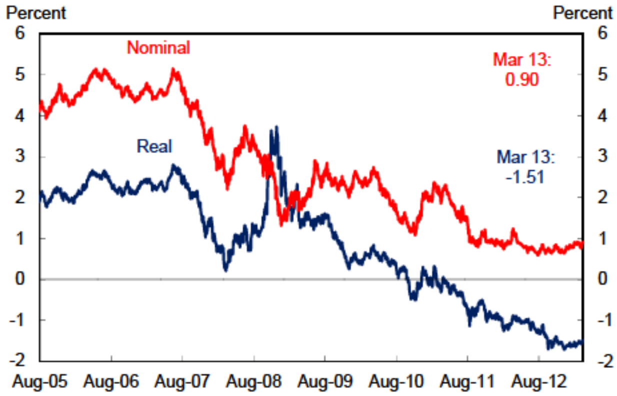


Source: FRBNY calculations, Federal Reserve Board

A. Significant Developments

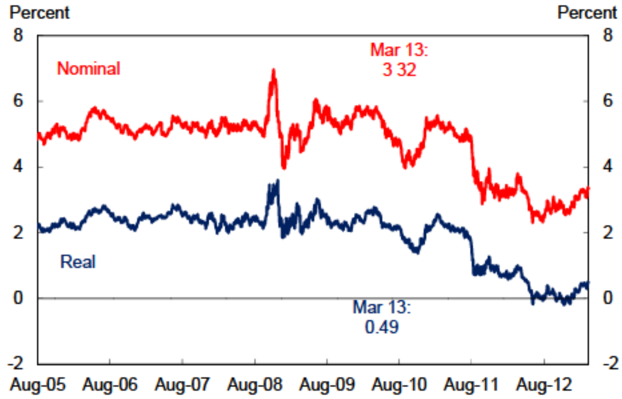
Exhibit A-4:
Real Yields and Implied Inflation

5 Year Spot Rate



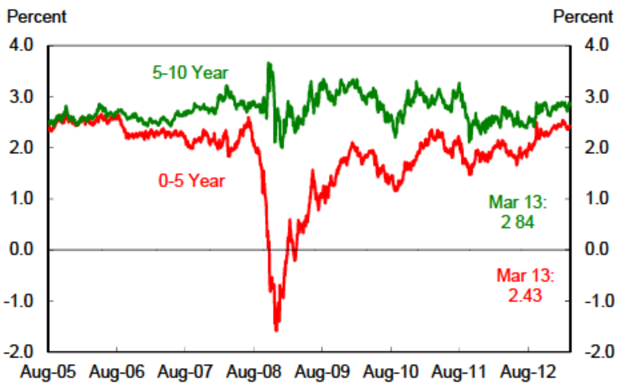
Source: Federal Reserve Board

5-10 Year Forward Rates



Source: Federal Reserve Board

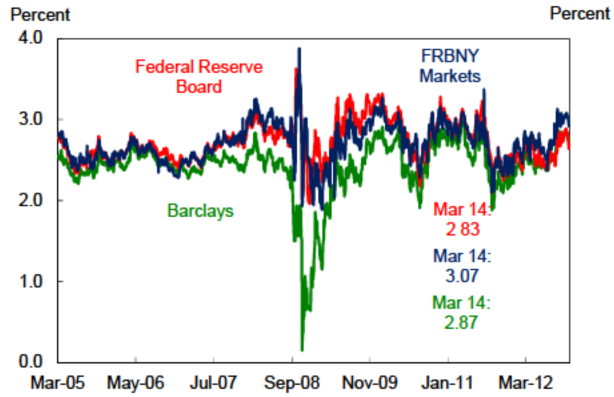
TIPS Implied Inflation Compensation: 0-5, 5-10 Year Horizons



Source: Federal Reserve Board

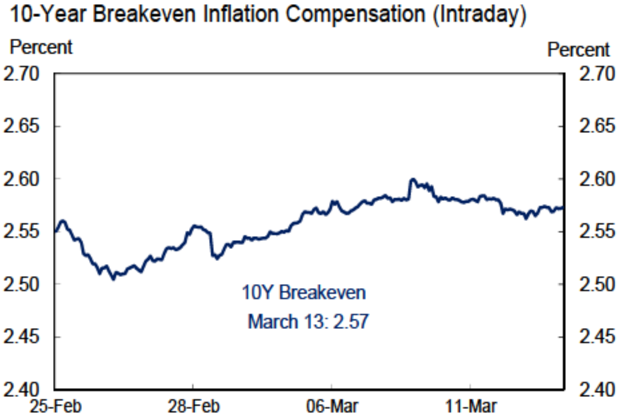
Note: Carry-adjusted.

Alternative Measures of 5-10 Year Implied Inflation Compensation



Source: Federal Reserve Board, Barclays, and FRBNY calculations

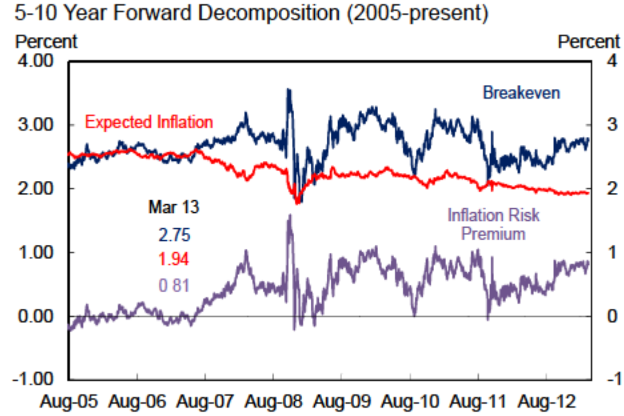
10-Year Breakeven Inflation Compensation (Intraday)



Source: Bloomberg

Note: On- he-run securities, 8:00 am to 4 00 pm.

5-10 Year Forward Decomposition (2005-present)

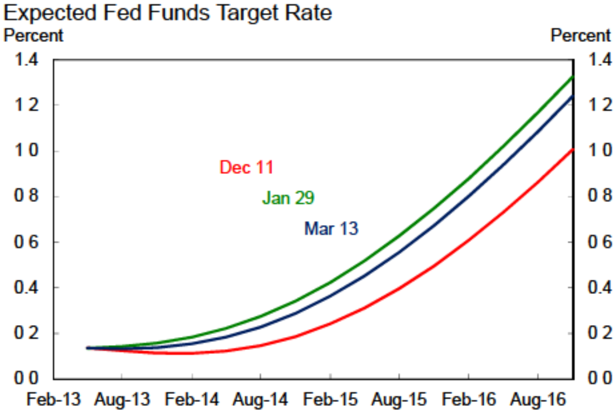


Source: FRBNY Calculations

A. Significant Developments

Exhibit A-5:
Policy Expectations

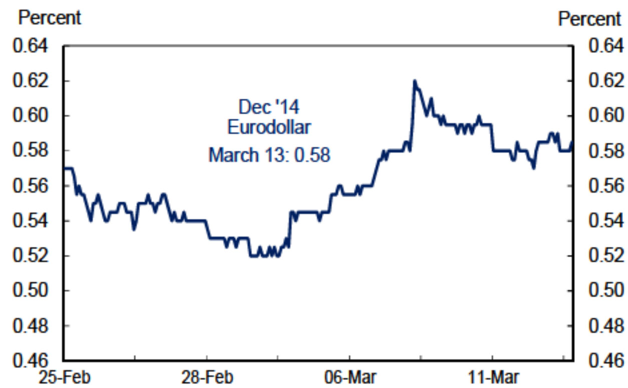
Expected Fed Funds Target Rate



Source: Federal Reserve Board

Note: Estimated using OIS quotes.

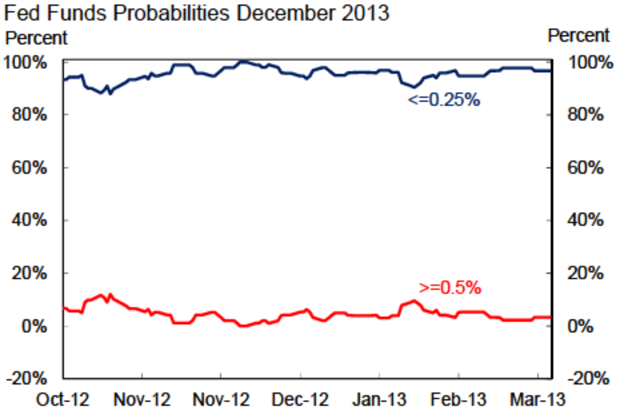
Implied Eurodollar Rates (Intraday)



Source: Bloomberg

Note: 8:00 am to 4:00 pm.

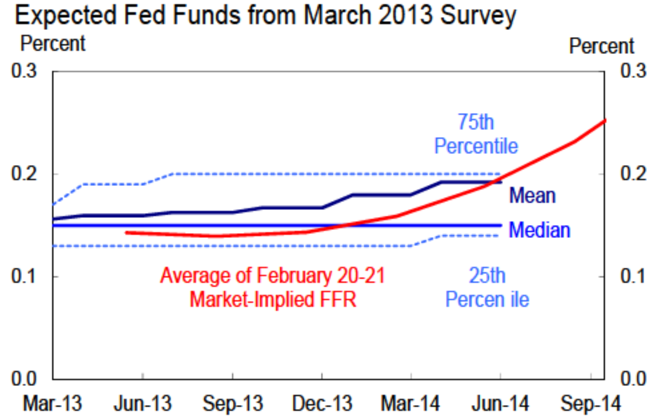
Fed Funds Probabilities December 2013



Source: Bloomberg

Note: Estimated from Fed Funds Futures

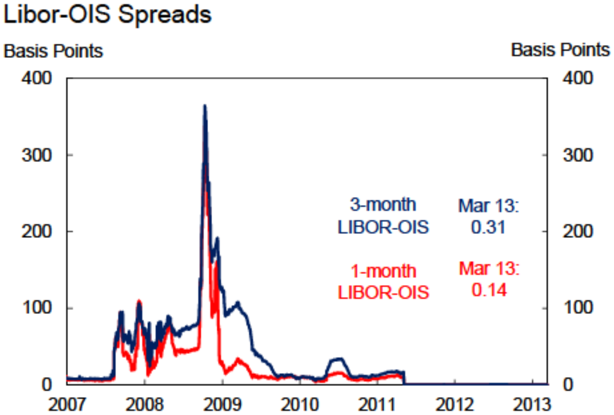
Expected Fed Funds from March 2013 Survey



Note: Implied FFR estimated from OIS quotes.

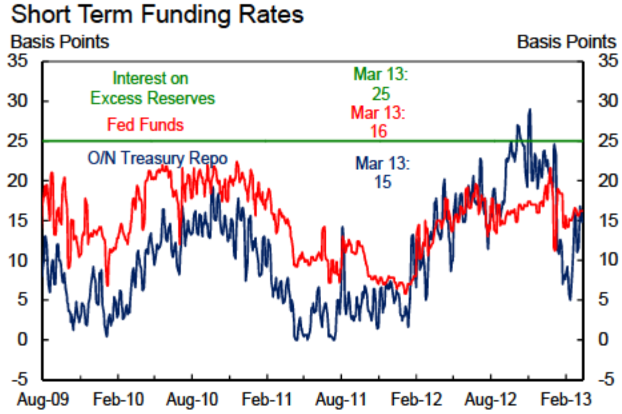
Source: The Blue Chip Financial Forecast conducted on February 20-21.

Libor-OIS Spreads



Source: Bloomberg

Short Term Funding Rates



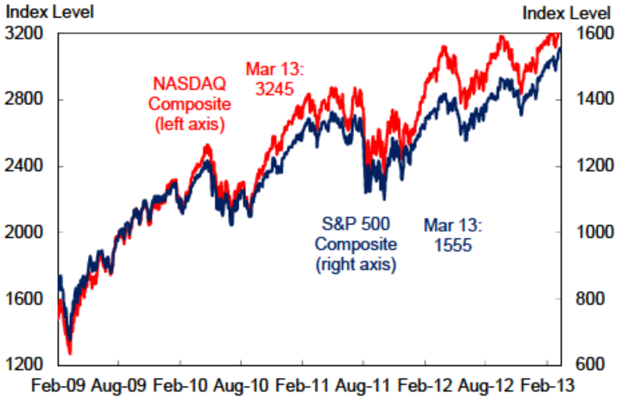
Source: Bloomberg, FRBNY calculations

Note: 1-week moving averages.

