

FRBNY BLACKBOOK

RESEARCH AND STATISTICS GROUP

FOMC Background Material

April 2012

CONFIDENTIAL (FR) Class II FOMC

FRBNY BLACKBOOK

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1. Policy Recommendation and Rationale

Economic and financial market developments since the January Blackbook have led us to make some small changes to our forecasts of real activity and inflation, as well as to our risk assessment. Because these changes are relatively small, we still recommend maintaining the FFR target range at 0-0.25% until late 2014 while providing forward guidance, possibly through a *state-contingent* commitment. Part of the communication of that commitment should be the specification of policy actions under alternative scenarios, which could clarify the FOMC's reaction function. We also recommend that the FOMC provide additional accommodation through an expansion of the Federal Reserve's balance sheet, implemented at least in part through purchases of agency MBS.

Data released since the January Blackbook indicate that economic conditions have improved, but also suggest that the economic expansion remains fragile. On the one hand, a number of spending indicators — such as durable goods consumption — have improved, and labor market conditions have firmed, with a fairly robust pace of job creation in the first three months of 2012. In addition, indicators for housing and construction as well as consumer confidence have shown signs of stabilization and even some modest improvement. On the other hand, both investment and exports remain sluggish relative to readings in the first half of 2011, while state and local government spending is expected to continue to contract over the near term. The unemployment rate dropped to 8.2% in March, but this decline is largely due to a fall in labor force participation, while the job-finding rate remains below its pre-recession levels and the employment-to-population ratio continues to be low. On the inflation front, core inflation has been higher than we anticipated in the January Blackbook, in part reflecting pass-through of higher oil and gasoline prices. Still, various measures of inflation expectations have remained contained.

Financial conditions in the US have generally improved since January, despite some recently renewed strains. Long-term nominal and real Treasury yields remain at very low levels, and TIPS-implied longer-term inflation compensation measures remain contained. Policy expectations have declined following the March labor market report and are now

close to where they were in January. In addition, after subsiding for much of the first quarter, the European sovereign debt situation has worsened some over the past month, as the cost of borrowing for European peripheral countries increased in recent weeks and concerns about Spain intensified. In light of the continued risks to the financial system, we maintain our recommendation that the FOMC affirms its commitment to provide liquidity to US financial institutions if there is a deterioration of conditions in domestic funding markets.

Because the improvement in economic conditions was reasonably close to our expectations, our projections for real GDP growth in 2012 and 2013 (Q4/Q4) — 2.7% and 2.9%, respectively — are little different from those in the January Blackbook. However, because core inflation has been higher than we anticipated, our projections for core PCE inflation in 2012 and 2013 — both at 1.8% — are somewhat higher than those in the January Blackbook. Nonetheless, our inflation forecasts remain at or slightly below the FOMC objective while our unemployment rate forecasts remain well above the estimates of its longer-run value from the SEP. Furthermore, we continue to regard risks to growth as skewed to the downside, reflecting at least in part risks associated with the European debt crisis. While somewhat lower relative to the January Blackbook, these risks have not abated during the current intermeeting period. We view the risks to the inflation outlook as roughly balanced. With policy at the zero bound, some risk of very low inflation or deflation remains as the economy continues to be vulnerable to negative shocks. Offsetting this downside risk, the recovery both in the US and the rest of the world may prove to be stronger than we anticipate, which could lead to energy prices rising over the forecasting horizon and exacerbate inflationary pressures.

Overall, not only is there a large degree of uncertainty about our assessment of the current state of the economy and the outlook, but upside and downside risks to real activity and inflation present very different policy implications. If real activity and inflation turn out to be stronger than our baseline projections, the FOMC has the tools available in order to reduce the policy accommodation and to achieve its mandate-consistent objectives in the medium term. However, if the recovery proved to be short-

lived, deflationary pressures could reappear. In that case, with policy remained constrained by the zero lower bound, there would be a smaller range of policy options. Such a scenario would therefore imply far greater social costs as the stabilization of employment and inflation near their objectives would be further delayed.

Given the above considerations, a premature removal of policy accommodation, even in the face of somewhat improved economic conditions, may jeopardize the recovery. Indeed, expectations that monetary policy would remain accommodative for a significant period of time have probably been a major contributor to the improvement in economic conditions. We therefore believe that, until a more significant firming of economic conditions takes place, additional policy accommodation is needed. Such accommodation can be accomplished with two complementary tools. First, as we have argued for a while, the FOMC could clarify the state-contingent nature of its commitment to keep the policy rate at exceptionally low levels. One option to do so would be to explicitly acknowledge in the statement that the current degree of policy accommodation takes into account the large uncertainty about the outlook and the risk of a scenario with rising unemployment and deflationary pressures which, as argued above, would be extremely costly to the US economy. Second, the FOMC could support its accommodative policy stance through an expansion of the Federal Reserve's balance sheet, implemented at least in part through purchases of agency MBS. In addition to further stabilizing long-term interest rates, we believe that an expansion of the balance sheet would likely reinforce the state-contingent commitment to maintain an exceptionally low policy rate. The asset composition of such an increase would naturally depend on the conditions in the mortgage markets and the available supply of securities.

2. Evolution of Outlook and Risks

2.1 Central Forecast

First quarter data pertaining to both the supply and demand sides of the economy took on a stronger tone over the period since late January. As a result, we have boosted the projected growth rate of real GDP for 2012Q1 to around 3% (annual rate) from the January estimate of 1.9%. Despite the fact that the labor report for March was regarded

as somewhat of a disappointment, nonfarm payroll employment increased an average of 212,000 per month over 2012Q1 versus 164,000 per month in the fourth quarter of 2011. Hours worked by private sector employees increased at a quite strong 3.7% annual rate in the first quarter, the strongest quarterly performance of the recovery thus far. With private sector wages rising at a 1.9% annual rate, this suggests healthy growth of nominal wage and salary income. Similarly, manufacturing output increased at a 10.5% annual rate over 2012Q1, roughly double the pace of growth over the second half of 2011. While the growth of production was again led by the auto sector, overall it was more broad based than was the case in the second half of last year.

The recent expenditure data have been more mixed. Growth of real personal consumption expenditures likely rose at around a 2 ½% annual rate in the first quarter, up somewhat from the roughly 2% pace of the second half of 2011. Increased spending on durable goods, particularly light-weight motor vehicles, led the growth of consumer spending in the first quarter, as was the case in 2011Q4. Vehicle sales averaged 14.5 million (seasonally adjusted annual rate) in the first quarter — the strongest quarterly sales pace since the first quarter of 2008. But there was also a firming in real spending on categories such as apparel, transportation services, recreation services, and food away from home. The unusually warm weather experienced over the first quarter likely played a role in this strengthening, but we believe that the somewhat better labor market and improvement in overall financial conditions contributed as well.

In addition to the somewhat firmer tone of consumer spending, real residential investment likely experienced another solid gain in the first quarter although, due to its relatively small share of overall activity, the resulting growth contribution is still pretty modest. There is now a very gradual uptrend in total housing starts, leading to a slight uptrend in the value of residential construction put in place. In addition, there has been renewed strength in the rate of growth of additions and alterations of the existing stock of housing. As with consumption spending, the unusually warm weather likely boosted the pace of housing starts in the first quarter from what otherwise would have been the case.

In contrast, it appears that the rate of growth of business investment in both equipment and software and in nonresidential structures remained quite sluggish in 2012Q1 after slowing sharply in the fourth quarter following double-digit growth in the third quarter. It is not clear whether this is just inherent volatility or a genuine slowdown. At the moment the evidence is leaning toward the volatility explanation. After slowing over the second half of 2011, the rate of growth of new orders for nondefense capital goods has resumed a healthy pace in recent months and their level is well above that of shipments. The architectural billings index has been modestly above 50 for five months ending in March after averaging 47½ for the second and third quarters of 2011.

Based on data through February, real exports of goods and services appear to be on track to grow at a 6½% annual rate in 2012Q1, a significant increase over the rate of growth of the second half of last year. In addition to the strength in consumer purchases of durable goods, this more rapid growth of exports is also contributing to the strong growth of manufacturing output. But growth of real imports has also increased in recent months, such that the growth contribution from net exports in the first quarter is likely to be just 0.2 percentage points.

Available data suggest that consumption and gross investment by state and local governments continued to decline in the first quarter, though the rate of decline was somewhat less than over the course of 2011. Employment at the state and local level did not decline in 2012Q1 for the first time since 2008Q3. However, state and local government construction spending has weakened considerably, at least in nominal terms, despite the unusually mild weather. While also on a declining trend, consumption and gross investment at the federal level is expected to have experienced positive growth in the first quarter.

The largest change in our adding up of the first quarter growth components is in inventories. In the fourth quarter of 2011 inventory investment contributed 1.8 percentage points of the total 3% growth rate. The historical record suggests that in the quarters immediately following such a large contribution the growth contribution from

inventories would most likely be negative. In January we had penciled in about -0.5 percentage point for the 2012Q1 inventory growth contribution. However, data through February suggest that the inventory growth contribution is likely to be around $+0.5$ percentage point, a swing of a full percentage point. Much of the upside surprise in first quarter inventory accumulation appears to be in the motor vehicle sector as dealers continue to try to get inventories back to historic norms in an environment of rising sales.

In addition to stronger growth of output, both total and core inflation have been considerably higher in the first quarter than we anticipated in January. For example, the total PCE deflator likely increased around 2.4% (annual rate) in 2012Q1 versus the 1.1% that was featured in our January projections. Similarly, core PCE deflator inflation for 2012Q1 has been raised to 2.2% (annual rate), notably above the 1.2% annual rate projected in late January. This upside surprise is due in part to the renewed upswing in gasoline prices during February and March that we had not anticipated. Fortunately, the rise of gasoline prices appears to be over, at least for now. But the bigger surprise has been the increase in the rate of core inflation, which reflects firmness in both nonenergy services prices as well as prices of nonenergy and nonfood goods.

Conditioning assumptions. Our estimate of potential GDP growth is around $2\frac{1}{4}\%$, having been lowered from around $2\frac{1}{2}\%$ based on the revised NIPA data that was released at the end of July of 2011. The Board staff estimates of potential for 2012 and 2013 are 2.0%, and 2.1%, respectively, all unchanged from January.

We expect the lower degree of inflation persistence evident since the early 1990s to continue. This assumption is in contrast to the greater degree of inflation persistence assumed in recent Board staff forecasts. In our central scenario, inflation expectations remain well anchored. This assumption is central to our projection that core PCE deflator inflation will remain near the midpoint of the FOMC's objective of 1.5% to 2.0%. In contrast, the Tealbook forecast expects core PCE deflator inflation to trend downward toward the bottom of that range.

In this Blackbook forecast, projected foreign growth over the forecast horizon is essentially unchanged from January at 2.6% (Q4/Q4) in 2012 and 3.1% in 2013 (GDP weighted). In contrast, in this Tealbook forecast projected foreign growth has been increased to 2.3% in 2012 (from 1.8%) and to 3.0% (from 2.6%). Of particular note, the Board staff now expects the recession in the Euro area to be less severe than previously expected.

Reflecting developments since January, the exchange value of the dollar is now expected to experience a more significant decline in 2012. The Board expects the nominal exchange value of the dollar to fall 1.2 % in 2012 versus no change in January. We expect the dollar to fall 1.7% versus 0.6% in January. Expected exchange rate movements in 2013 are unchanged at -1.5% and -1.3% for the Blackbook and the Tealbook, respectively.

Our projected path of WTI oil prices, based on recent futures quotes, is modestly higher than was the case in January. We expect a price of \$105 for 2012Q4, up from \$101, and a price of \$103 for 2013Q4, up from \$98. The Board's projected path has moved up by a similar magnitude, to \$109 in 2012Q4 from \$103, and to \$105 in 2013Q4 from \$101.

As is our standard practice, we adopt the same fiscal assumptions as in the Tealbook. For 2012, the Tealbook expects federal fiscal drag of 0.6 percentage points, based on its Fiscal Impetus measure, versus 0.4 percentage points of drag in the January Tealbook. The bulk of this fiscal drag reflects reductions of discretionary spending called for in the Budget Control Act enacted last August as well as some waning effects of the stimulus bill passed in early 2009. For 2013 the fiscal impulse measure moves to -1.2 percentage points, versus -1.1 percentage points in January. The Board staff does not specify what policy actions will generate this much drag but notes that it is less than would occur under current law.

We continue to adopt the Tealbook assumptions regarding equity and home prices. Equity prices are assumed to rise at a 7 percent annual rate over the forecast horizon,

driven primarily by a return of the equity risk premium to more normal levels. Finally, reflecting some recent firming in home prices, the CoreLogic national home price index is now assumed to rise about 2% in both 2012 and 2013 rather than the assumption of essentially flat over that same time period. By the end of 2013 the level of the index is now expected to be about 5 percent above the January projection.