A. Significant Developments

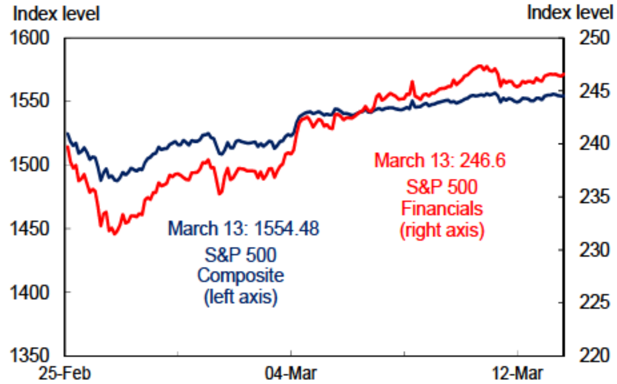
Exhibit A-6:
Equity

Equity Index Levels



Source: Bloomberg

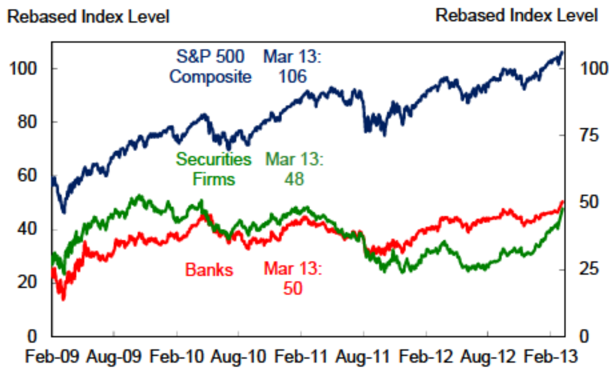
S&P 500 Indices (Intraday)



Source: Bloomberg

Note: 9:30 am to 4 00 pm.

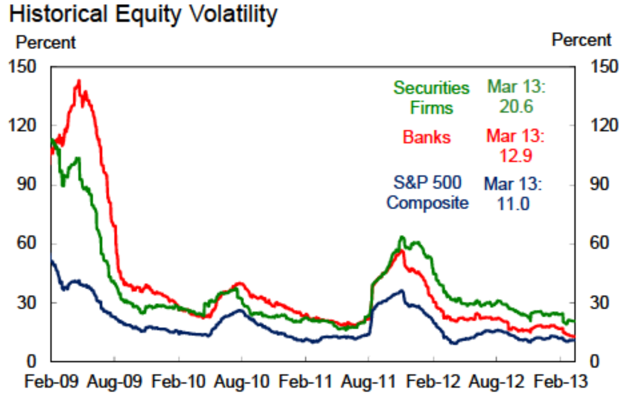
Equity Performance



Source: Bloomberg

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

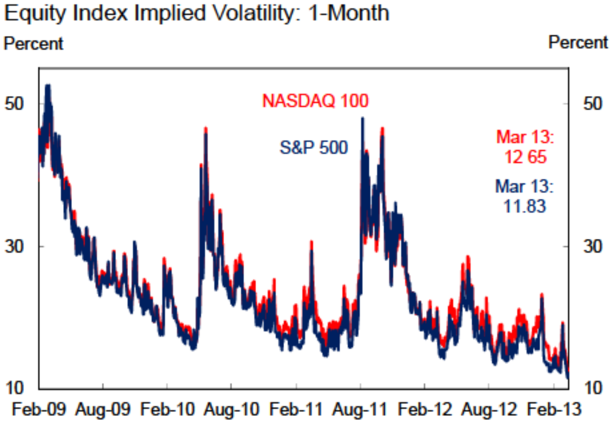
Historical Equity Volatility



Source: Bloomberg

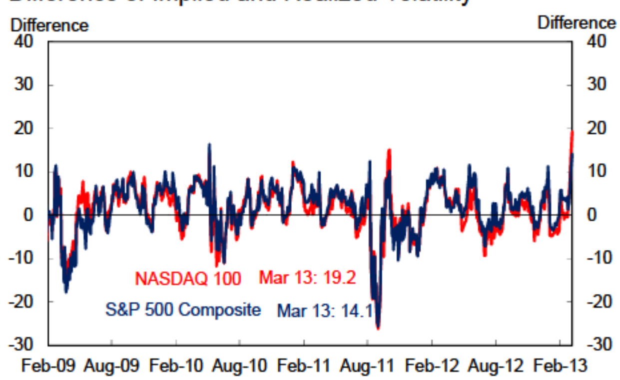
Note: Annualized rolling 3-month standard deviation of daily returns. Banks series is S&P 500 Banks index. Securities Firms series is S&P 500 Investment Banks and Brokerages index.

Equity Index Implied Volatility: 1-Month



Source: Bloomberg

Difference of Implied and Realized Volatility



Source: Bloomberg

Note: Realized volatility is annualized 1-month rolling standard deviation of daily returns (360-day year) for S&P 500 and Nasdaq 100.

A. Significant Developments

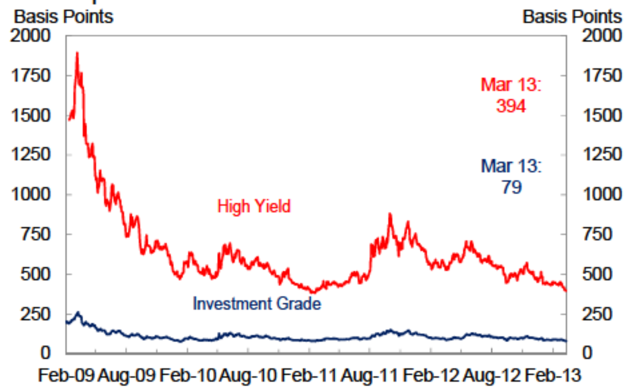
Exhibit A-7: Credit

Corporate Credit Spreads

Source: Bloomberg

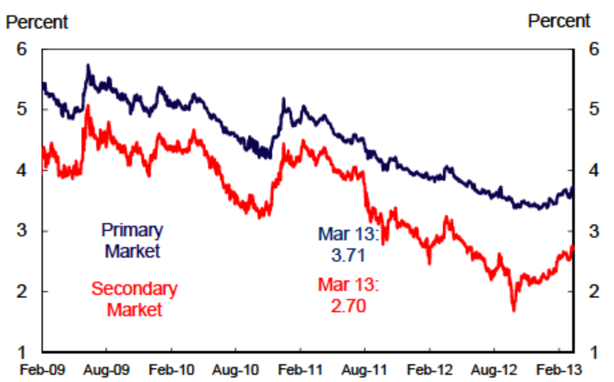
Note: Option-adjusted spreads.

CDS Spreads



Source: Bloomberg

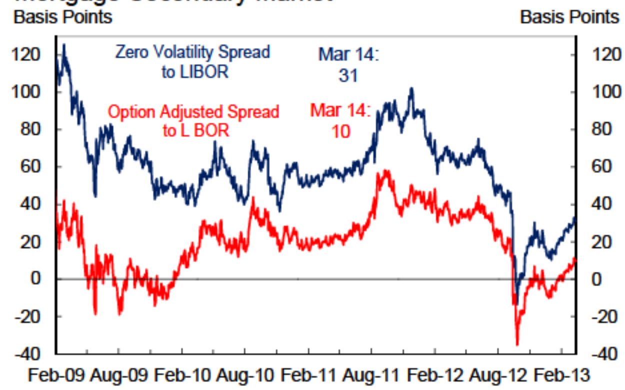
Mortgage Market Rates



Source: Bloomberg

Note: 30-year fixed mortgage rate and Fannie Mae current coupon yield.

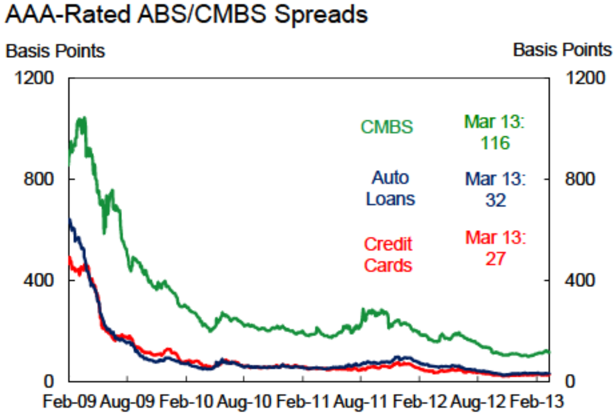
Mortgage Secondary Market



Source: J.P. Morgan

Note: 30 year current coupon Fannie Mae MBS.

AAA-Rated ABS/CMBS Spreads



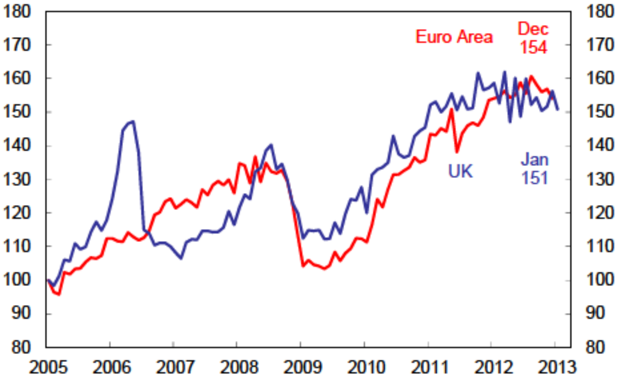
Source: Merrill Lynch

Note: Op ion-adjusted spreads.

A. Significant Developments

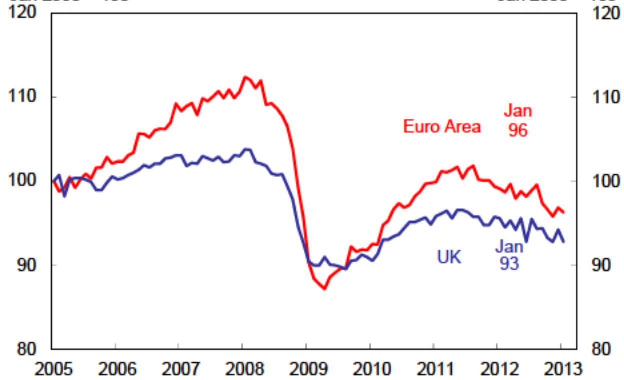
Exhibit A-8: Exports and Industrial Production

Exports
Jan 2005 = 100 | Jan 2005 = 100



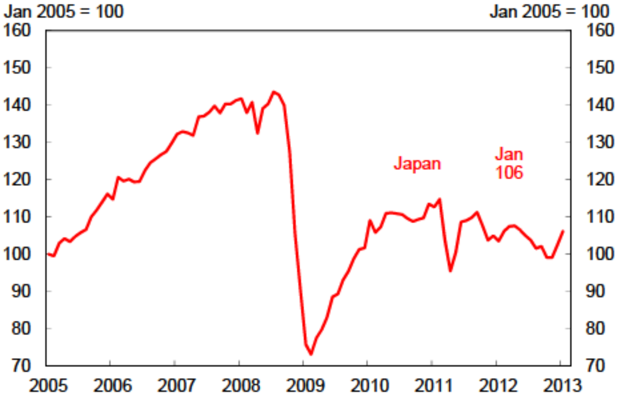
Source: Haver | Note: In Local Currency Terms

Industrial Production
Jan 2005 = 100 | Jan 2005 = 100



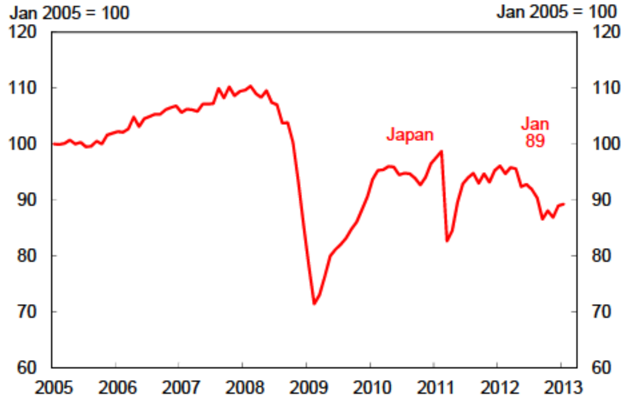
Source: Haver

Exports
Jan 2005 = 100 | Jan 2005 = 100



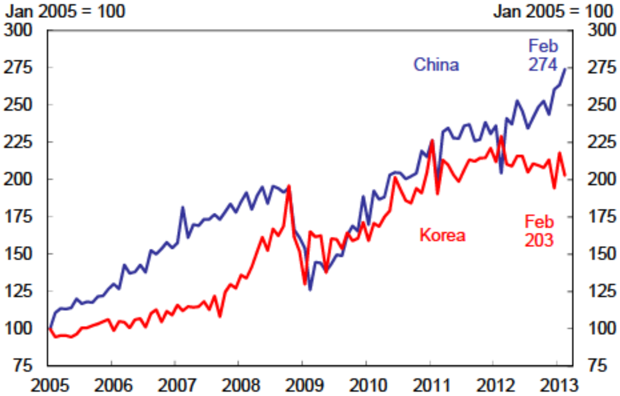
Source: Haver | Note: In Local Currency Terms

Industrial Production
Jan 2005 = 100 | Jan 2005 = 100



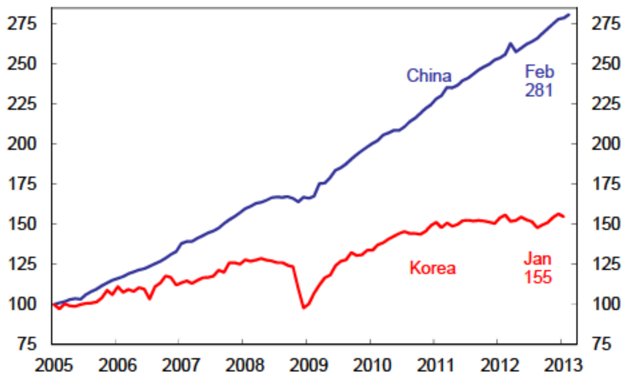
Source: Haver

Exports
Jan 2005 = 100 | Jan 2005 = 100



Source: Haver | Note: In Local Currency Terms

Industrial Production
Jan 2005 = 100 | Jan 2005 = 100

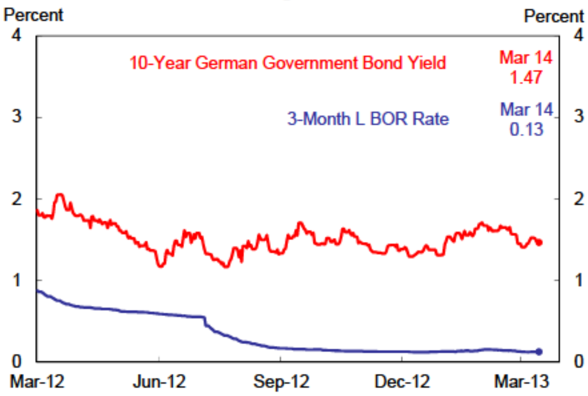


Source: Haver

A. Significant Developments

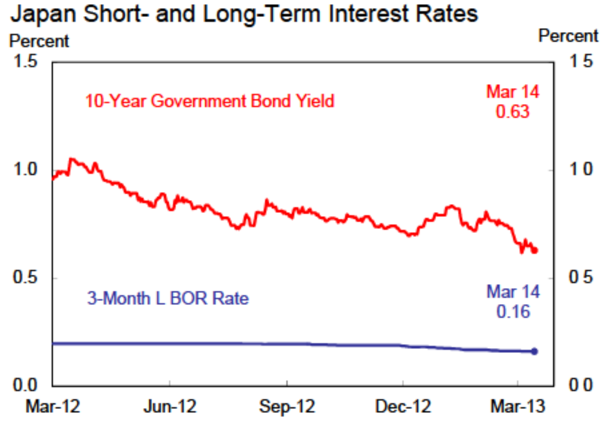
Exhibit A-9:
Global Interest Rates and Equity Markets

Euro Area Short- and Long-Term Interest Rates



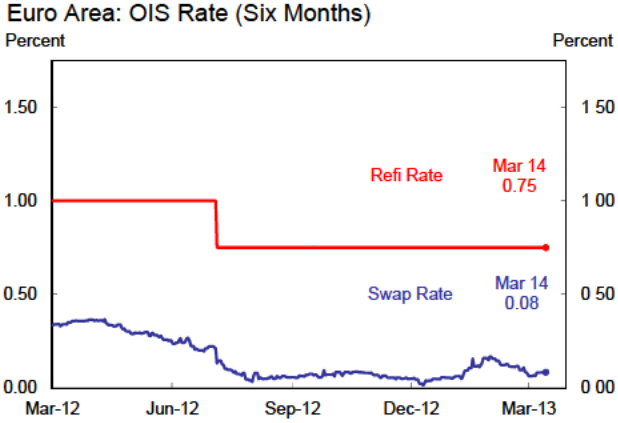
Source: Bloomberg

Japan Short- and Long-Term Interest Rates



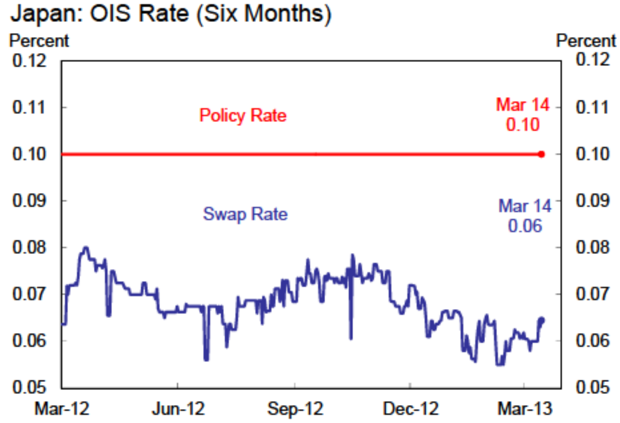
Source: Bloomberg

Euro Area: OIS Rate (Six Months)



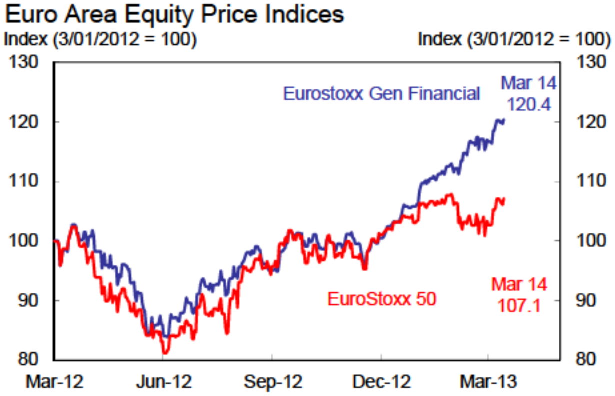
Source: Bloomberg

Japan: OIS Rate (Six Months)



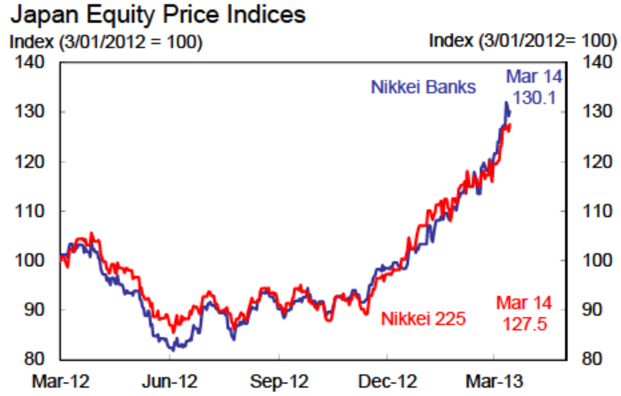
Source: Bloomberg

Euro Area Equity Price Indices



Source: Bloomberg

Japan Equity Price Indices

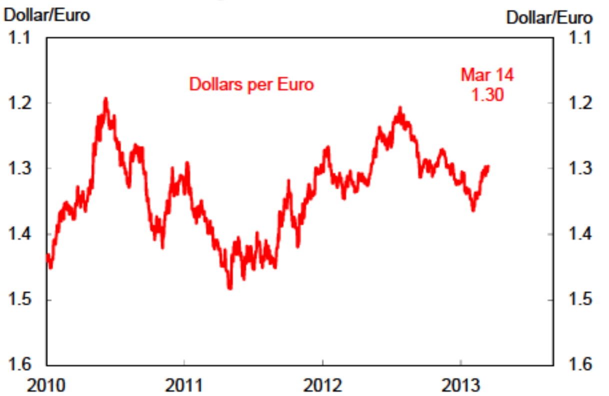


Source: Bloomberg

A. Significant Developments

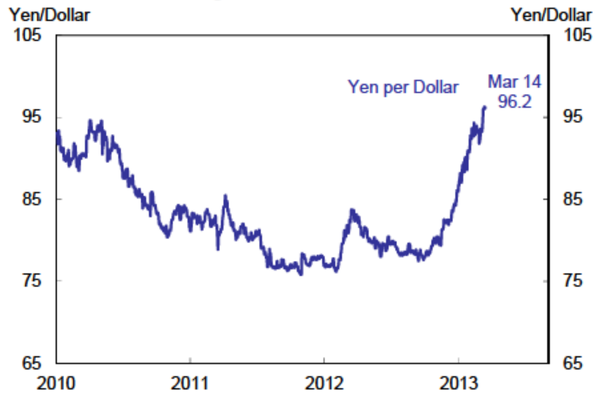
Exhibit A-10:
Exchange Rates

Dollar-Euro Exchange Rate



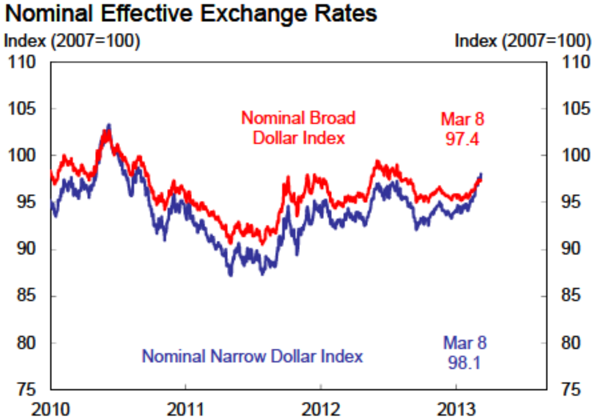
Source: Bloomberg Note: Exchange rate scale is inverted.