The Outlook. We suspect that the somewhat stronger than expected growth over the first quarter is due in part to temporary factors, particularly the unusually warm weather and the ongoing normalization of inventory levels in the motor vehicle sector. Therefore, we have not carried this stronger pace of growth through the entire forecast horizon, such that the increase in projected growth for all of 2012 has been raised only modestly, from around 2 1/2% (Q4/Q4) to 2 3/4%. Conditions do not yet appear to be in place for a really robust recovery. Analysis of our Equifax consumer credit panel indicates that aggregate consumer credit continues to decline, with the supply of credit constrained for all but the most credit worth borrowers. Even borrowers with well above average credit scores report difficulty in obtaining mortgage credit. Second, with underwriting standards tight and vacancy rates still well above the underlying trend, any recovery of housing production is likely to remain muted for some time. For 2013 our projected growth rate is unchanged at around 3%. The gradual healing of the economy will be further along at that point, suggesting that a more powerful recovery might take hold. However, the most likely scenario is for federal fiscal policy to begin to exert a more substantial drag on growth next year. For example, we assume that the payroll tax cut and extended unemployment benefits will not be renewed at the end of 2012 and that at least some of the restraint on spending prescribed by the Budget Control Act of 2011 will occur. Finally, defense spending is expected to gradually decline as the drawdown of overseas troop levels continues.

Regarding inflation, it appears that gasoline prices have peaked, at least for now, and will actually decline on a seasonally-adjusted basis over the second quarter. Moreover, several of our forward looking inflation indicators suggest that trend inflation will slow in the months ahead, and we continue to incorporate that into our forecast. However, we

have raised the entire path of core inflation over the forecast horizon to reflect this higher starting point. We now expect the core PCE deflator to increase 1.8% (Q4/Q4) in 2012 and 1.9% in 2013, up from 1.2% and 1.4%, respectively.

After falling from 9% to 8.5% from September to December of 2011, the unemployment rate declined to 8.2% in March of this year. This has been a more rapid decline than previously expected, and certainly more rapid than would be suggested by an Okun's Law relationship estimated over the data of the past decade. The path of the unemployment rate over the forecast horizon has been shifted lower to reflect this development. But we continue to believe that as the labor market improves, the labor force participation rate will begin to rise from its recent quite-low levels. As a result, the unemployment rate is expected to decline more gradually over the forecast horizon than has been the case over the past six months despite the fact that we expect growth to be somewhat stronger. We now envision an unemployment rate of around 7¾% for the fourth quarter of 2012 and around 7% by the fourth quarter of 2013.

2.2 Alternative Scenarios and Risks

Since the January Blackbook we have reduced some of the downward risks to real economic activity and inflation. While risks to real activity remain skewed to the downside, risks to inflation are now roughly balanced. Most of these changes reflect developments that occurred before the March FOMC cycle. In fact, the balance of risks has not changed significantly during the intermeeting period.

The data releases since January led us to raise the probability associated with the most optimistic scenario, namely the *Faster Growth* scenario [Exhibit C-1]. *Faster Growth* is the second most likely scenario, with a probability of about 25%, which has been increasing since December, consistent with signs of improvement in housing and construction, labor market, and consumer confidence. We roughly halved the likelihood of the *Global Deflation* scenario (now below 5%) and reduced the probability of the *Global Credit Crunch* scenario to reflect improvements in the European sovereign debt situation since January. We also increased the probability of the *Fiscal Consolidation*

scenario, in light of higher risks of a rise in inflation in the short-term caused by recent political developments in the Middle East. We have made no significant changes to the likelihood of the remaining scenarios. The *Fiscal Consolidation* scenario, which reflects the risks from fiscal retrenchment and higher inflation in the short-term, remains the most likely alternative scenario, with an associated probability of slightly above 30%.

Given that the *Central* scenario forecasts are quite similar to what they were in the last Blackbook, so are the paths for core PCE inflation and real GDP growth associated with the various scenarios [Exhibit C-2]. In fact, the paths associated with the various scenarios differ from the previous Blackbook only to the extent that the *Central* scenario forecasts have changed, since the risks are defined relative to the *Central* scenario.

Since the January Blackbook, the forecast distribution for core PCE inflation has changed to reflect both a reduction in downside risk and an increase in upside risk. As a result, the forecast distribution is now roughly symmetric around our model forecast. In addition, there is a modest narrowing of the forecast distribution for real GDP growth, reflecting a reduction in downside risk [Exhibit C-3]. As a consequence, the probability of a recession through the end of 2012 is now 39%, significantly down from 51% in the previous Blackbook. The “Depth of Recession” chart shows that, should a recession occur, it would most likely be relatively mild, similar to that in 2001.

Exhibit C-3 also shows mean forecasts from the FRBNY DSGE model. The inflation forecast is somewhat below the expected value of the FRBNY forecast distribution, which in turn is below the *Central* scenario. The forecasts for real GDP growth are closer to the *Central* scenario through mid-2012 but significantly more pessimistic thereafter.

3. Forecast Comparison

3.1 Comparison with Private Forecasters¹

Real GDP Growth. The FRBNY forecast for real GDP growth in 2012Q1 is significantly improved relative to the January Blackbook. Near-term projections are slightly below those of Macro Advisers, but above the Blue Chip forecasts. On a year-to-year basis, FRBNY growth projections are somewhat more optimistic than those of private forecasters for 2012, but below Macro Advisers' forecast for 2013.

Inflation. The FRBNY year-to-year inflation projections for 2012 and 2013 are in line with those of private forecasters for both core measures. In the near term, FRBNY projections for headline CPI inflation are roughly in line with the Blue Chip forecasts, but above that of Macro Advisers. Relative to January, all forecasters expect headline and core CPI inflation to move slightly above 2% in 2012 and 2013, while core PCE inflation remains below 2%.

3.2 FRBNY-DSGE Model Forecast

The FRBNY-DSGE model forecast is derived using data through 2011Q4, with 2012Q1 data for the federal funds rate and the spread between Baa corporate bonds and 10-year Treasury yields, and the NY Fed staff projections of 2012Q1 real GDP growth, core PCE inflation and growth in total hours. The projections are also conditional on expectations for the federal funds rate being equal to market expectations (as measured by OIS rates) through mid-2014.

The DSGE model projects a lackluster recovery in economic activity, with the near term forecasts somewhat more pessimistic than in the previous Blackbook [Exhibit E-1]. Real GDP growth forecasts for 2012, 2013, and 2014 (Q4/Q4) are 2.7, 1.9, and 1.3 percent, respectively, compared to 3.2, 2.3, and 1.9 percent, respectively, in January [Exhibit B-8]. Relative to the FRBNY central forecast, the DSGE model projects similar growth in the short run, but is far less sanguine for 2013 and 2014. The projections for inflation in

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

the near term are higher than in the previous Blackbook. Core PCE inflation forecasts for 2012, 2013, and 2014 (Q4/Q4) are 1.6, 1.4, and 1.6 percent, respectively, compared to 0.7, 1.2, and 1.6 percent, respectively, in January. These forecasts are a bit below, but close to, those in the FRBNY central forecast for 2012, but more subdued for 2013 and 2014.

The uncertainty around the real activity forecast in the DSGE model, as measured by the width of the 90 percent probability interval, is lower in the short run relative to the FRBNY forecast distribution (the model ignores the issue of data revisions), comparable in 2013, and higher in 2014, particularly because of the downside risks. The model places a non-negligible probability on negative growth throughout the forecast horizon. Uncertainty around the inflation outlook is also lower relative to the FRBNY forecast distribution through the first half of 2013, but higher thereafter. Consistently with the output forecast distribution, the model sees larger downside risks to inflation toward the end of the forecast horizon.

The DSGE model forecast is driven by two main factors [Exhibit E-2]. On the one hand, the continued headwinds from the financial crisis, as captured by the effect of both spread and MEI (marginal efficiency of investment) shocks, 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 2014, toward the end of the forecast horizon. On the other hand, accommodative monetary policy, and particularly the forward looking language, plays an important role in counteracting the financial headwinds, and lifts output and inflation. The impact of policy on the *level* of output starts to wane by the end of 2012, which implies that the effect of policy on *growth* is actually negative after that. This explains why growth is well below trend by the end of 2014: this is essentially a “payback” from the current monetary policy stimulus. Finally, the model attributes the pickup in core inflation in 2011 — and to some extent also in recent months — to mark-up shocks, which capture temporary swings in inflation, such as those due to oil price fluctuations.

As a result of incorporating FFR market expectations, the projected FFR liftoff occurs in 2014. The model views the federal funds rate at the zero lower bound as the outcome of the endogenous response of policy to the weak economy. Policy shocks currently keep the federal funds rate about 50 basis points lower than implied by the historical rule. Moreover, the near-zero policy rate until 2014 is seen by the model as 50 to 75 basis points more accommodative than what would be implied by the historical rule.

4. Robustness of Policy Recommendation

4.1 Sensitivity to Alternative Scenarios and Policy Rules

As in the last Blackbook, our policy recommendation is to maintain the target range for the federal funds rate at 0–0.25% until late in 2014. Our recommended policy accommodation is justified by the current forecast and risk assessment for real activity and inflation. This accommodation goes beyond what is implied by the *Baseline* policy rule under most scenarios, except for the *Global Deflation* and the *Fiscal Consolidation* scenarios [Exhibit D-1]. This reflects our assessment that under the zero lower bound, standard Taylor-type rules do not characterize optimal policy: a commitment to maintain rates low for longer than implied by standard rules is needed to provide an appropriate accommodation.

Exhibit D-2 shows the prescription of various policy rules using the expected value of the forecast distribution as an input. As in the last Blackbook, the path implied by the *Baseline* policy rule under the expected paths for output and inflation implies a liftoff in the second half of 2013. The *Nutter* rule, which puts weight only on inflation, is the only rule prescribing a liftoff earlier than 2013Q3. Exhibit D-2 also shows the implied nominal FFR for the *Outcome-based* rule, ignoring the zero bound constraint. Under the expected value of the forecast distribution, the unconstrained nominal FFR reaches almost -6% by the end of 2013.

Exhibit D-3 shows the prescriptions from alternative policy rules under the various 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 2012 under most scenarios, including the *Central* scenario, and before mid-2013 even under the low-inflation scenarios, such as *Productivity Boom*, *Global Credit Crunch*, and *Global Deflation* scenarios. For the *Outcome-based* rule, ignoring the zero bound, the paths are at or below zero through the end of 2013 for all scenarios, and through the end of 2014 for most of them, with the exception of *Faster Recovery*.

Exhibit D-1 also shows the “shadow” real FFR rates implied by the *Baseline* rule under the various scenarios, ignoring the zero bound constraint. Under the *Central* scenario, this rule implies a very gradual renormalization of the real rate, which increases from almost -5% in the current quarter to slightly above -2% by the end of 2014. Exhibit D-3 shows the real rate (under alternative scenarios) for the *Asymmetric Price Targeting*, the *Nutter*, and the *Outcome-based* rules. Perhaps not surprisingly, given the above commentary, *Asymmetric Price Targeting* and *Outcome-based* rules imply a negative interest rate across all scenarios, while the *Nutter* rule implies a real rate at or above 1% across scenarios.

4.2 Comparison to Market Expectations

The expected FFR path implied by futures shifted down during the intermeeting period, and it is now lower relative to the January Blackbook. As in January, it implies a liftoff in the second half of 2013. The median Primary dealer’s expectation for the timing of the first tightening is 2014Q3 — one quarter later than in the January survey. Finally, the entire distribution of the first policy rate hike shifted towards later dates, with the probability of the first increase in 2014H2 now higher than the probability of liftoff in 2014H1.

5. Significant Developments

5.1 Economic Developments

Foreign Data Releases. *Euro area:* The economy remained weak in Q1, with industrial production levels in January and February below the Q4 average. The PMI readings continue to be soft through Q1 and the European Commission’s economic sentiment index was stable in March at a level 6% below its long-run average. Exports are a bright

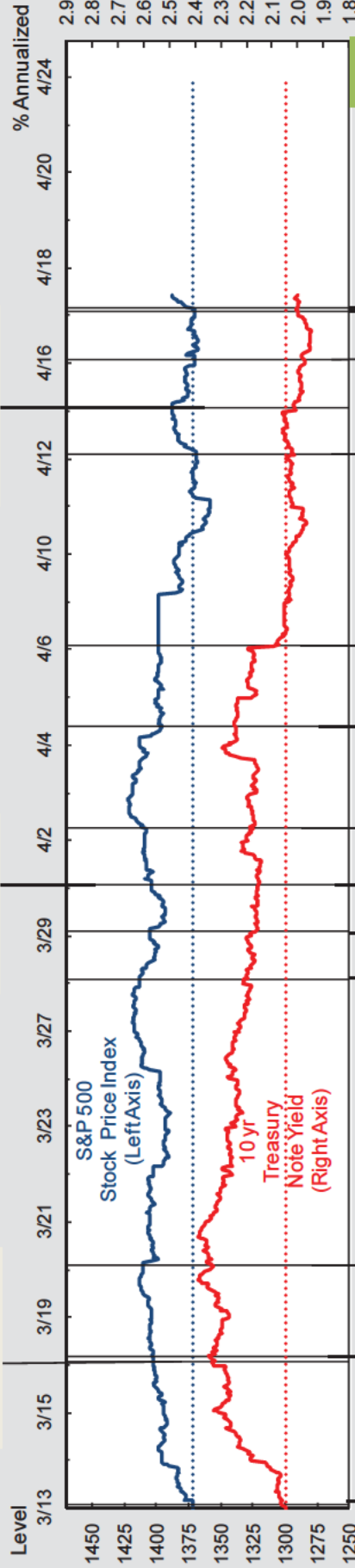
Key Data Releases

Price Releases

Consumer Price Index (Feb)
 Overall: +0.4% (+0.4%)
 +2.9% over twelve months
 Core: +0.1% (+0.2%)
 +2.2% over twelve months

PCE Price Index (Feb)
 Overall: +0.3% (+0.3%)
 +2.3% over twelve months
 Core: +0.1% (+0.1%)
 +1.9% over twelve months

Consumer Price Index (Mar)
 Overall: +0.3% (+0.3%)
 +2.7% over twelve months
 Core: +0.2% (+0.2%)
 +2.3% over twelve months



Retail Sales (Feb)
 Total: +1.1% (+1.1%)
 +6.9% over twelve months
 Ex-auto: +0.9% (+0.7%)
 +6.4% over twelve months

New Residential Construction (Feb)
 Total housing starts: -1.1% to 688,000 SAAR (+0.1% to 700,000)
 +34.7% over twelve months
 - Single-family starts: -9.9%
 - Multi-family starts: +21.1%

Advance Durable Goods (Feb)
 New Orders: +2.2% (+3.0%)
 +12.2% over twelve months
 Shipments: -0.4%
 +8.2% over twelve months

ISM Manufacturing (Mar)
 Composite index: +1.0 to 53.4

Employment Situation (Mar)
 Non-farm payroll: +120,000 (+205,000)
 Unemployment rate: -0.1 to 8.2 (Flat at 8.3)

Trade Balance (Feb)
 Total: -\$46.0 billion (-\$51.8 billion)

Industrial Production & Capacity Utilization (Mar)
 IP: flat (+0.3%)
 +3.6% over twelve months
 CU: -0.1% to 78.6% (78.5%)

Industrial Production & Capacity Utilization (Feb)
 IP: flat (+0.4%)
 +4.0% over twelve months
 CU: -0.1% to 78.7% (78.8%)

Core Logic Home Price Index (Feb)
 Including distressed sales: +0.3%
 -2.0% over twelve months
 Excluding distressed sales: +0.9%
 -0.8% over twelve months

Personal Income and Spending (Feb)
 Personal Income: Nominal +0.2% (+0.4%)
 Real Disposable: +0.2%
 PCE: Nominal +0.8% (+0.6%)
 Real +0.5%

Retail Sales (Mar)
 Total: +0.8% (+0.3%)
 Ex-auto: +0.8% (+0.6%)

New Residential Construction (Mar)
 Total housing starts: -5.6% to 654,000
 (-1.0% to 705,000 SAAR)
 +10.3% over twelve months
 - Single-family starts: -0.2%
 - Multi-family starts: -16.9%

Gross Domestic Product (3rd Estimate for 2011Q4)
 Real GDP: +3.0% (3.0%)

Real Activity Releases

Note

Blue shading: Data release better than expected.
 Red shading: Data release worse than expected.

Numbers in parentheses are the median of the Bloomberg survey.

spot with increasing sales to the United States, Asia, and Latin America. The unemployment rate continues to rise steadily, hitting 10.8% in February. The number of unemployed was up 9% over the year.

Japan: The headline March Tankan sentiment index of large manufacturers was flat at its December level, indicating continuing moderate pessimism. Responses from non-manufacturers suggest some strength in domestic demand. January and February production data were mixed, although survey data suggest there was robust growth in March. Export volumes turned higher in March, the first notable move higher in six months.

EM Asia: China's growth slowed for a sixth consecutive quarter in Q1, to just above 7% (saar), slightly below potential. The slowdown reflects weaker investment with macro-prudential restrictions weighing on the property sector and softer exports, especially to Europe. Consumption remains robust. Current and prospective targeted easing measures are expected to lead to firmer growth over the course of the year, and stronger credit data in March supports this view. Cost pressures remain moderate, but have shown some signs of picking up.

Data from the rest of Asia indicate that production and trade picked up markedly after a weak Q4. Consumption indicators have also strengthened.

Latin America: Brazil's economy is estimated to have expanded at a subdued pace again in Q1, held back by inventory destocking. Industrial output has slumped amid declining competitiveness, while services activity has been supported by a tight labor market, rising real wages, and abundant credit. Mexico's economy gained momentum in the first quarter, fueled by a resurgent manufacturing sector, after a subdued Q4. Manufacturing PMIs remained solidly in expansionary territory.

5.2 Financial Markets

Domestic Financial Markets. Treasury yields and broad stock market indexes are now at similar levels as they were before the last FOMC meeting. However, during the intermeeting period equity markets and 10-year Treasury yields rose appreciably, only to have reversed course since the beginning of April on the back of mixed economic data and a renewal of concerns about the European fiscal situation.

Nominal Interest Rates: Yields on the 10-year benchmark Treasury nominal security were little changed, on net, over the intermeeting period. The yield on the 10-year benchmark is now trading at about 2.00%, only 4 basis points down from its level on March 12, but down approximately 40 basis points from its peak in the intermeeting period. Shorter dated yields were also little changed since the last meeting owing to the maintained forward policy guidance in the FOMC statement. Option implied volatilities in Treasury and swap markets as measured by the 3-month MOVE and SMOVE indices are only slightly above their level on March 12, and thus still trading near the bottom of the range observed since the end of the recession in mid-2009. [Exhibit A-3: Treasury Yields]

Inflation Compensation: Long- and short-dated TIPS implied measures of inflation compensation moved in opposite directions over the intermeeting period. Near-term market implied breakeven measures fell, with inflation compensation over the next 5 years falling from 2.05% on March 12 to 1.92%. Meanwhile, 5- to 10-year inflation compensation rose by about 20 basis points and now stands at 2.72%. Survey-based measures of medium- to long-term inflation expectations were little changed. The median 5-year inflation expectations as measured by the University of Michigan's Survey of Consumers rose slightly to 3.0% from 2.9% in February, well within the range of values observed over the recent past. [Exhibit A-4: Real Yields and Inflation Compensation]

Expected Policy Path and Short-term Funding Markets: The expected path of the federal funds rate as inferred from market data shifted slightly lower than on March 12.

Consistent with the conditional language in the “late-2014” forward policy guidance in the FOMC statement, market quotes imply that the federal funds rate will remain in the current range until the second half of 2013 with a small rise before the end of 2014.

Survey responses from the Blue Chip Financial Forecasts’ April 2012 panel (survey period: March 26-27) were approximately in line with the market implied expectations. Indeed, according to the median forecast, the federal funds rate is expected to trade in its current range until at least the third quarter of 2013 (the outermost forecast horizon). The survey also conducted special questions about future Federal Reserve actions. 73% of respondents expected that the FOMC would raise its target rate before late 2014. [Exhibit A-5: Policy Expectations]

Equity Markets: Broad stock market indexes moved higher after the last FOMC meeting, only to reverse course since the beginning of April. On net, the S&P500 index is only about 1.5% higher than on March 12, now standing at about 1391. Despite the recent decline, the index has risen appreciably since the fall of last year, up from a low of about 1100. Over the same period, implied equity volatility, as measured by the VIX, followed a similar pattern. The VIX was largely unchanged after March 12 until the beginning of April where it moved from a level of about 15 up to about 20, and now stands at about 18. That said, the VIX is substantially lower than the levels observed in the late summer and early fall of last year. [Exhibits A-6/7: Equity and Credit]

Credit Spreads: Corporate bond credit spreads and CDS spreads were only modestly different from their levels before the last FOMC meeting. High-yield corporate bond and CDS spreads rose about 10 and 40 basis points, respectively, to levels of 616 and 612 basis points. Meanwhile, investment grade corporate credit spreads were little changed over the intermeeting period and now stand at 201 and 99 basis points, respectively. [Exhibit A-7: Credit]

Foreign Financial Markets. Euro Area: European market stresses reemerged as the peripheral euro area sovereign debt concerns intensified over the intermeeting period. Consequently, peripheral euro area CDS spreads as well as sovereign debt spreads relative to Germany increased since the last FOMC meeting, particularly those of Italy and Spain. Market participants attribute these developments to the overall dire euro area growth outlook (with the euro area likely in a recession), market disappointment with the upsizing of the region's permanent fiscal backstop facility announced by EU governments towards end-March, as well as doubts about the sustainability of fiscal adjustment programs in Italy, Portugal and Spain (with Spain openly refusing to meet deficit targets set by the EU). In the case of Spain, the projected fiscal adjustments have been complicated by a rise in non-performing loans within the Spanish banking sector that will likely increase the need of additional state support for these banks. As a consequence, the stabilizing impact of the ECB's 3-year longer-term refinancing operations in December and February on market sentiment has been partly undone. Nonetheless, Spanish and Italian government bond spreads are still well below levels seen in early January, whereas bank funding costs have barely budged despite the recent backup in sovereign spreads, all of which likely reflects the continued impact of these 3-year refinancing operations. The euro is modestly weaker against most major currencies over the intermeeting period, with the euro broadly unchanged relative to the U.S. dollar, and European equity indices also declined over the period.

Japan: Japanese financial assets have retraced a large portion of the significant Japanese yen depreciation and equity rises witnessed in February and March. Over the intermeeting period, weaker-than-expected U.S. employment data, renewed focus on the euro area sovereign debt crisis and better-than-expected Japanese current account data contributed to the yen appreciating between 2% and 5% against most major currencies and equities falling 6%. Increased demand for Japanese government bonds (JGBs) associated with the start of Japan's fiscal year in April and the increased pace of JGB purchases by the Bank have weighed on JGB yields. Consequently, benchmark 10-year JGB yields declined roughly 10 basis points since mid-March.

Emerging Asia: EM Asian currencies depreciated by 0.5% on average against the dollar, led by the 4% weakening of the Indian rupee. The rupee's depreciation was consistent with the Indian central bank's larger-than-expected policy rate cut. Equities in the region declined by 2%, with price action largely attributed to concerns over the pace of the Chinese slowdown.

Latin America: Since the last FOMC meeting Latin American currencies depreciated, on average, about 1% against the dollar and equities declined about 4%, as global risk appetite was negatively affected by the flare up of the peripheral euro zone debt crisis. Mexico's local bond yield curve continued to flatten at the long end amid foreign inflows. Similarly, Brazil's local curve flattened up to 35 basis points on the long end.

5.3 Global Economic Policy

Euro Area: The ECB kept its policy rate at 1.0% at its April policy meeting. The statement issued after the meeting asserted that "the economy will recover gradually in the course of the year," with support from foreign demand. The ECB held on February 29 its second 3-year long-term refinancing operation conducted under the fixed-rate, full allotment stance. This resulted in a net increase in outstanding ECB open market operations of €22 billion and a similar increase in excess liquidity, which was above expectations. Together with the first 3-year refinancing operation in December, the ECB long-term refinancing operations are estimated to have, on net, added €57 billion to bank liquidity, with most of it flowing to Italian and Spanish banks. A cut in the policy rate is unlikely in the near term and there is a reluctance to pursue other expansionary measures such as restarting the Securities Markets Program.

Japan: The Bank of Japan kept its policy rate in a range of 0.0-0.10% at its March 13 and April 10 policy meetings and will continue to do so until its official projections suggest price stabilization in the near-to-medium term. The size of its Asset Purchase Program also remained unchanged at these meetings after the Bank raised it in February with ¥10 trillion to ¥30 trillion. It also clarified its inflation targeting language in February, reiterating its commitment to monetary easing until the rate of CPI inflation

reaches 1% year-over-year. Further easing measures are expected to be announced at the Bank's April 27 meeting, when it releases its semi-annual *Outlook for Economic Activity and Prices* report.

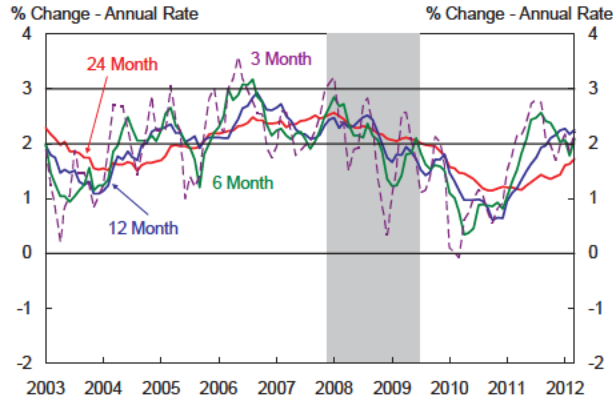
EM Asia: Monetary policy in EM Asia has remained largely on hold since the last FOMC meeting. In India, the Reserve Bank of India [RBI] cut rates by 50 basis points at its April policy meeting, a larger move than expected and the first cut of the cycle. However, the RBI indicated that the inflation outlook might leave little scope for further easing. Monetary authorities in Singapore tightened policy by increasing the trend pace of appreciation for the country's undisclosed currency basket target. Chinese monetary authorities announced a widening of the intra-day trading band for the yuan exchange rate relative to the dollar from $\pm 0.5\%$ to $\pm 1.0\%$. Note that up to now the yuan-dollar exchange rate has generally remained well inside the official trading band. Forward contracts suggest an expectation of a broadly unchanged yuan-dollar rate over the next 12 months. China's reserve purchases accelerated to an estimated \$80 billion in Q1 from just \$12 billion the previous quarter, and this may indicate a return to moderate capital inflows after significant outflows in Q4. Elsewhere in the region, reserve purchases were small, on generally light capital flows.