Yen-Dollar Exchange Rate



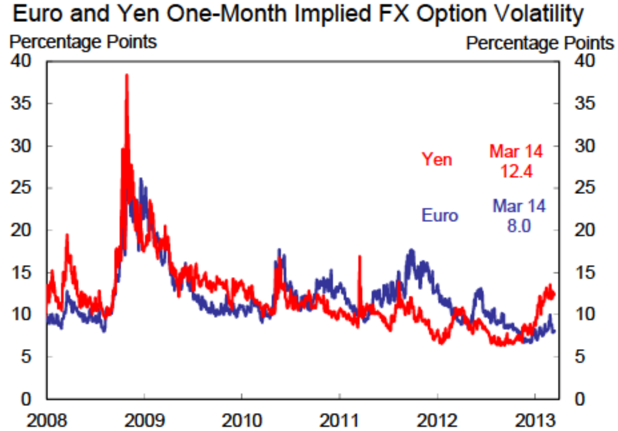
Source: Bloomberg

Nominal Effective Exchange Rates



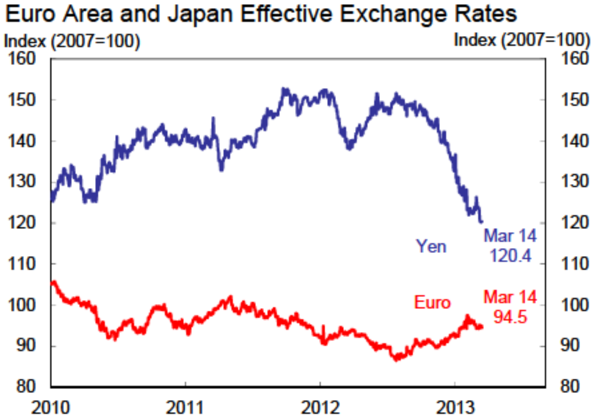
Source: Board of Governers

Euro and Yen One-Month Implied FX Option Volatility



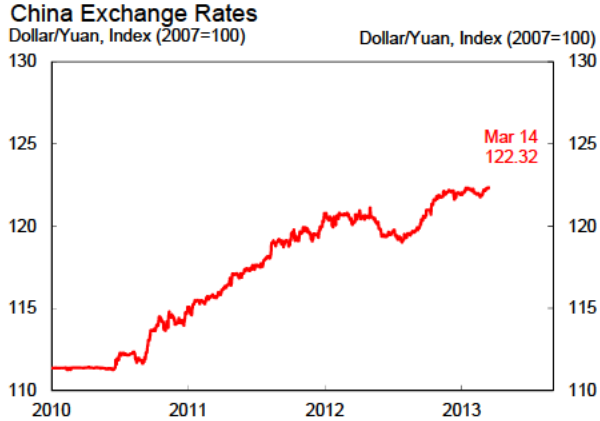
Source: Bloomberg

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
2012												
Q1	*2.2*	*2.2*	*2.2*	*2.0*	*2.0*	*2.0*	*8.3*	*8.3*	*8.3*	*0-0.25*	*0-0.25*	*0-0.25*
Q2	1.7	*1.7*	*1.7*	1.3	*1.3*	*1.3*	8.2	*8.2*	*8.2*	0-0.25	*0-0.25*	*0-0.25*
Q3	1.1	1.1	*1.1*	2.7	3.1	*3.1*	8.1	8.0	*8.0*	0-0.25	0-0.25	0-0.25
Q4	1.3	0.8	*0.9*	0.5	0.4	*0.1*	7.8	7.8	*7.8*	0-0.25	0-0.25	0-0.25
2013												
Q1	1.4	1.0	1.4	1.9	1.9	2.6	7.8	7.8	7.8	0-0.25	0-0.25	0-0.25
Q2	1.6	1.2	1.4	2.4	2.4	1.9	7.7	7.7	7.7	0-0.25	0-0.25	0-0.25
Q3	1.8	1.4	1.5	2.7	2.9	2.3	7.6	7.6	7.6	0-0.25	0-0.25	0-0.25
Q4	1.9	1.6	1.6	2.7	2.8	2.3	7.5	7.5	7.5	0-0.25	0-0.25	0-0.25
2014												
Q1	1.9	1.8	1.7	3.5	3.5	3.2	7.3	7.3	7.3	0-0.25	0-0.25	0-0.25
Q2	2.0	2.0	1.9	3.3	3.4	3.4	7.1	7.1	7.0	0-0.25	0-0.25	0-0.25
Q3	2.1	2.1	2.0	3.6	3.7	3.6	6.8	6.8	6.7	0-0.25	0-0.25	0-0.25
Q4	2.1	2.1	2.0	4.0	3.9	3.7	6.4	6.5	6.4	0-0.25	0-0.25	0-0.25
Q4/Q4												
2011	*1.7*	*1.7*	*1.7*	*2.0*	*2.0*	*2.0*	*-1.3*	*-1.3*	*-1.3*	*0.0*	*0.0*	*0.0*
2012	1.6	1.5	*1.5*	1.6	1.7	*1.6*	-0.8	-0.8	*-0.8*	0.0	0.0	*0.0*
2013	1.7	1.3	1.5	2.4	2.5	2.3	-0.6	-0.6	-0.6	0.0	0.0	0.0
2014	2.0	2.0	1.9	3.6	3.6	3.5	-0.7	-0.7	-0.8	0.0	0.0	0.0

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.

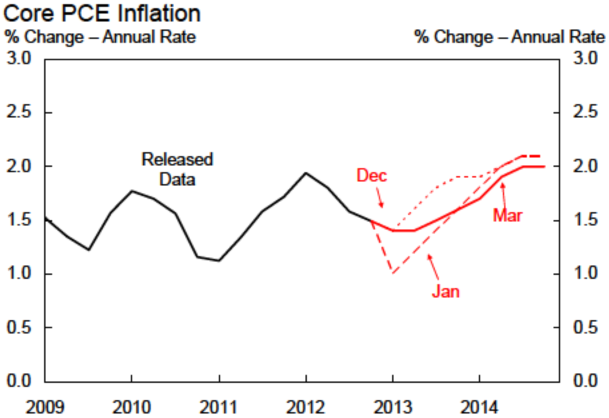
B. FRBNY Forecast Details

Exhibit B-2: Evolution of Projected Quarterly Paths

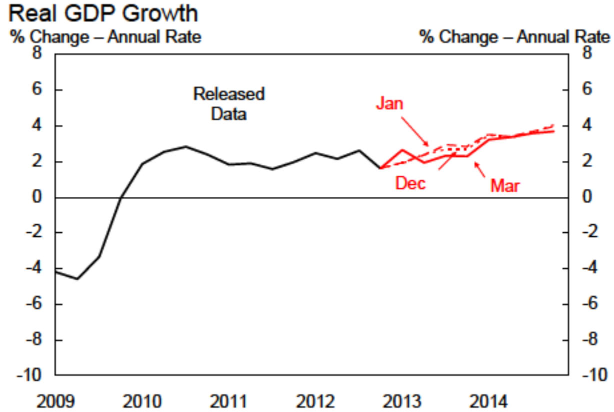
Key Indicators

Forecast Assumptions

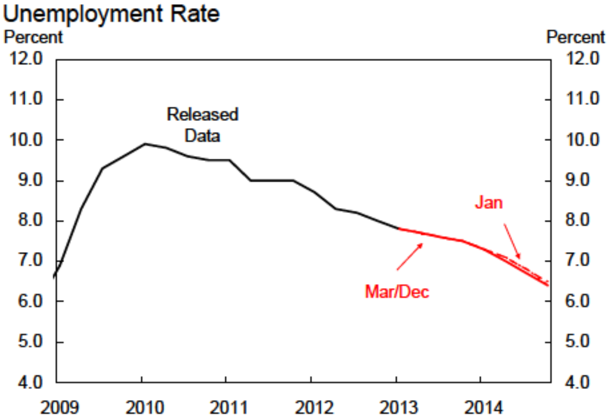
Core PCE Inflation



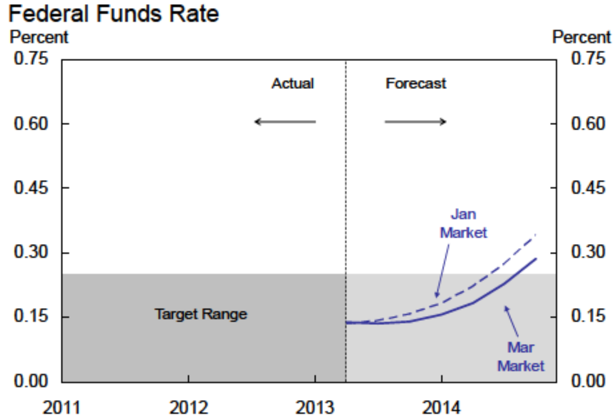
Real GDP Growth



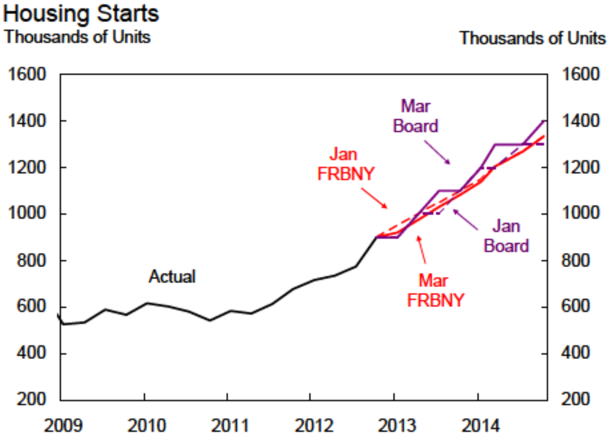
Unemployment Rate



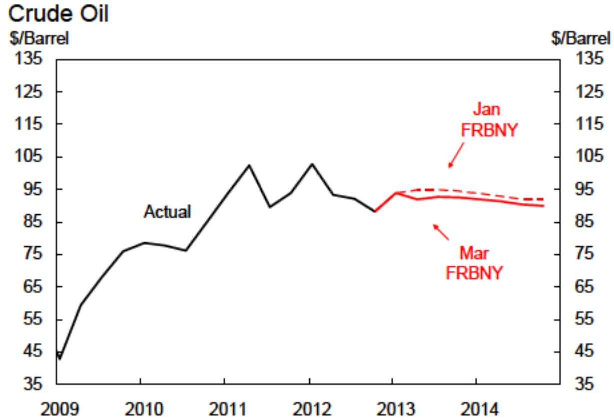
Federal Funds Rate



Housing Starts



Crude Oil



Source: MMS and IR Functions (FRBNY) and Federal Reserve Board

B. FRBNY Forecast Details

Exhibit B-3: Near-Term Projections

	Quarterly Growth Rates (AR)		Quarterly Growth Contributions (AR)	
	2013Q1	2013Q2	2013Q1	2013Q2
OUTPUT				
Real GDP	2.6	1.9	2.6	1.9
	(1.9)	(2.4)	(1.9)	(2.4)
Final Sales to Domestic Purchasers	1.8	1.7	1.8	1.7
	(1.1)	(1.5)	(1.1)	(1.5)
Consumption	2.4	1.7	1.7	1.2
	(0.7)	(0.9)	(0.5)	(0.6)
BFI: Equipment and Software	4.0	8.0	0.3	0.6
	(6.0)	(8.0)	(0.4)	(0.6)
BFI: Nonresidential Structures	-2.0	2.0	-0.1	0.1
	(3.0)	(5.0)	(0.1)	(0.1)
Residential Investment	12.0	20.0	0.3	0.5
	(20.0)	(20.0)	(0.5)	(0.5)
Government: Federal	-3.0	-8.0	-0.2	-0.6
	(-4.0)	(-4.0)	(-0.3)	(-0.3)
Government: State and Local	-1.6	-0.5	-0.2	-0.1
	(-0.4)	(-0.2)	(-0.0)	(-0.0)
Inventory Investment	--	--	0.8	0.1
	--	--	(0.4)	(0.4)
Net Exports	--	--	0.0	0.2
	--	--	(0.4)	(0.4)
INFLATION				
Total PCE Deflator	1.3	2.4		
	(0.4)	(1.6)		
Core PCE Deflator	1.4	1.4		
	(1.0)	(1.2)		
PRODUCTIVITY AND LABOR COSTS*				
Output per Hour	1.3	1.5		
	(1.6)	(1.5)		
Compensation per Hour	1.2	1.3		
	(1.2)	(1.4)		
Unit Labor Costs	-0.1	-0.2		
	(-0.4)	(-0.1)		

Note: Numbers in parentheses are from the previous FOMC meeting.
*Nonfarm business sector.

B. FRBNY Forecast Details

Exhibit B-4: Medium-Term Projections

	Q4/Q4 Growth Rates			Q4/Q4 Growth Contributions		
	2012	2013	2014	2012	2013	2014
OUTPUT						
Real GDP	1.6	2.3	3.5	1.6	2.3	3.5
	(1.7)	(2.5)	(3.6)	(1.7)	(2.5)	(3.6)
Final Sales to Domestic Purchasers	1.8	1.8	3.7	1.8	1.9	3.8
	(2.0)	(1.9)	(4.0)	(2.0)	(2.0)	(4.1)
Consumption	1.9	2.0	2.7	1.4	1.4	1.9
	(2.0)	(1.4)	(2.8)	(1.4)	(1.0)	(2.0)
BFI: Equipment and Software	4.6	8.5	15.5	0.3	0.6	1.2
	(4.3)	(9.0)	(15.5)	(0.3)	(0.7)	(1.2)
BFI: Nonresidential Structures	4.7	2.5	11.0	0.1	0.1	0.3
	(1.9)	(5.7)	(13.0)	(0.1)	(0.2)	(0.4)
Residential Investment	14.9	16.5	16.0	0.3	0.4	0.5
	(15.1)	(18.5)	(16.0)	(0.3)	(0.5)	(0.5)
Government: Federal	-2.8	-7.8	-5.5	-0.2	-0.6	-0.4
	(0.6)	(-4.0)	(-2.5)	(0.0)	(-0.3)	(-0.2)
Government: State and Local	-1.0	-0.7	2.2	-0.1	-0.1	0.3
	(-1.1)	(-0.1)	(2.2)	(-0.1)	(-0.0)	(0.3)
Inventory Investment	--	--	--	-0.5	0.3	0.2
	--	--	--	(-0.5)	(0.3)	(0.1)
Net Exports	--	--	--	0.2	0.1	-0.5
	--	--	--	(0.1)	(0.2)	(-0.6)
INCOME						
Personal Income	5.0	2.1	5.6			
	(3.3)	(2.9)	(5.8)			
Real Disposable Personal Income	3.2	-0.5	3.3			
	(1.7)	(0.7)	(3.4)			
Personal Saving Rate	4.6	2.3	3.0			
	(3.1)	(2.4)	(3.0)			
Corporate Profits Before Taxes	-3.8	2.2	3.4			
	(1.1)	(2.2)	(3.8)			

Note: Numbers in parentheses are from the previous FOMC meeting.

B. FRBNY Forecast Details

Exhibit B-5: Medium-Term Projections, Continued

	Q4/Q4 Growth Rates		
	2012	**2013**	**2014**
INFLATION			
Total PCE Deflator	1.6	1.8	2.0
	(1.5)	(1.4)	(2.2)
Core PCE Deflator	1.5	1.5	1.9
	(1.5)	(1.3)	(2.0)
Total CPI Inflation	1.9	2.5	2.7
	(1.9)	(2.1)	--
Core CPI Inflation	1.9	2.0	2.4
	(1.9)	(2.0)	--
GDP Deflator	1.8	2.0	2.2
	(1.8)	(1.6)	(2.3)
PRODUCTIVITY AND LABOR COSTS*			
Output	2.5	3.1	4.4
	(2.5)	(3.3)	(4.6)
Hours	1.9	1.7	2.7
	(1.5)	(1.8)	(2.6)
Output per Hour	0.5	1.4	1.7
	(1.0)	(1.5)	(2.0)
Compensation per Hour	2.6	1.4	2.1
	(2.2)	(1.5)	(2.3)
Unit Labor Costs	2.1	-0.1	0.3
	(1.2)	(0.0)	(0.3)
LABOR MARKET			
Unemployment Rate (Avg. Q4 Level)	7.8	7.5	6.4
	(7.8)	(7.5)	(6.5)
Participation Rate (Avg. Q4 Level)	63.7	63.6	63.7
	(63.7)	(63.6)	(63.7)
Avg. Monthly Nonfarm Payroll Growth (Thous.)	181	160	292
	(157)	(183)	(265.2)

Note: Numbers in parentheses are from the previous FOMC meeting.
*Nonfarm business sector.

B. FRBNY Forecast Details

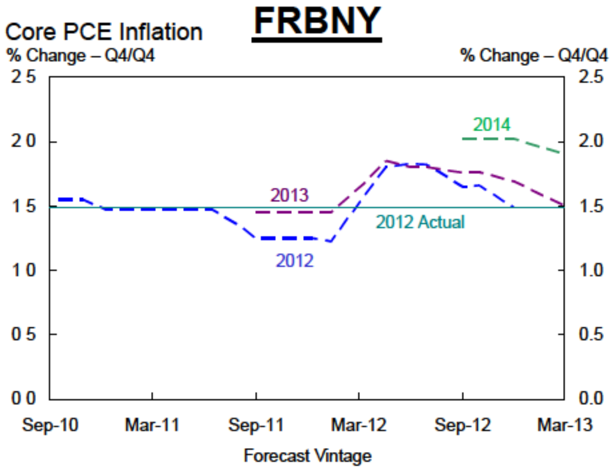
Exhibit B-6: FRBNY and Tealbook Forecast Comparison

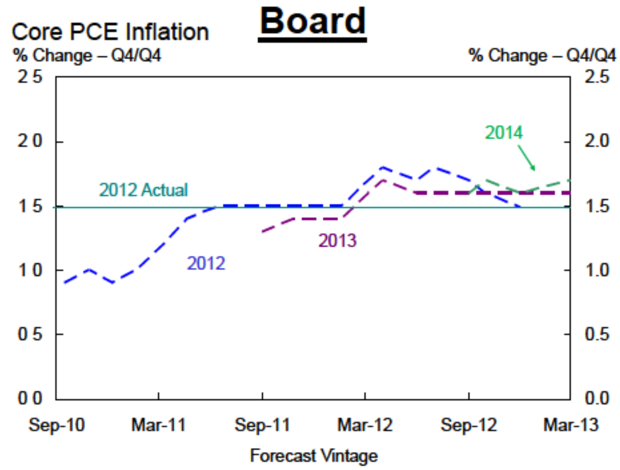
	FRBNY (Q4/Q4)			Board (Q4/Q4)		
	2011	2012	2013	2011	2012	2013
OUTPUT						
Real GDP	2.0	1.6	2.3	1.6	1.6	2.5
	(2.0)	(1.7)	(2.5)	(1.6)	(1.6)	(2.7)
GDP Growth Contributions						
Final Sales to Domestic Purchasers	1.7	1.8	1.9	1.8	1.9	2.4
	(1.7)	(2.0)	(2.0)	(1.8)	(1.9)	(2.4)
Consumption	1.4	1.4	1.4	1.4	1.4	1.7
	(1.4)	(1.4)	(1.0)	(1.4)	(1.4)	(1.7)
BFI	1.0	0.5	0.7	1.0	0.5	0.5
	(1.0)	(0.4)	(0.8)	(1.0)	(0.5)	(0.5)
Residential Investment	0.1	0.3	0.4	0.1	0.3	0.5
	(0.1)	(0.3)	(0.5)	(0.1)	(0.3)	(0.5)
Government	-0.7	-0.3	-0.7	-0.7	-0.3	-0.3
	(-0.7)	(-0.1)	(-0.3)	(-0.7)	(-0.3)	(-0.3)
Inventory Investment	0.2	-0.5	0.3	0.3	-0.4	0.2
	(0.2)	(-0.5)	(0.3)	(0.3)	(-0.4)	(0.2)
Net Exports	0.0	0.2	0.1	0.0	0.1	0.1
	(-0.0)	(0.1)	(0.2)	(0.0)	(0.1)	(0.1)
INFLATION						
Total PCE Deflator	2.5	1.6	1.8	2.7	1.5	1.3
	(2.5)	(1.5)	(1.4)	(2.7)	(1.5)	(1.4)
Core PCE Deflator	1.7	1.5	1.5	1.8	1.5	1.6
	(1.7)	(1.5)	(1.3)	(1.8)	(1.5)	(1.6)
INTREST RATE ASSUMPTION						
Fed Funds Rate (End-of-Year)	0-0.25	0-0.25	0-0.25	0-0.25	0-0.25	0-0.25
	0-0.25	0-0.25	0-0.25	0-0.25	0-0.25	0-0.25
PRODUCTIVITY AND LABOR COSTS*						
Output per Hour	1.4	1.7	0.0	0.4	1.2	1.8
	(1.0)	(1.5)	(2.0)	(0.4)	(1.2)	(1.8)
Compensation per Hour	1.4	2.1	0.0	2.3	2.8	3.1
	(2.2)	(1.5)	(2.3)	(2.3)	(2.8)	(3.1)
Unit Labor Costs	-0.1	0.3	0.0	1.9	1.5	1.2
	(1.2)	(-0.0)	(0.3)	(1.9)	(1.5)	(1.2)
LABOR MARKET						
Unemployment Rate (Avg. Q4 Level)	7.5	6.4	0.0	8.9	8.0	7.8
	(7.8)	(7.5)	(6.5)	(8.9)	(8.0)	(7.8)
Participation Rate (Avg. Q4 Level)	63.6	63.7	0.0	64.1	63.7	63.6
	(63.7)	(63.6)	(63.7)	(64.1)	(63.7)	(63.6)
Avg. Monthly Nonfarm Payroll Growth (Thous.)	160	292	0	175	158	165
	(157)	(183)	(265)	(175)	(158)	(165)
SAVING						
Personal Saving Rate (Avg. Q4 Level)	3.4	4.6	2.3	-	3.6	2.5
	(3.4)	(3.1)	(2.4)	-	(3.6)	(2.5)
HOUSING						
Housing Starts (Avg. Q4 Level, Thous.)	678	901	1085	600	800	1000
	(678)	(900)	(1100)	(600)	(800)	(1000)

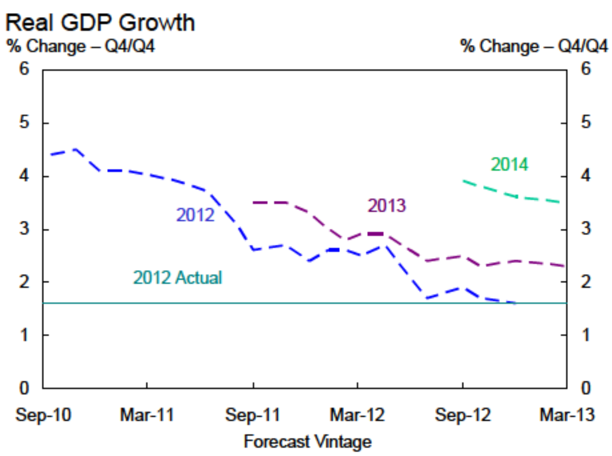
Note: Numbers in parentheses are from the previous Blackbook.

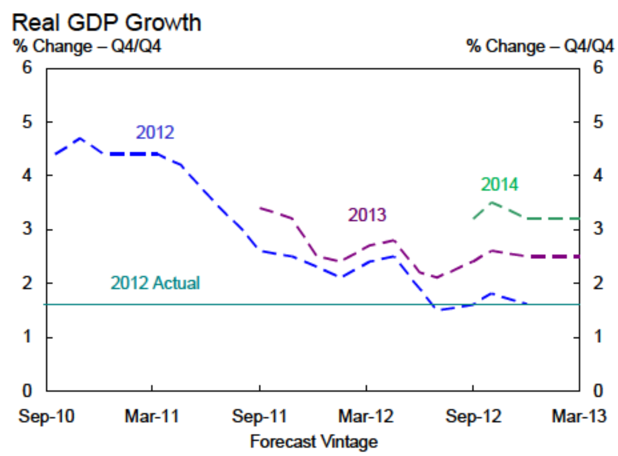
B. FRBNY Forecast Details

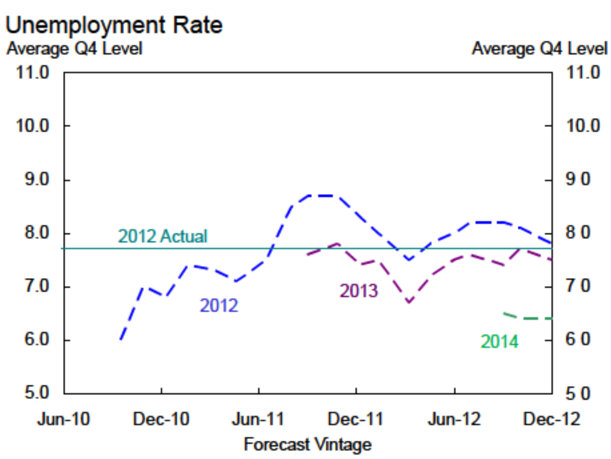
Exhibit B-7: Evolution of FRBNY and Board Forecasts since the end of 2009

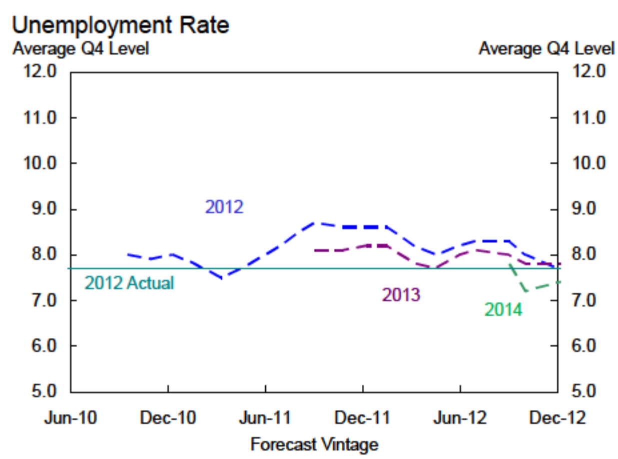












Note: Forecast vintage is the date the forecast was produced.