Latin America: Mexico's central bank kept its policy rate at 4.5% at its March policy meeting and analysts expect no rate change in 2012. In Brazil, the central bank reduced the policy rate by 75 basis points at its April meeting, bringing the policy rate to 9%. Meanwhile, the Brazilian central bank has stepped up its currency intervention activity, purchasing over \$10 billion on the spot and forward market in March. The heightened intervention appears part of a broader government strategy of stemming currency appreciation pressures to support the slumping industrial sector. In Argentina, monetary conditions have eased in recent months, with the benchmark interest rate declining from 22.0% in November to 12.5% in April.

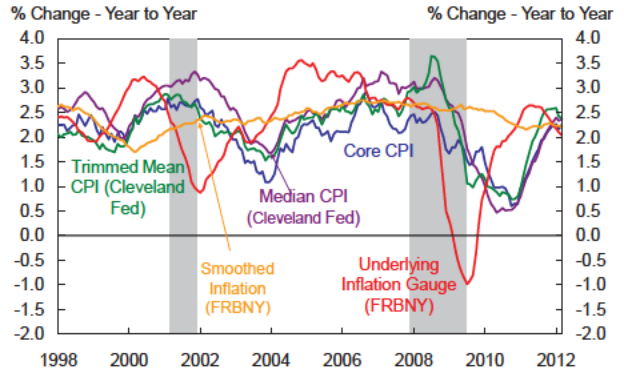
A. Significant Developments

Exhibit A-1: Measures of Trend Inflation

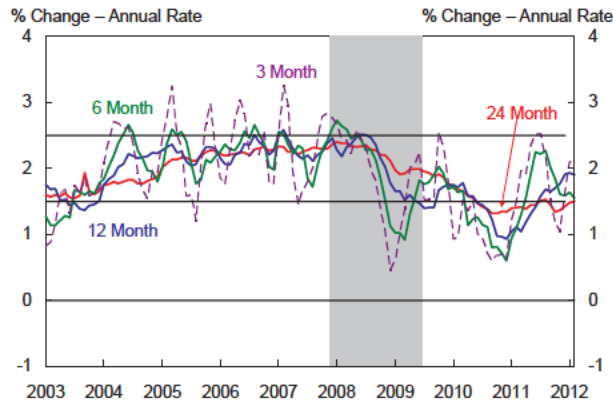
Core CPI Inflation over Various Horizons



Alternative Measures of CPI Inflation



Core PCE over Various Horizons



Alternative Measures of PCE Inflation

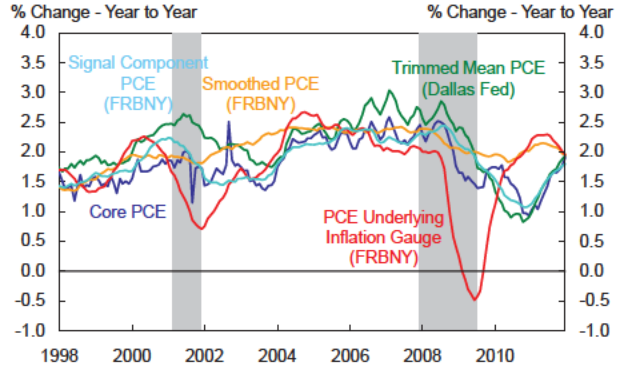
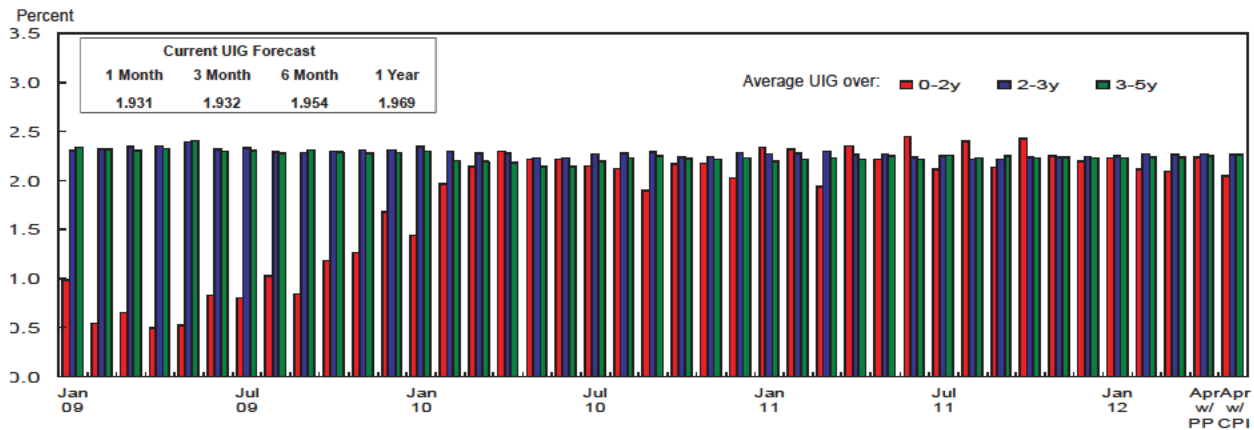


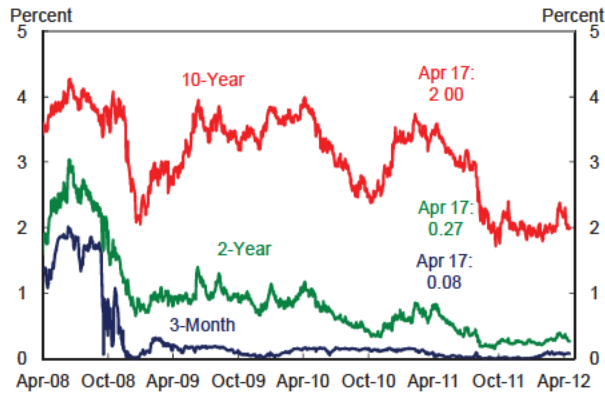
Exhibit A-2: Underlying Inflation Gauge (UIG)



A. Significant Developments

**Exhibit A-3:
Treasury Yields**

Short- and Long-Term Rates



Source: Bloomberg

Note: Yields of on-the-run securities.

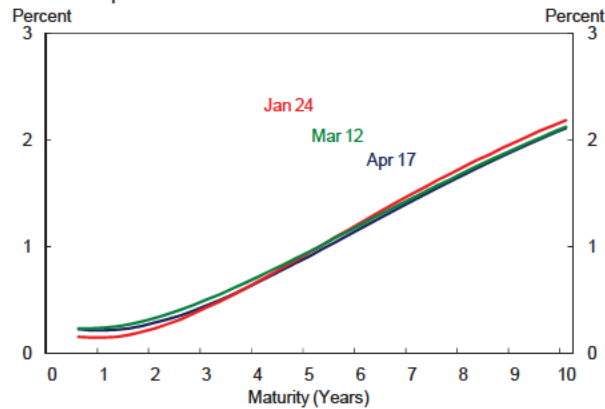
Short- and Long-Term Rates (Intraday)



Source: Bloomberg

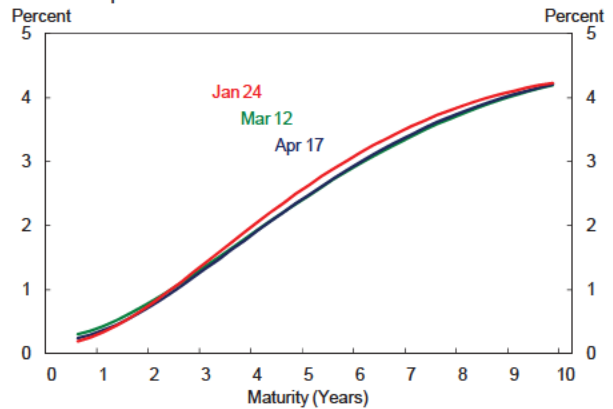
Note: On-the-run securities, 8:00 am to 4:00 pm.

Zero Coupon Yield Curves



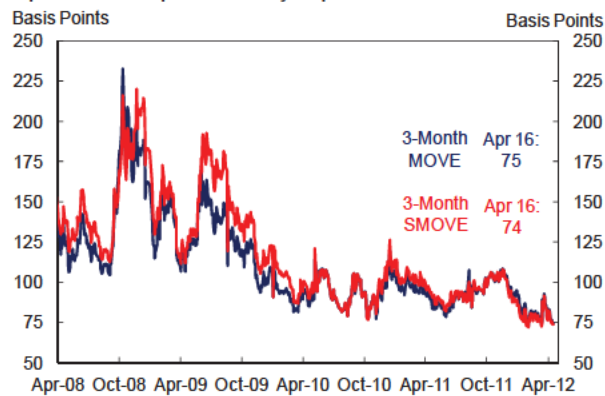
Source: Federal Reserve Board

Zero Coupon Yield Curves: One-Year Forward Rates



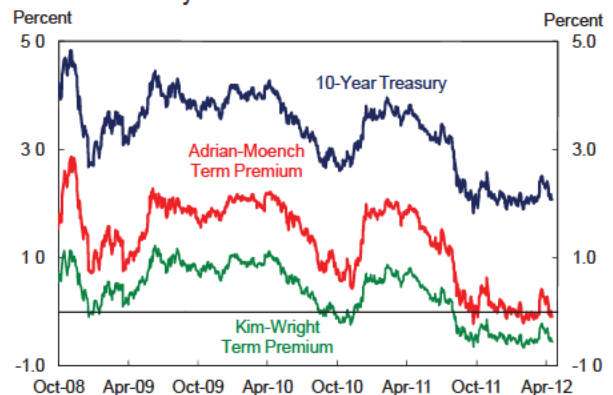
Source: Federal Reserve Board

Option and Swaption Volatility Expectations



Source: Federal Reserve Board, Barclays, and FRBNY

10-Year Treasury and Term Premia

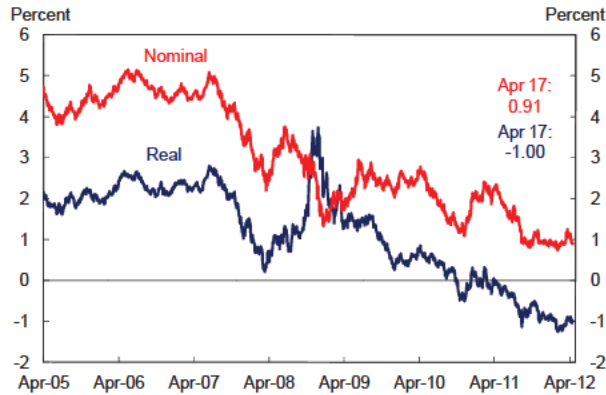


Source: FRBNY calculations, Federal Reserve Board

A. Significant Developments

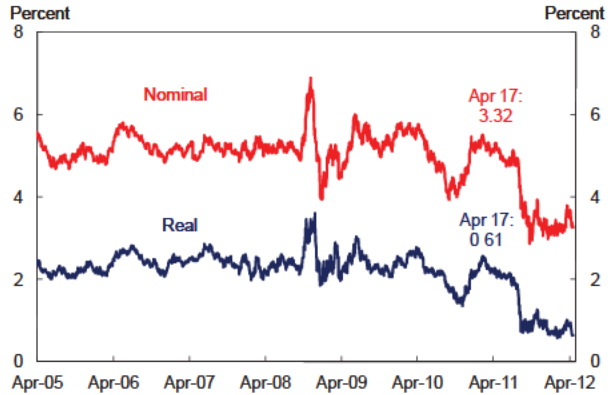
Exhibit A-4: Real Yields and Implied Inflation

5 Year Spot Rate



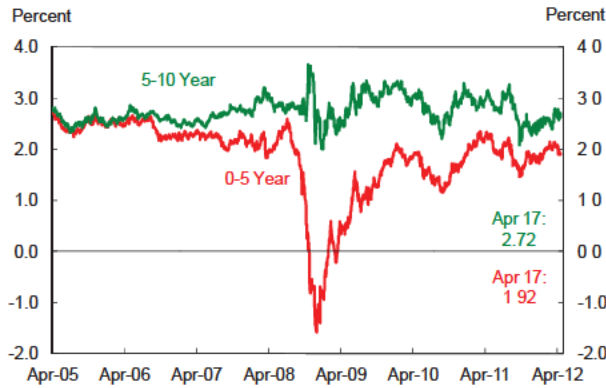
Source: Federal Reserve Board

5-10 Year Forward Rates



Source: Federal Reserve Board

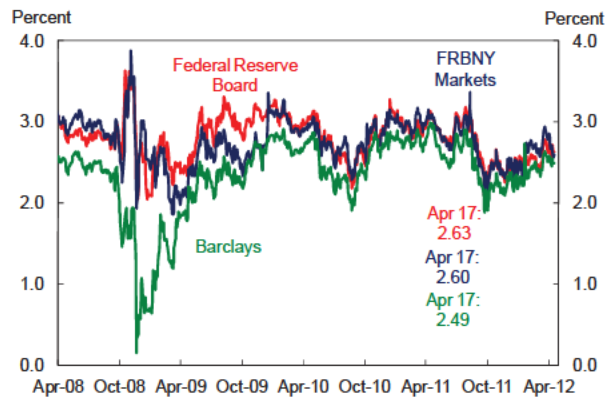
TIPS Implied Inflation Compensation: 0-5, 5-10 Year Horizons



Source: Federal Reserve Board

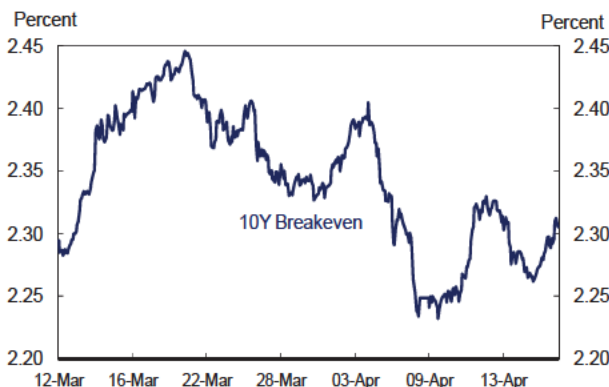
Note: Carry-adjusted.