B. FRBNY Forecast Details

Exhibit B-8: Alternative GDP and Inflation Forecasts

Real GDP Growth

	Release Date	2013Q1	2013Q2	2013 Q4/Q4	2014 Q4/Q4
FRBNY	3/14/2013	2.6	1.9	2.3	3.5
		(1.9)	(2.4)	(2.5)	(3.6)
Blue Chip	3/10/2013	2.1	2.0	2.3	2.8
		(1.6)	(2.2)	(2.3)	-
Median SPF	2/15/2013	2.1	2.3	2.3	-
		(1.7)	(2.0)	(2.3)	-
Macro Advisers	3/14/2013	2.7	2.4	2.6	3.3
		(1.8)	(2.8)	(2.9)	(3.3)
FRBNY-DSGE	3/14/2013	2.1	2.3	2.2	1 9
		(2.3)	(2.4)	(2.0)	(2.4)

Core PCE Inflation

	Release Date	2013Q1	2013Q2	2013 Q4/Q4	2014 Q4/Q4
FRBNY	3/14/2013	1.4	1.4	1.5	1 9
		(1.0)	(1.2)	(1.3)	(2 0)
Median SPF	2/15/2013	1.4	1.7	1.6	1 9
		(1.8)	(1.9)	(1.9)	(2.0)
Macro Advisers	3/14/2013	1.4	1.6	1.5	1.7
		(1.5)	(1.7)	(1.7)	(1.7)
FRBNY-DSGE	3/14/2013	1.2	1.0	1.0	1.3
		(1.3)	(1.2)	(1.7)	(1.3)

CPI Inflation

	Release Date	2013Q1	2013Q2	2013 Q4/Q4	2014 Q4/Q4
FRBNY	3/14/2013	2.1	3.3	2.5	2.7
		(1.1)	(2.3)	(2.1)	(2.5)
Blue Chip	3/10/2013	1.5	1.9	1.9	2.2
		(1.8)	(2.0)	(2.0)	(2.0)
Median SPF	2/15/2013	1.8	2.1	2.0	2.2
		(2.1)	(2.2)	(2.2)	(2.3)
Macro Advisers	3/14/2013	1.5	2.2	1.7	1.4
		(3.0)	(0.9)	(2.1)	(1.3)

Core CPI Inflation

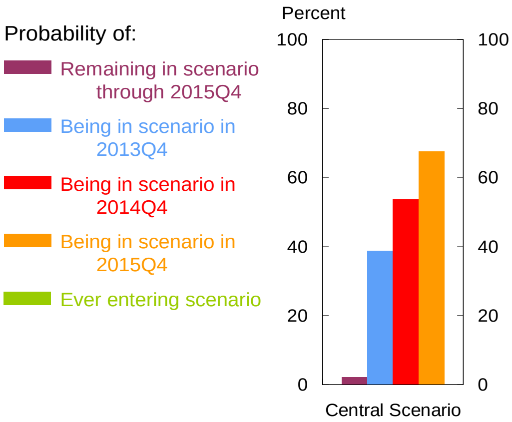
	Release Date	2013Q1	2013Q2	2013 Q4/Q4	2014 Q4/Q4
FRBNY	3/14/2013	2.1	1.9	2.0	2.4
		(1.7)	(2.1)	(2.0)	(2.2)
Median SPF	2/15/2013	1.8	2.0	1.9	2.1
		(1.9)	(2.0)	(2.0)	(2.2)
Macro Advisers	3/14/2013	1.8	1.8	1.7	1.7
		(1.7)	(1.9)	(2.0)	(1.8)

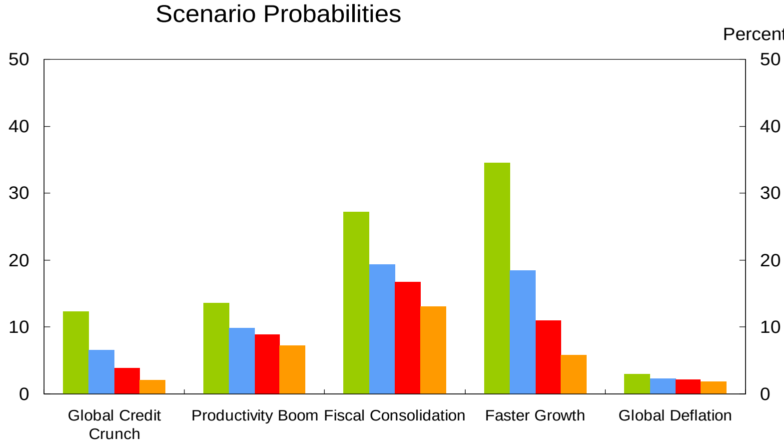
*Note: Numbers in gray are from the previous FOMC meeting.

C. FRBNY Forecast Distributions

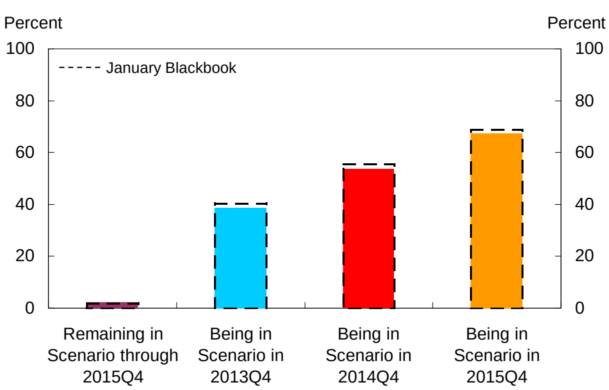
Exhibit C-1:
Risks

Scenario Probabilities

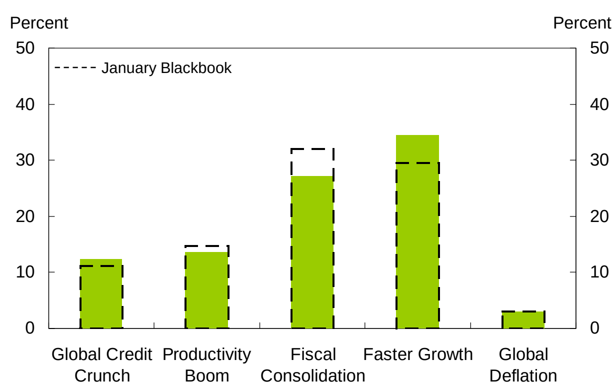




Change in Central Scenario Probabilities



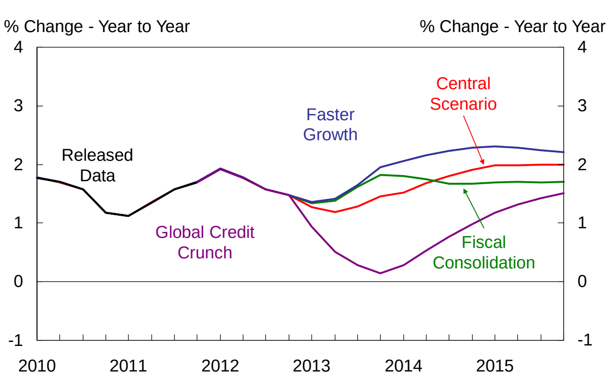
Change in Alternative Scenario Probabilities*



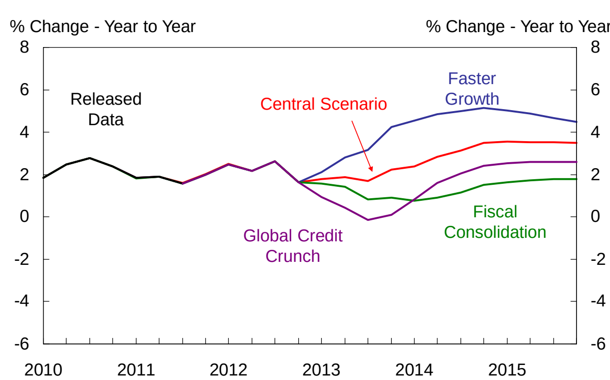
*Probability of ever reaching scenario

Exhibit C-2: Projections under Alternative Scenarios

Core PCE Inflation under Alternative Scenarios Selected



Real GDP Growth under Alternative Scenarios Selected

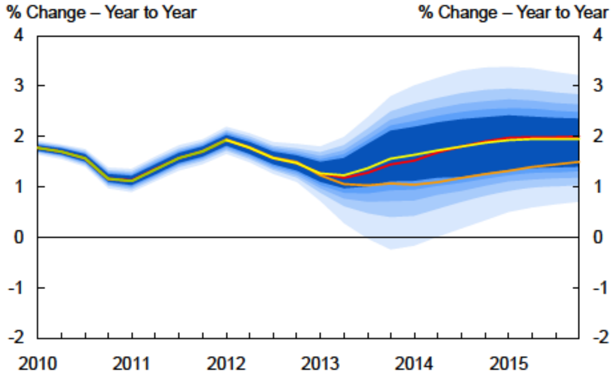


Source: MMS Function (FRBNY)

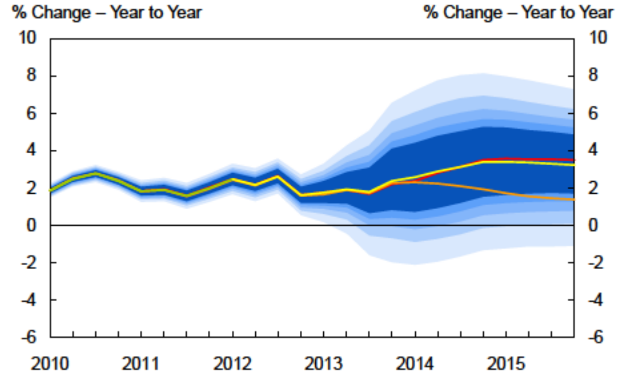
C. FRBNY Forecast Distributions

Exhibit C-3: Inflation and Output Forecast Distributions

Core PCE Inflation Forecast Distribution

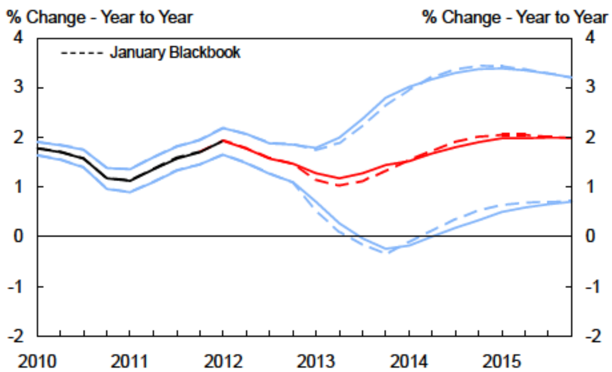


Real GDP Growth Forecast Distribution

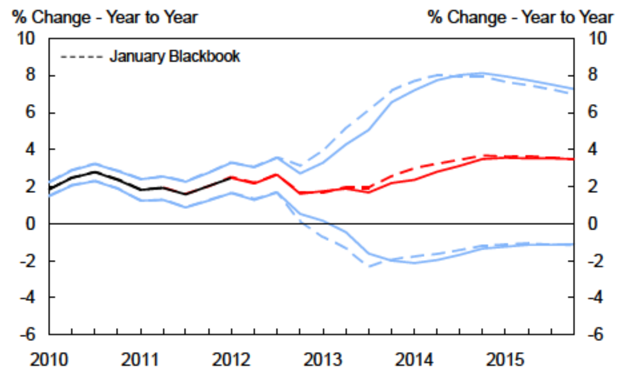


The yellow line is the expected value of the forecast distribution, the red line is the FRBNY central projection, the orange line is the DSGE forecast, and the green line is released data. The shading represents the 50, 60, 70, 80 and 90 percent probability that the four-quarter change will be within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

Change in Core PCE Inflation Forecast Distribution

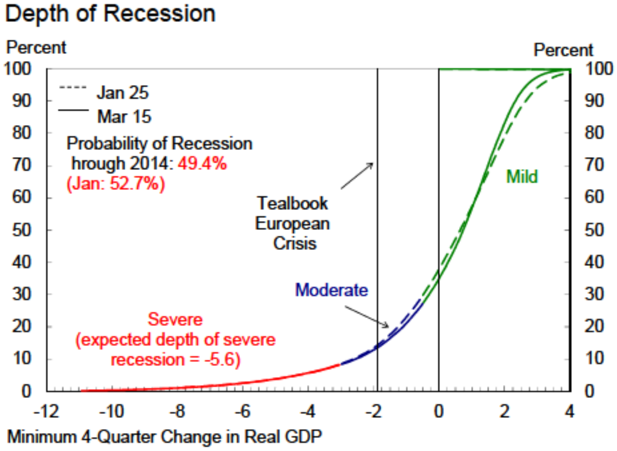


Change in Real GDP Growth Forecast Distribution

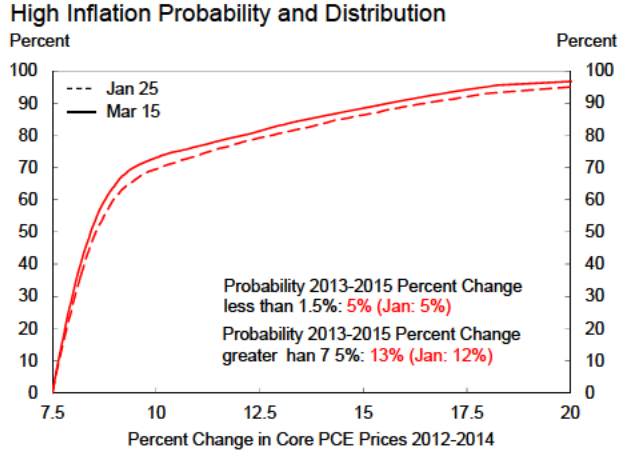


The blue lines are the 90% chance the four-quarter change will be within the lines, the red line is the central scenario projection, and the black line is released data. Dashed lines represent forecasts from the previous Blackbook.