Alternative Measures of 5-10 Year Implied Inflation Compensation



Source: Federal Reserve Board, Barclays, and FRBNY calculations

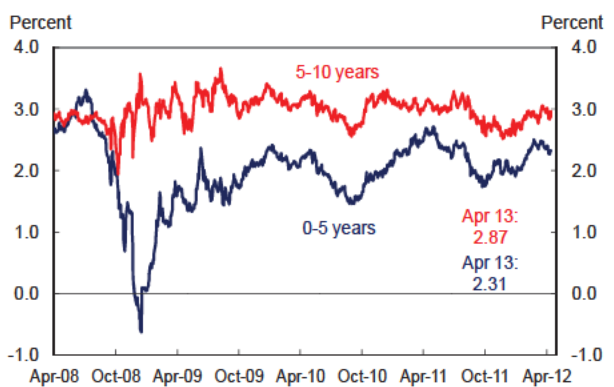
10-Year Breakeven Inflation Compensation (Intraday)



Source: Bloomberg

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

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

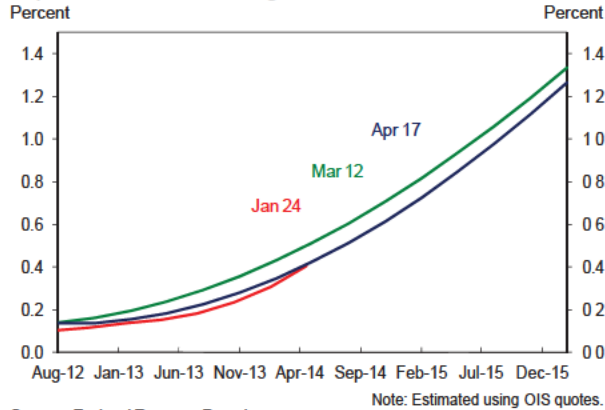


Source: Barclays

A. Significant Developments

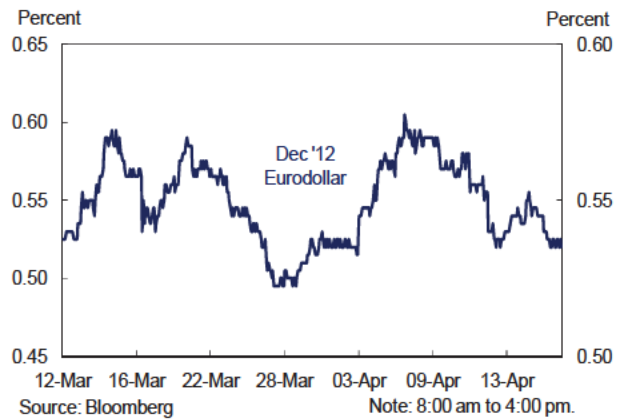
Exhibit A-5: Policy Expectations

Expected Fed Funds Target Rate

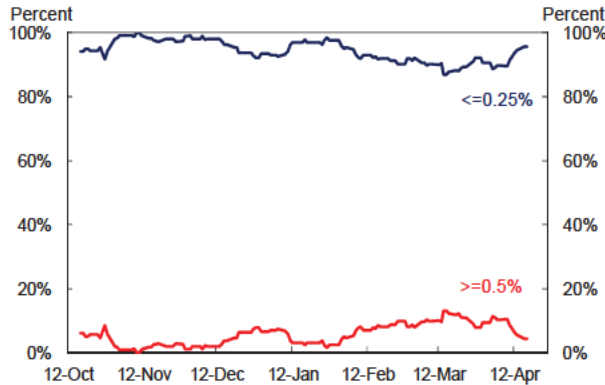


Source: Federal Reserve Board

Implied Eurodollar Rates (Intraday)

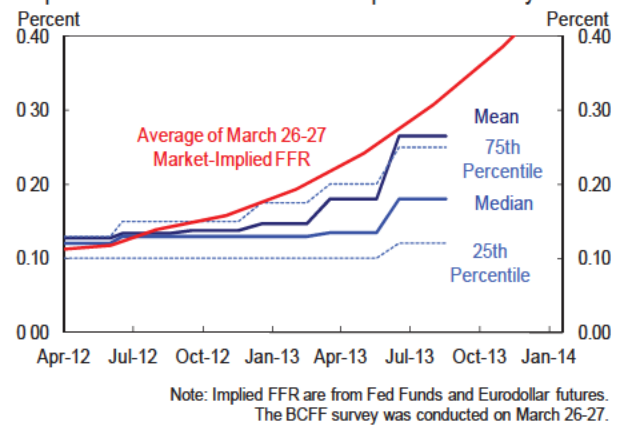


Fed Funds Probabilities December 2012

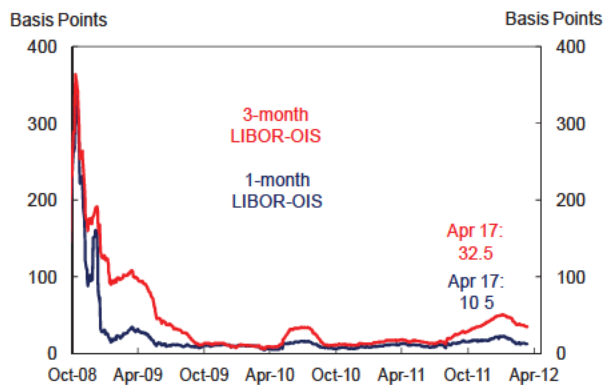


Source: Bloomberg

Expected Fed Funds from BCFF April 2012 Survey

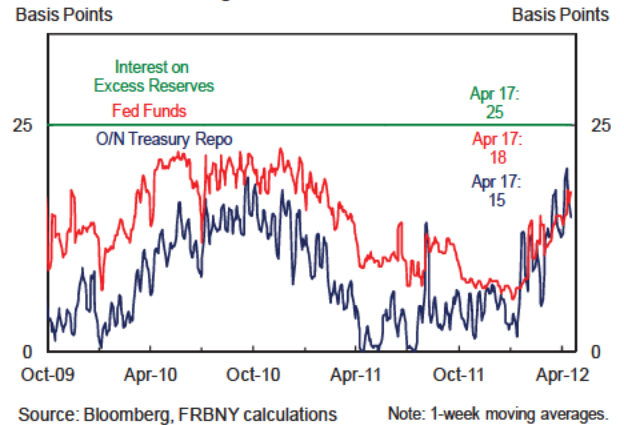


Libor to OIS



Source: Federal Reserve Board, Bloomberg

Short Term Funding Rates

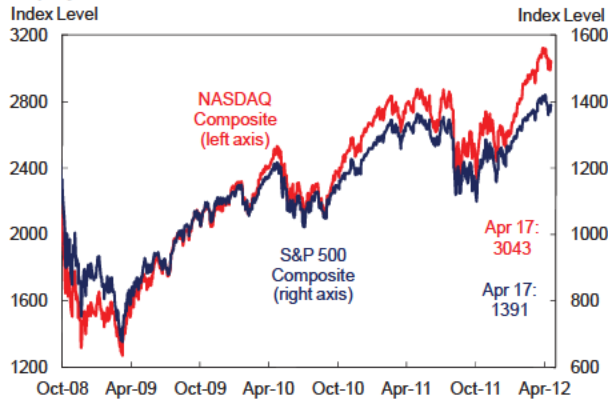


Source: Bloomberg, FRBNY calculations

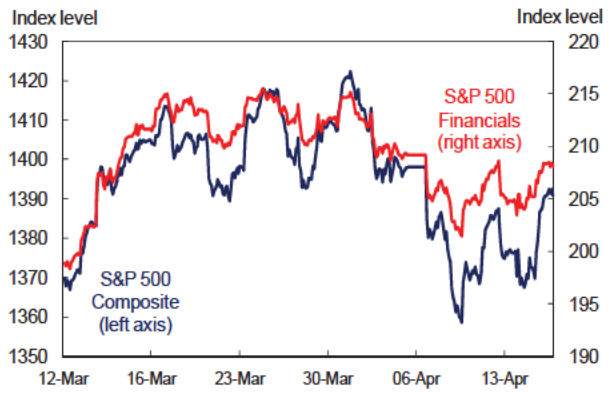
A. Significant Developments

Exhibit A-6:
Equity

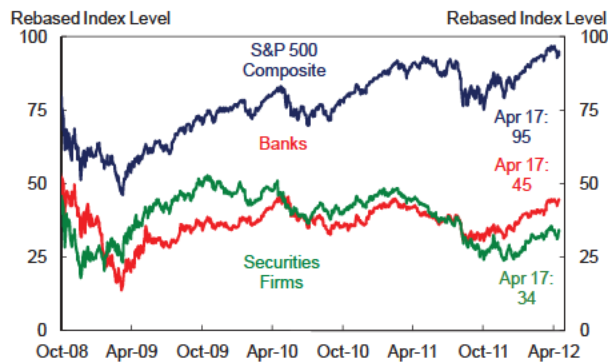
Equity Index Levels



S&P 500 Indices (Intraday)

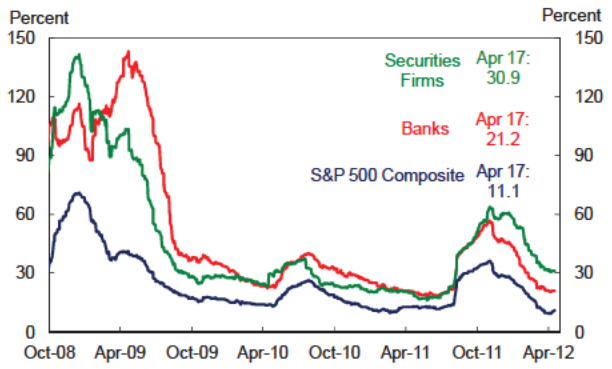


Equity Performance



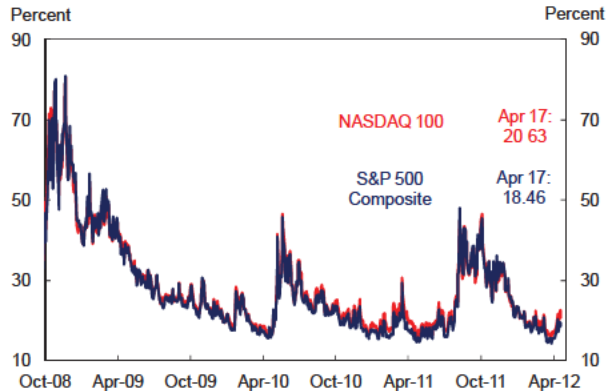
Note: Rebased to equal 100 on August 1, 2007. Banks series is S&P 500 Banks index. Securities Firms series is S&P 500 Investment Banks and Brokerages index.

Historical Equity Volatility

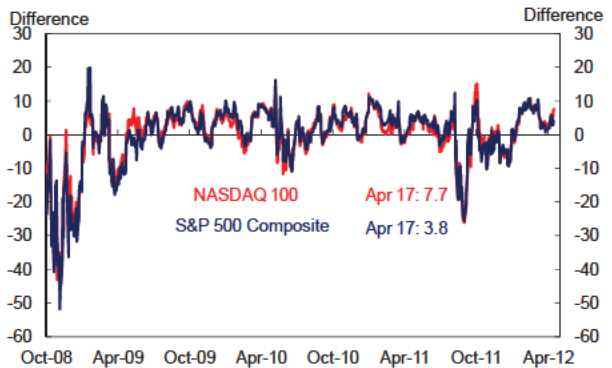


Note: Annualized rolling 3-month standard deviation of daily returns. Banks series is S&P 500 Banks index. Securities Firms series is S&P 500 Investment Banks and Brokerages index.

Equity Index Implied Volatility: 1-Month



Difference of Implied and Realized Volatility

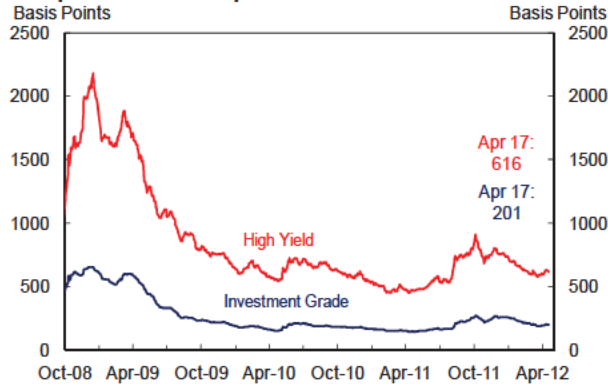


Note: Realized volatility is annualized 1-month rolling standard deviation of daily returns (360-day year) for S&P 500 and Nasdaq 100.