Depth of Recession



High Inflation Probability and Distribution

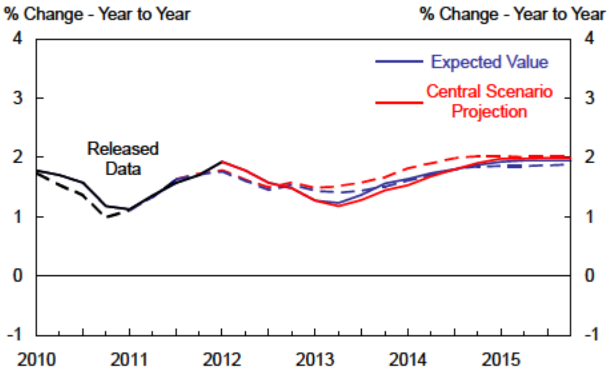


Source: MMS Function (FRBNY)

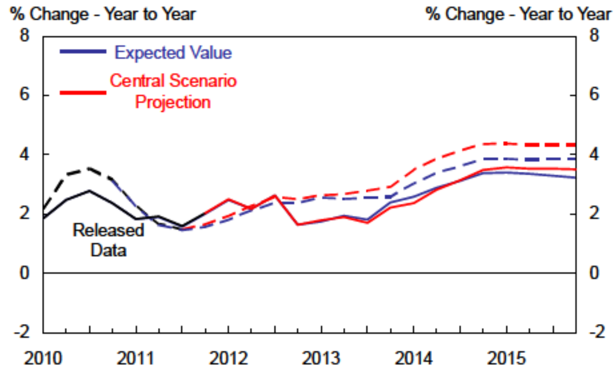
C. FRBNY Forecast Distributions

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

One-Year Comparison of Core PCE Inflation Forecast

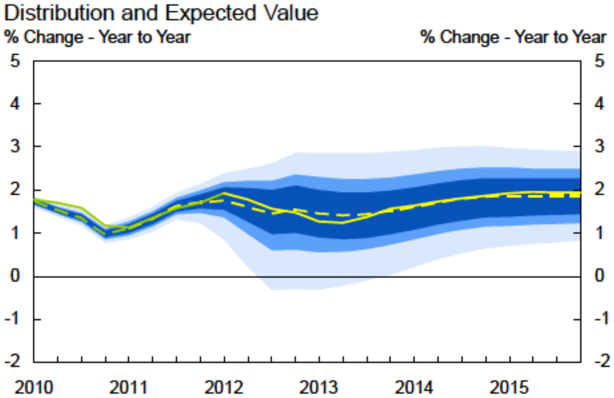


One-Year Comparison of Real GDP Growth Forecast

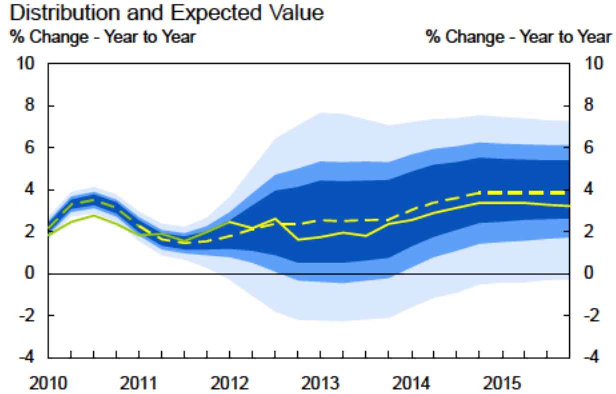


The solid lines represent the current central scenario projection and expected value, while the dashed lines represent those from the year-ago Blackbook.

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



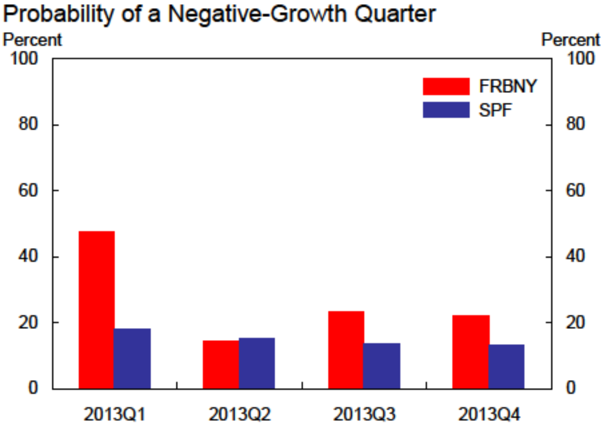
One-Year Comparison of Real GDP Growth Forecast Distribution and Expected Value



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

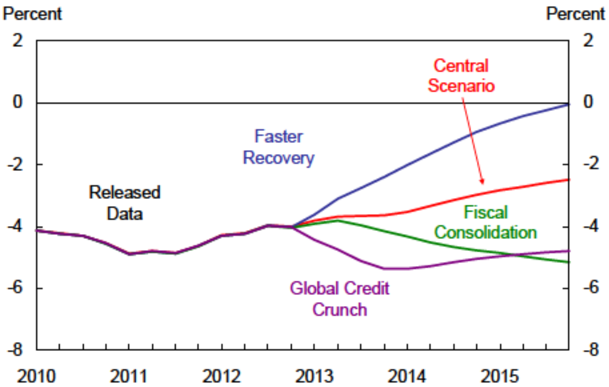


Source: MMS Function (FRBNY)

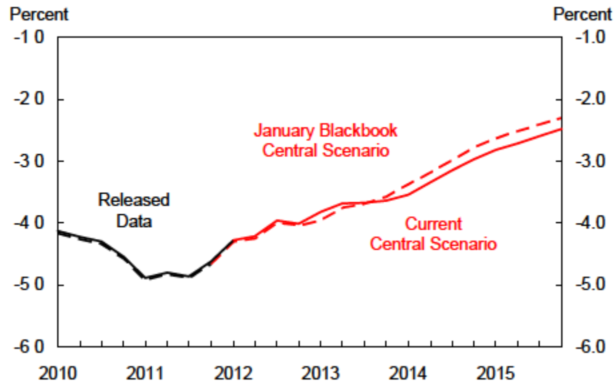
D. FRBNY Fed Funds Rate Projections

Exhibit D-1: *Baseline*
Policy Rule Analysis

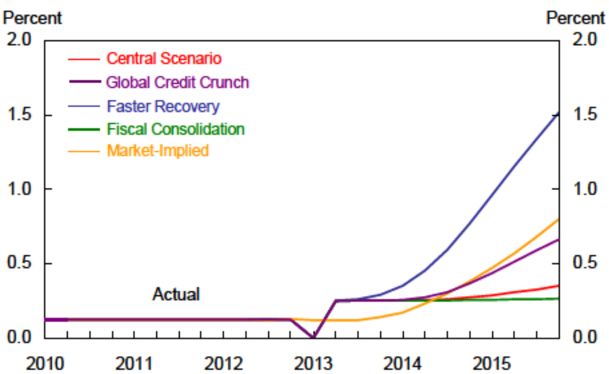
Real FFR under Alternative Scenarios



Change in Central Scenario Real FFR



Nominal FFR under Alternative Scenarios



Change in Central Scenario and Market-Implied Nominal FFR

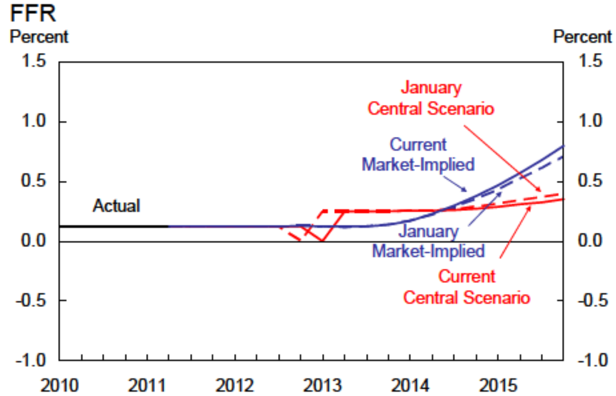
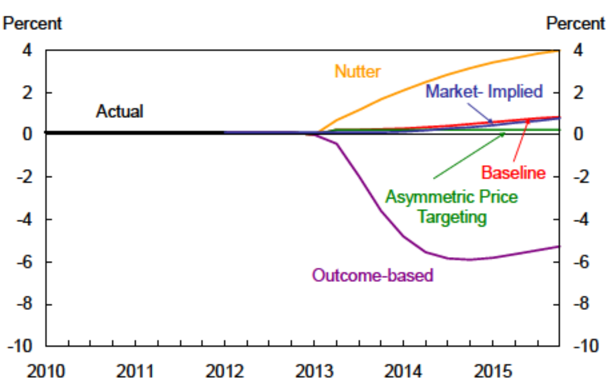


Exhibit D-2: Alternative Policy Rules under Expected Value of Forecast Distribution

Nominal FFR using Alternative Policy Rules*



*Evaluated using yellow line from C-3

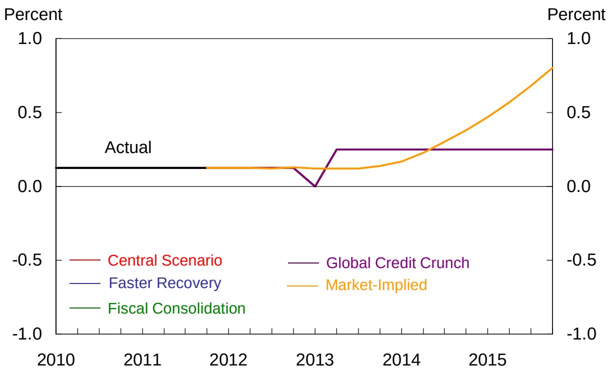
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

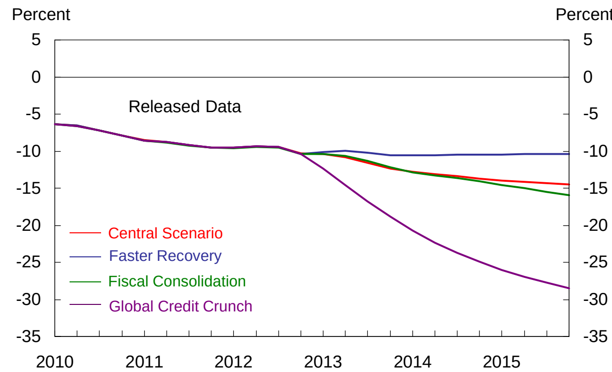
Exhibit D-3: Alternative Policy Rule Analysis