A. Significant Developments

Exhibit A-7: Credit

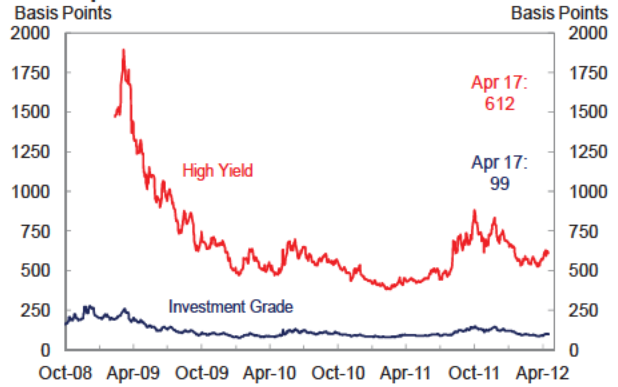
Corporate Credit Spreads



Source: Merrill Lynch

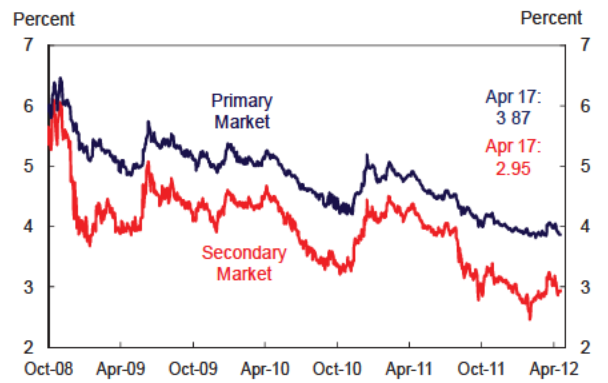
Note: Option-adjusted spreads.

CDS Spreads



Source: Bloomberg

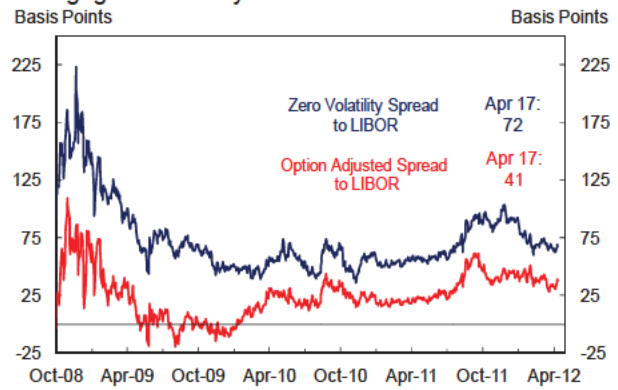
Mortgage Market Rates



Source: Bloomberg

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

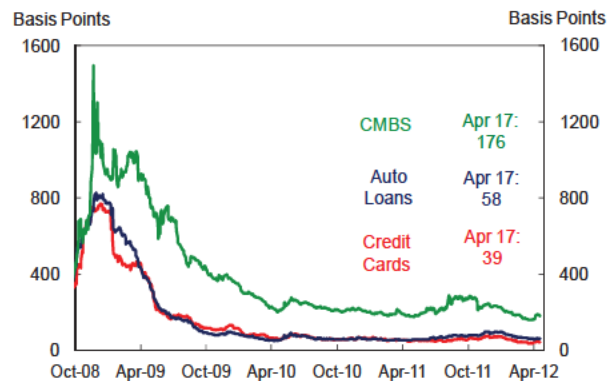
Mortgage Secondary Market



Source: J.P. Morgan

Note: 30 year current coupon Fannie Mae MBS.

AAA-Rated ABS/CMBS Spreads



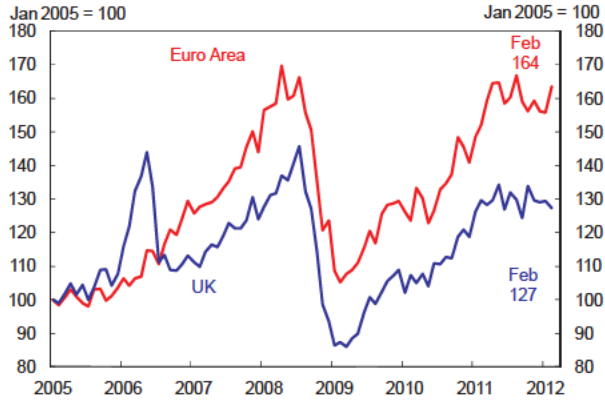
Source: Merrill Lynch

Note: Option-adjusted spreads.

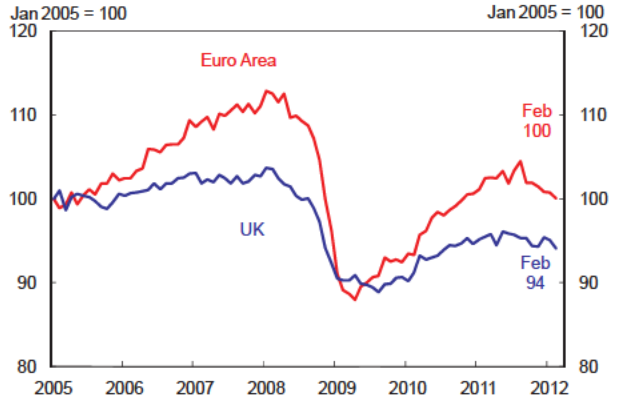
A. Significant Developments

Exhibit A-8: Exports and Industrial Production

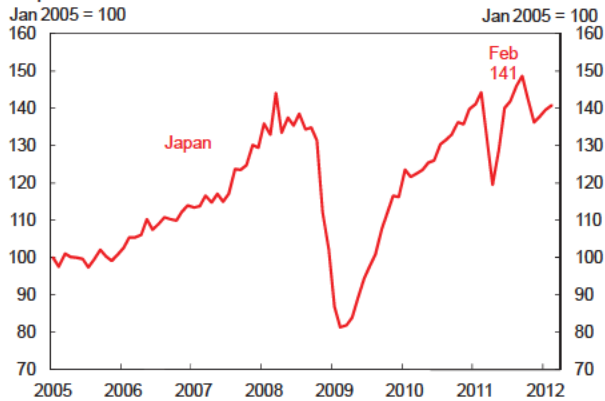
Exports



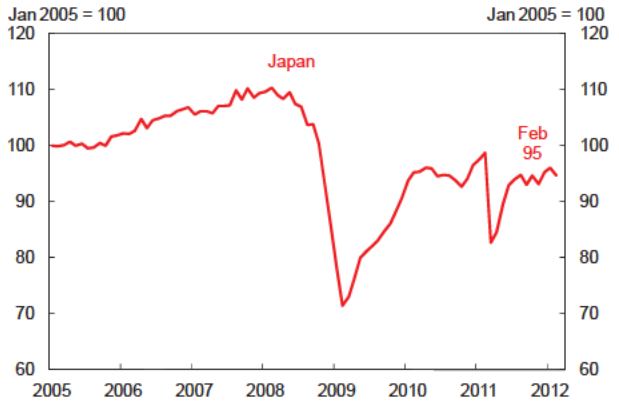
Industrial Production



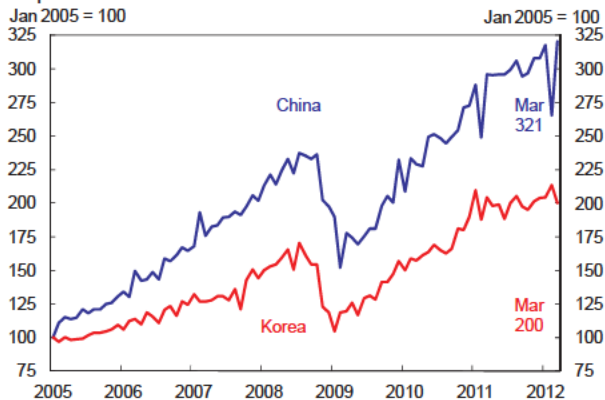
Exports



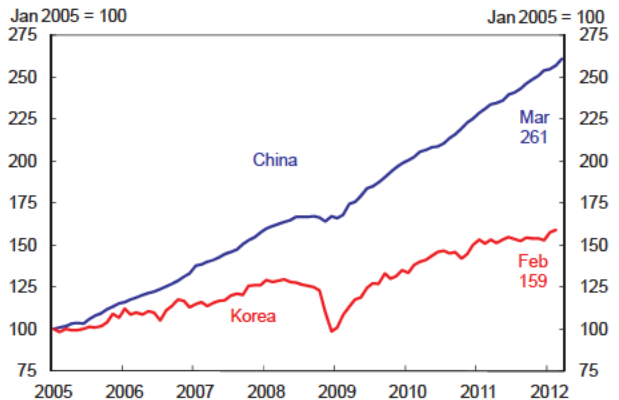
Industrial Production



Exports



Industrial Production



A. Significant Developments

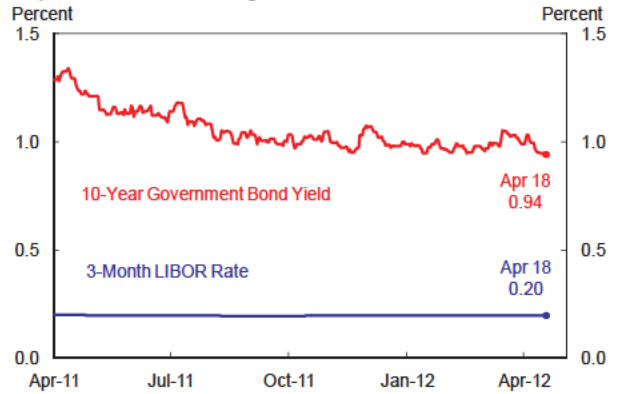
**Exhibit A-9:
Global Interest Rates and Equity Markets**

Euro Area Short- and Long-Term Interest Rates



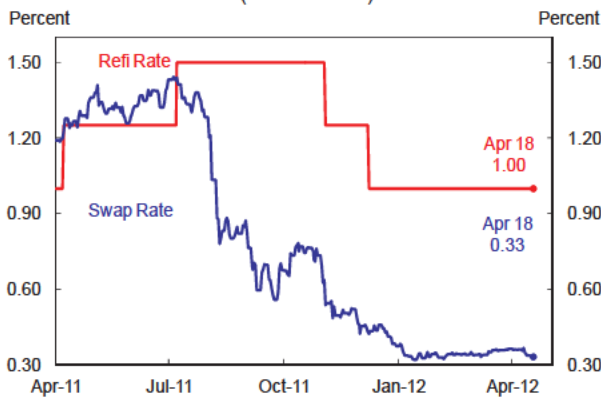
Source: Bloomberg

Japan Short- and Long-Term Interest Rates



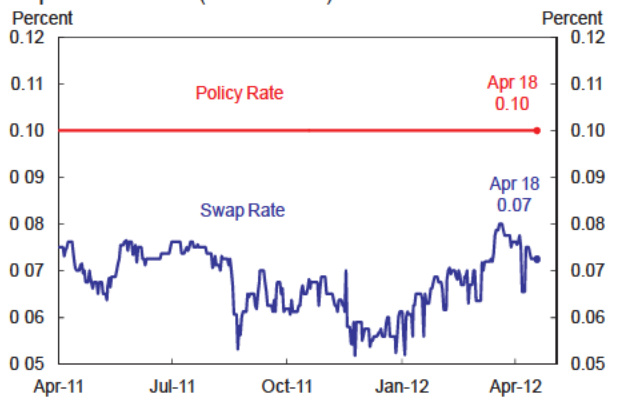
Source: Bloomberg

Euro Area: OIS Rate (Six Months)



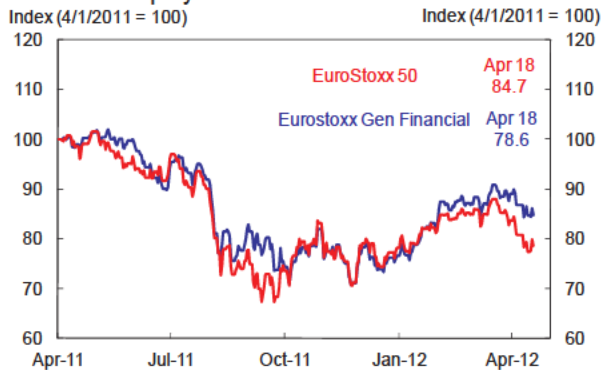
Source: Bloomberg

Japan: OIS Rate (Six Months)



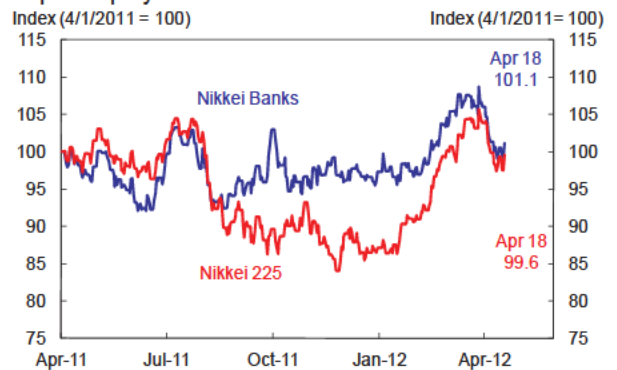
Source: Bloomberg

Euro Area Equity Price Indices



Source: Bloomberg

Japan Equity Price Indices

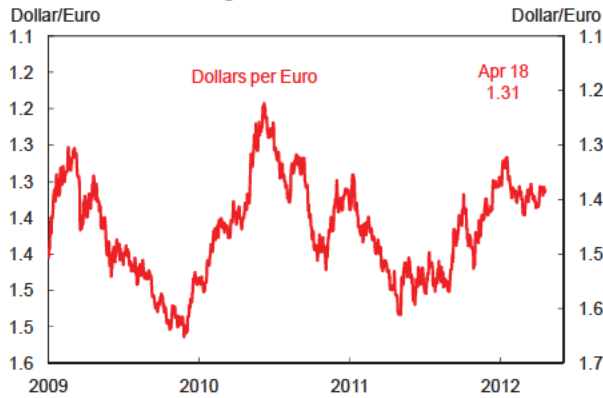


Source: Bloomberg

A. Significant Developments

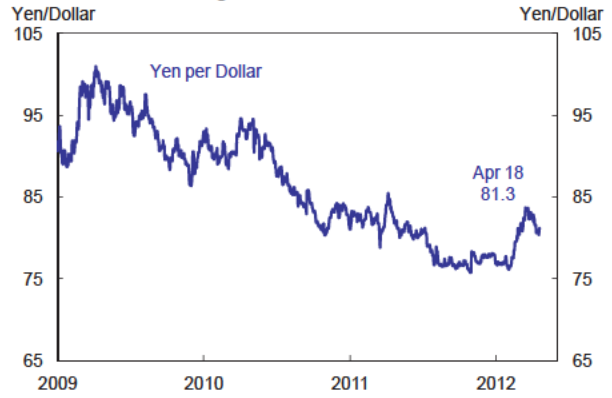
**Exhibit A-10:
Exchange Rates**

Dollar-Euro Exchange Rate

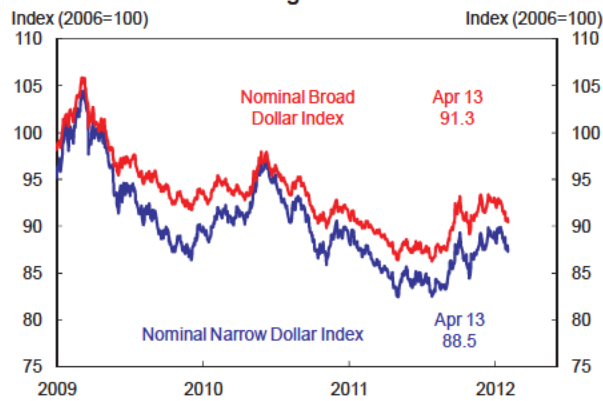


Note: Exchange rate scale is inverted.

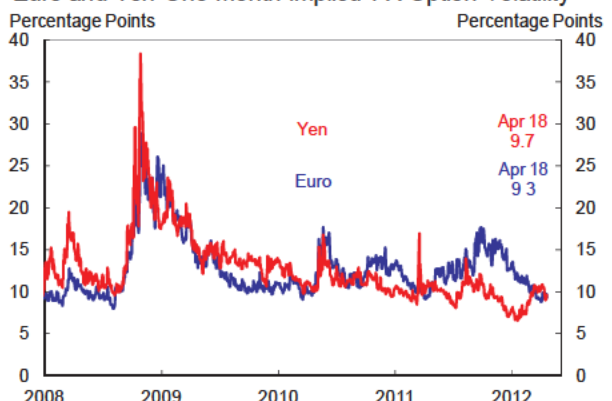
Yen-Dollar Exchange Rate



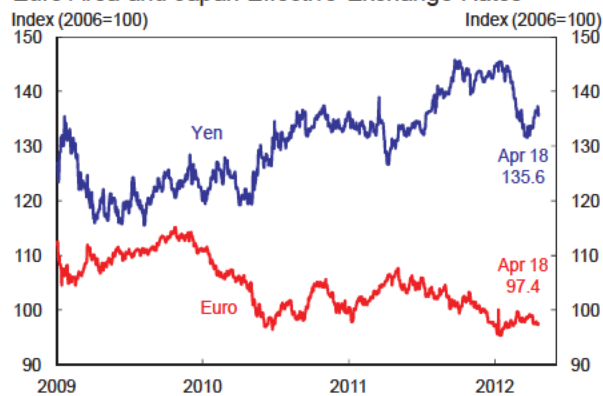
Nominal Effective Exchange Rates



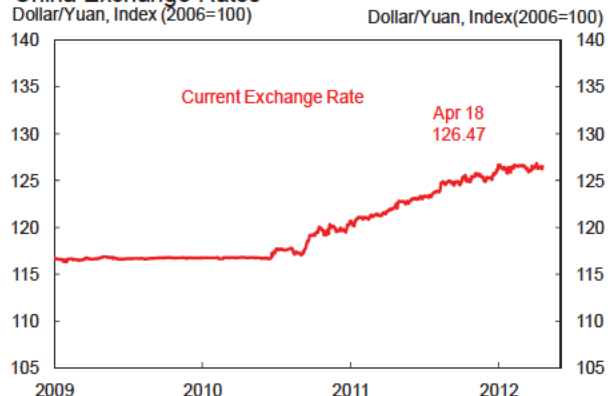
Euro and Yen One-Month Implied FX Option Volatility



Euro Area and Japan Effective Exchange Rates



China Exchange Rates



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	Apr	Dec	Jan	Apr	Dec	Jan	Apr	Dec	Jan	Apr
2011												
Q1	1.5	1.5	1.5	0.4	0.4	0.4	8.9	9.0	9.0	0-0.25	0-0.25	0-0.25
Q2	2.2	2.2	2.2	1.3	1.3	1.3	9.1	9.0	9.0	0-0.25	0-0.25	0-0.25
Q3	2.0	2.0	2.0	2.0	1.8	1.8	9.1	9.1	9.1	0-0.25	0-0.25	0-0.25
Q4	1.0	0.9	1.3	3.7	3.2	3.0	8.8	8.7	8.7	0-0.25	0-0.25	0-0.25
2012												
Q1	1.2	1.2	2.2	1.2	1.9	2.9	8.7	8.6	8.3	0-0.25	0-0.25	0-0.25
Q2	1.2	1.2	1.8	2.1	2.6	2.0	8.6	8.4	8.2	0-0.25	0-0.25	0-0.25
Q3	1.3	1.3	1.6	3.0	2.9	2.9	8.5	8.2	8.0	0-0.25	0-0.25	0-0.25
Q4	1.3	1.3	1.6	3.3	3.0	2.9	8.3	8.0	7.8	0-0.25	0-0.25	0-0.25
2013												
Q1	1.4	1.4	1.7	3.3	2.3	2.4	8.0	7.9	7.7	0-0.25	0-0.25	0-0.25
Q2	1.4	1.4	1.8	3.2	2.8	2.7	7.8	7.8	7.6	0-0.25	0-0.25	0-0.25
Q3	1.5	1.5	1.9	3.3	3.6	3.3	7.6	7.6	7.4	0-0.25	0-0.25	0-0.25
Q4	1.5	1.5	2.0	3.4	3.1	3.1	7.4	7.5	7.2	0-0.25	0-0.25	0-0.25
Q4/Q4												
2010	1.0	1.0	1.0	3.1	3.1	3.1	-0.3	-0.4	-0.4	0.0	0.0	0.0
2011	1.7	1.7	1.8	1.8	1.7	1.6	-0.9	-1.0	-1.3	0.0	0.0	0.0
2012	1.2	1.2	1.8	2.4	2.6	2.7	-0.3	-0.6	-0.8	0.0	0.0	0.0
2013	1.4	1.4	1.8	3.3	3.0	2.9	-0.9	-0.8	-0.7	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.

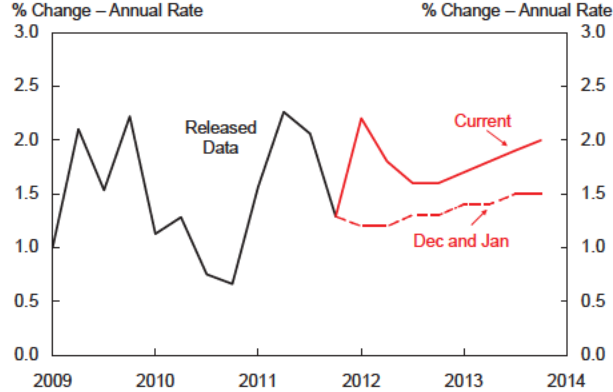
*Quarterly values are the average rate for the quarter. Yearly values are the difference between Q4 of the previous year and Q4 of the listed year.

**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.

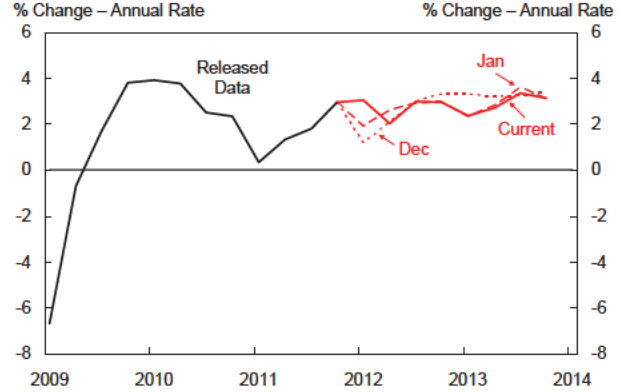
B. FRBNY Forecast Details

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

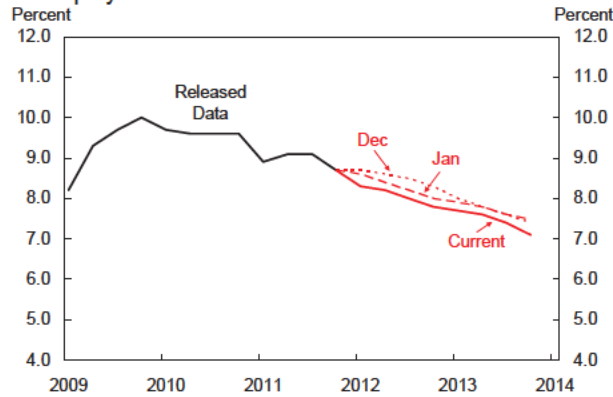
Core PCE Inflation



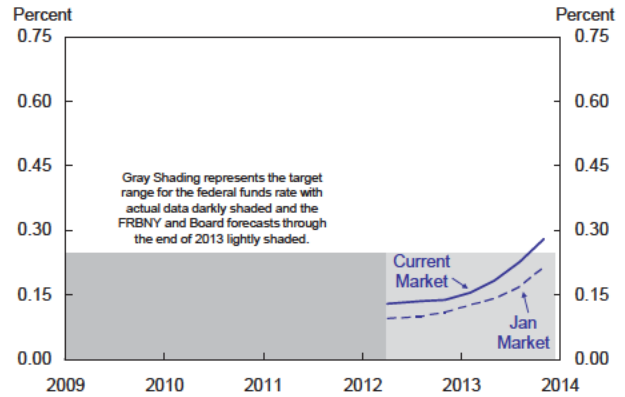
Real GDP Growth



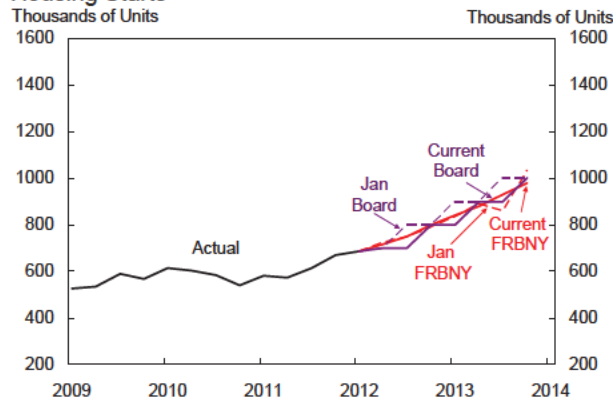
Unemployment Rate



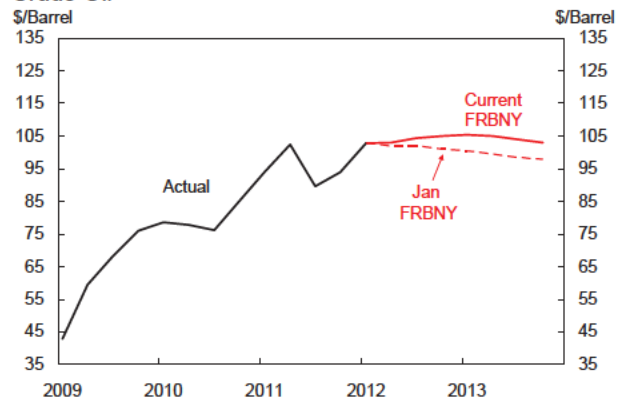
Federal Funds Rate



Housing Starts



Crude Oil



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

B. FRBNY Forecast Details

Exhibit B-3: Near-Term Projections

	Quarterly Growth Rates (AR)		Quarterly Growth Contributions (AR)	
	2012Q1	2012Q2	2012Q1	2012Q2
OUTPUT				
Real GDP	2.9 (1.9)	2.0 (2.6)	2.9 (1.9)	2.0 (2.6)
Final Sales to Domestic Purchasers	2.3 (1.6)	2.3 (2.1)	2.3 (1.6)	2.4 (2.2)
Consumption	2.4 (2.1)	2.2 (2.2)	1.7 (1.5)	1.6 (1.6)
BFI: Equipment and Software	5.0 (5.0)	8.0 (8.0)	0.4 (0.4)	0.6 (0.6)
BFI: Nonresidential Structures	-2.5 (4.0)	5.0 (8.0)	-0.1 (0.1)	0.1 (0.2)
Residential Investment	10.0 (4.3)	25.0 (10.0)	0.2 (0.1)	0.5 (0.2)
Government: Federal	4.0 (-3.3)	-3.3 (-3.3)	0.3 (-0.3)	-0.3 (-0.3)
Government: State and Local	-1.5 (-1.4)	-1.4 (-1.2)	-0.2 (-0.2)	-0.2 (-0.1)
Inventory Investment	-- --	-- --	0.4 (0.3)	-0.6 (0.3)
Net Exports	-- --	-- --	0.2 (-0.0)	0.2 (0.1)
INFLATION				
Total PCE Deflator	2.4 (1.1)	2.0 (1.2)		
Core PCE Deflator	2.2 (1.2)	1.8 (1.2)		
PRODUCTIVITY AND LABOR COSTS*				
Output per Hour	0.5 (1.0)	0.8 (1.3)		
Compensation per Hour	2.0 (1.0)	2.3 (1.3)		
Unit Labor Costs	1.6 (0.0)	1.5 (0.0)		

Note: Numbers in parentheses are from the previous Blackbook.