Policy Rule: *Asymmetric Price Targeting*

Nominal FFR under Alternative Scenarios

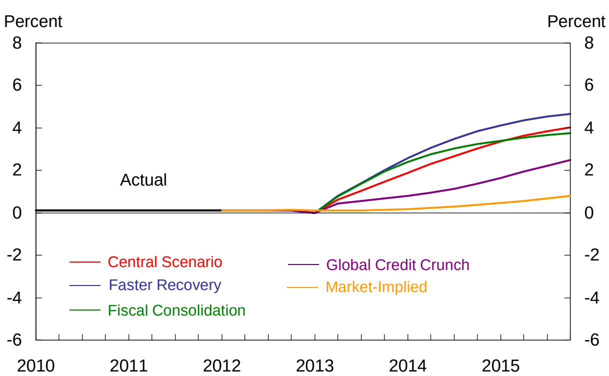


Real FFR under Alternative Scenarios

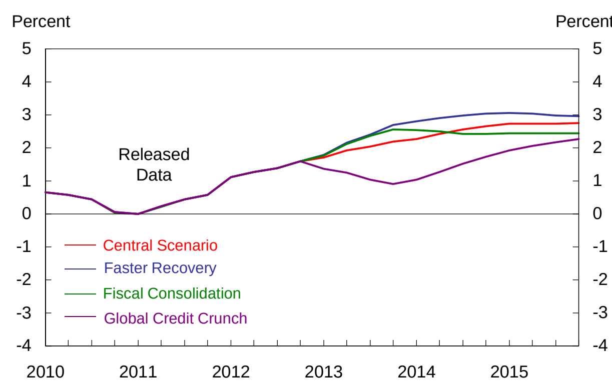


Policy Rule: *Nutter*

Nominal FFR under Alternative Scenarios

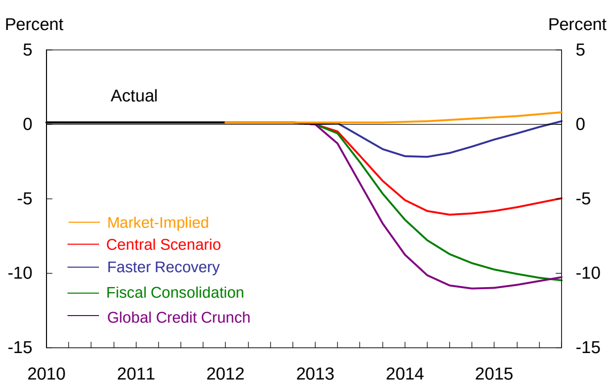


Real FFR under Alternative Scenarios

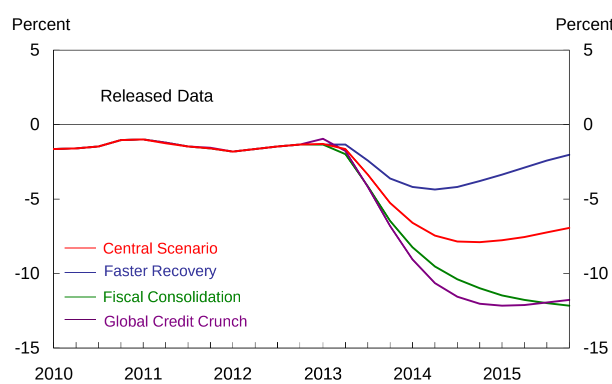


Policy Rule: *Outcome-based*

Nominal FFR under Alternative Scenarios



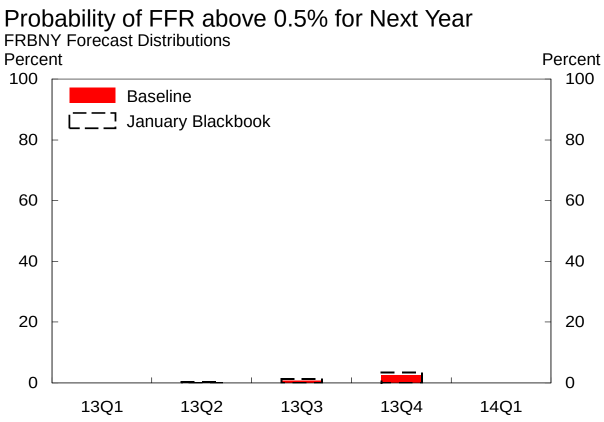
Real FFR under Alternative Scenarios

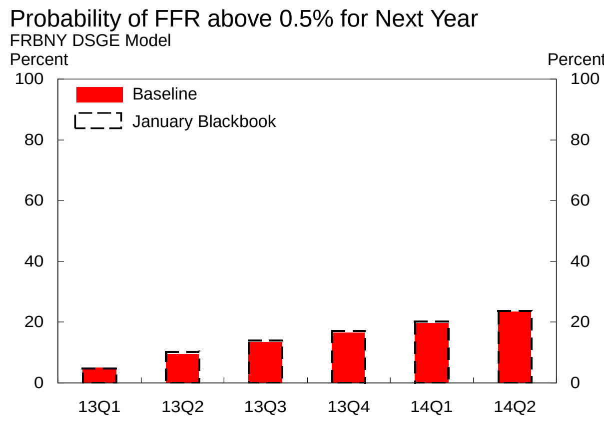


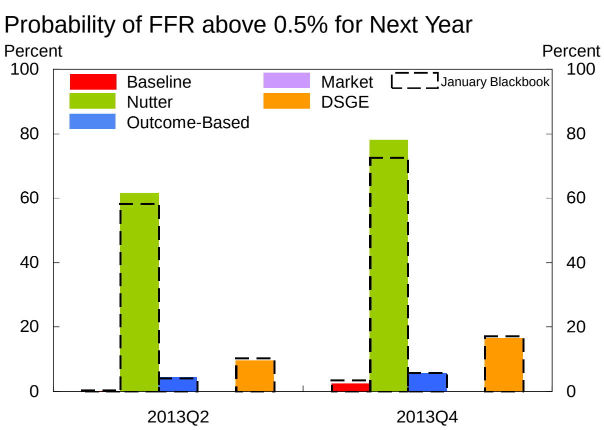
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

Exhibit D-4: FFR Probabilities





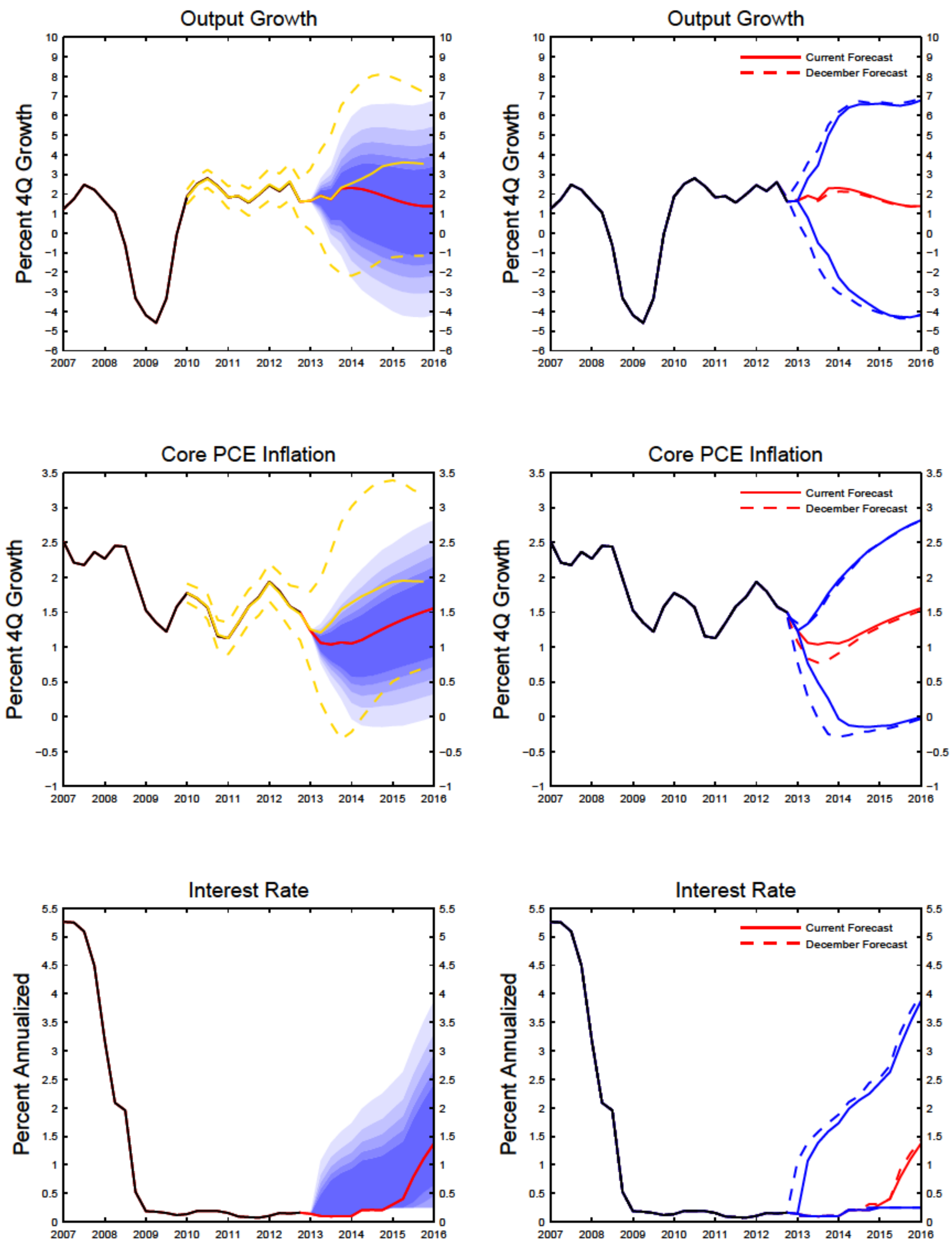


Note: Probability displayed is probability of FFR being above 0.5% in quarter noted and remaining above 0.5% in subsequent four quarters. DSGE results are shown for model including zero bound restriction.

Source: MMS Function (FRBNY)

E. FRBNY-DSGE Model

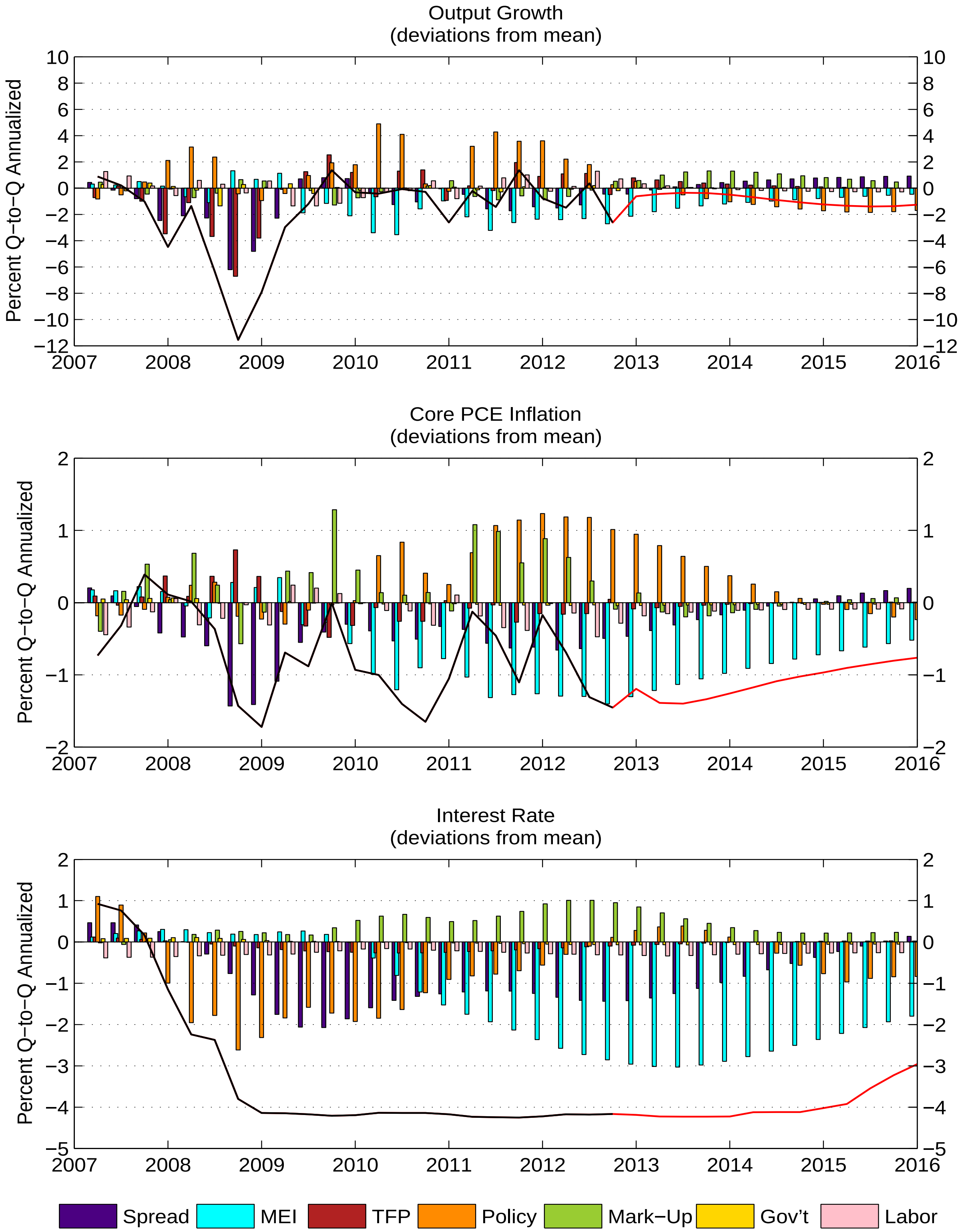
Exhibit E-1: FRBNY-DSGE Forecasts



Note: Black lines indicate data, red lines indicate mean forecasts, and shaded areas mark the parameter and shock uncertainty associated with our forecast as 50, 60, 70, 80, and 90 percent probability intervals. For comparison, we report the FRBNY Central Projection for output growth and inflation (solid yellow line) and the 90 percent bands for the FRBNY forecast distribution (dashed yellow lines). Blackbook forecast comparisons (right-hand side charts) display 90 percent bands.
Source: MMS Function (FRBNY)

E. FRBNY-DSGE Model

Exhibit E-2: FRBNY-DSGE Shock Decomposition



Note: The solid lines (black for realized data, red for mean forecast) show each variable in deviation from its steady state. The bars represent the shock contributions; specifically, the bars for each shock represent the counterfactual values for the observables (in deviations from the mean) obtained by setting all other shocks to zero.
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 expectations[2]. [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 recent real PCE and other aggregate demand indicators raise the possibility that the process of

[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.

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:

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

$\rho = 0.8$ (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 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

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

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.