*Nonfarm business sector.

B. FRBNY Forecast Details

Exhibit B-4: Real GDP and Inflation Projections

	Q4/Q4 Growth Rates			Q4/Q4 Growth Contributions		
	2011	2012	2013	2011	2012	2013
OUTPUT						
Real GDP	1.6 (1.7)	2.7 (2.6)	2.9 (3.0)	1.6 (1.7)	2.7 (2.6)	2.9 (3.0)
Final Sales to Domestic Purchasers	1.4 (1.6)	2.4 (2.2)	2.4 (2.6)	1.5 (1.7)	2.5 (2.3)	2.5 (2.7)
Consumption	1.6 (1.8)	2.3 (2.3)	2.1 (2.1)	1.2 (1.3)	1.7 (1.6)	1.5 (1.5)
BFI: Equipment and Software	9.6 (8.3)	8.2 (8.2)	10.0 (10.0)	0.7 (0.6)	0.6 (0.6)	0.8 (0.8)
BFI: Nonresidential Structures	4.4 (5.2)	4.5 (7.0)	8.0 (8.0)	0.1 (0.1)	0.1 (0.2)	0.2 (0.2)
Residential Investment	3.5 (2.7)	15.4 (11.0)	10.0 (14.0)	0.1 (0.1)	0.3 (0.2)	0.3 (0.3)
Government: Federal	-3.2 (-1.2)	-1.5 (-3.3)	-3.3 (-2.0)	-0.3 (-0.1)	-0.1 (-0.3)	-0.3 (-0.2)
Government: State and Local	-2.5 (-2.3)	-1.3 (-1.1)	-0.3 (-0.0)	-0.3 (-0.3)	-0.1 (-0.1)	0.0 (-0.0)
Inventory Investment	-- --	-- --	-- --	0.1 (-0.1)	0.0 (0.2)	0.1 (0.1)
Net Exports	-- --	-- --	-- --	0.0 (0.1)	0.2 (0.1)	0.3 (0.2)
INFLATION						
Total PCE Deflator	2.7 (2.5)	2.0 (1.3)	2.0 (1.5)			
Core PCE Deflator	1.8 (1.7)	1.8 (1.2)	1.8 (1.4)			
Total CPI Inflation	6.3 (3.4)	2.3 (1.7)	2.3 (1.9)			
Core CPI Inflation	4.4 (2.2)	2.1 (1.6)	2.2 (1.8)			
GDP Deflator	2.1 (2.1)	1.9 (1.4)	1.9 (1.6)			

Note: Numbers in parentheses are from the previous Blackbook.

B. FRBNY Forecast Details

Exhibit B-5: Projections of Other Key Economic Variables

	Q4/Q4 Growth Rates		
	2011	2012	2013
INTEREST RATE ASSUMPTIONS			
Federal Funds Rate (End-of-Year)	0-0.25 0-0.25	0-0.25 0-0.25	0-0.25 0-0.25
10-Year Treasury Yield (Avg. Q4 Level)	2.0 (2.0)	3.0 (2.9)	3.5 (3.5)
PRODUCTIVITY AND LABOR COSTS*			
Output	2.3 (2.5)	3.5 (3.3)	3.6 (3.7)
Hours	1.9 (1.8)	2.4 (1.9)	1.8 (1.9)
Output per Hour	0.3 (0.7)	1.1 (1.4)	1.7 (1.7)
Compensation per Hour	3.5 (1.4)	2.3 (1.4)	2.8 (2.3)
Unit Labor Costs	3.1 (0.7)	1.2 (0.0)	1.0 (0.6)
LABOR MARKET			
Unemployment Rate (Avg. Q4 Level)	8.7 (8.7)	7.8 (8.0)	7.2 (7.5)
Participation Rate (Avg. Q4 Level)	64.0 (64.1)	63.8 (64.2)	63.9 (64.3)
Avg. Monthly Nonfarm Payroll Growth (Thous.)	147 (134)	234 (186)	207 (185)
INCOME			
Personal Income	4.6 (3.6)	4.3 (3.5)	3.9 (3.5)
Real Disposable Personal Income	0.8 (-0.3)	1.6 (2.0)	1.2 (1.3)
Personal Saving Rate	4.5 (3.4)	3.9 (3.2)	3.0 (2.4)
Corporate Profits Before Taxes	7.0 (8.6)	2.2 (3.4)	1.4 (3.3)

Note: Numbers in parentheses are from the previous Blackbook.

*Nonfarm business sector.

B. FRBNY Forecast Details

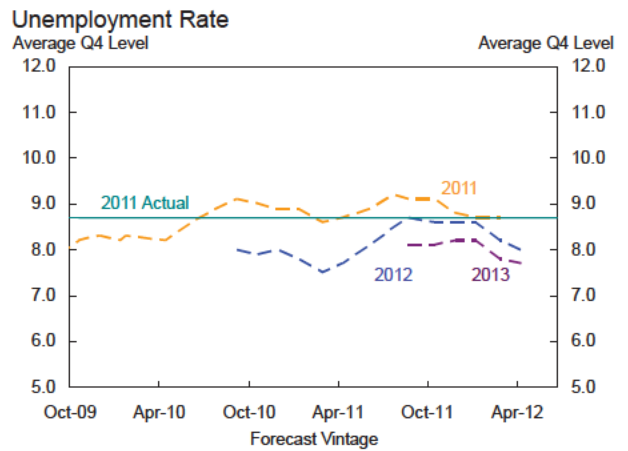
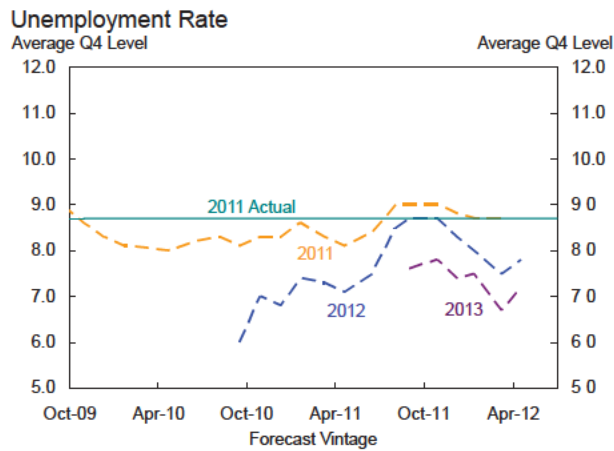
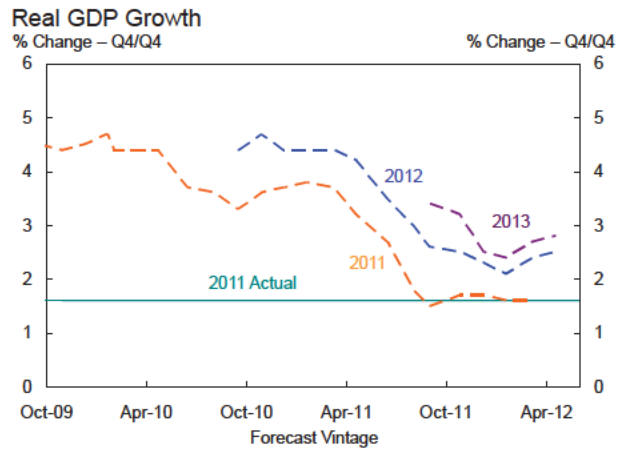
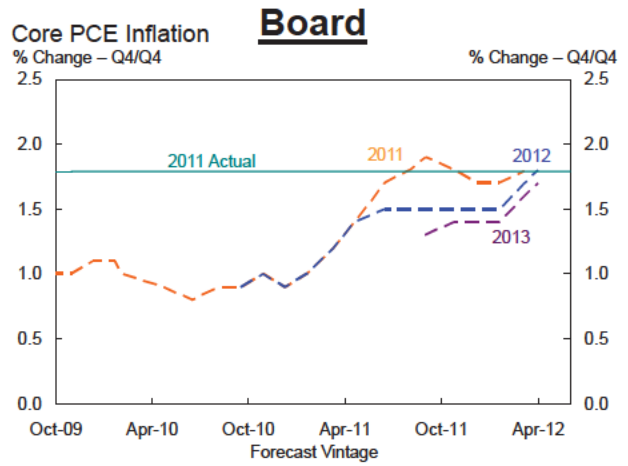
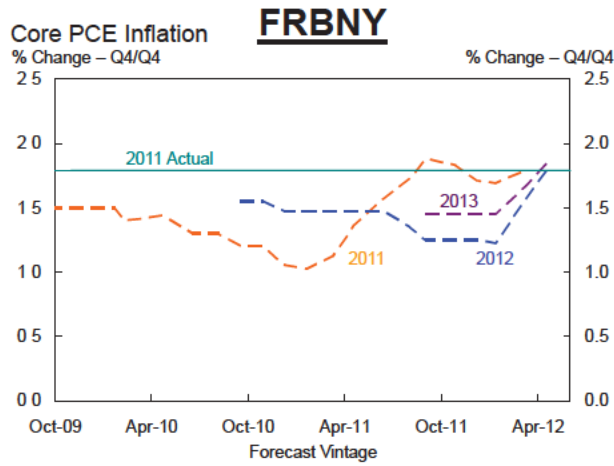
Exhibit B-6: FRBNY and Tealbook Forecast Comparison

	FRBNY (Q4/Q4)			Board (Q4/Q4)		
	2011	2012	2013	2011	2012	2013
OUTPUT						
Real GDP	1.6 (1.7)	2.7 (2.6)	2.9 (3.0)	1.6 (1.6)	2.5 (2.1)	2.8 (2.4)
GDP Growth Contributions						
Final Sales to Domestic Purchasers	1.5 (1.7)	2.5 (2.3)	2.5 (2.7)	1.5 (1.4)	2.5 (1.9)	2.5 (2.2)
Consumption	1.2 (1.3)	1.7 (1.6)	1.5 (1.5)	1.2 (1.2)	1.9 (1.7)	1.9 (1.7)
BFI	0.8 (0.7)	0.7 (0.8)	1.0 (1.0)	0.8 (0.7)	0.4 (0.2)	0.6 (0.5)
Residential Investment	0.1 (0.1)	0.3 (0.2)	0.3 (0.3)	0.1 (0.1)	0.3 (0.1)	0.2 (0.2)
Government	-0.6 (-0.4)	-0.3 (-0.4)	-0.3 (-0.2)	-0.6 (-0.6)	-0.1 (-0.1)	-0.2 (-0.2)
Inventory Investment	0.1 (-0.1)	0.0 (0.2)	0.1 (0.1)	0.1 (0.1)	0.1 (0.1)	0.3 (0.2)
Net Exports	0.0 (0.1)	0.2 (0.1)	0.3 (0.2)	0.0 (0.1)	0.0 (0.0)	0.0 (0.0)
INFLATION						
Total PCE Deflator	2.7 (2.5)	2.0 (1.3)	2.0 (1.5)	2.7 (2.5)	1.9 (1.4)	1.5 (1.3)
Core PCE Deflator	1.8 (1.7)	1.8 (1.2)	1.8 (1.4)	1.8 (1.7)	1.8 (1.5)	1.7 (1.4)
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	0.3 (0.7)	1.1 (1.4)	1.7 (1.7)	0.3 (0.5)	1.1 (1.4)	1.7 (1.4)
Compensation per Hour	3.5 (1.4)	2.3 (1.4)	2.8 (2.3)	3.5 (1.8)	2.5 (2.3)	2.9 (2.2)
Unit Labor Costs	3.1 (0.7)	1.2 (0.0)	1.0 (0.6)	3.1 (1.3)	1.3 (1.0)	1.2 (0.7)
LABOR MARKET						
Unemployment Rate (Avg. Q4 Level)	8.7 (8.7)	7.8 (8.0)	7.2 (7.5)	8.7 (8.7)	8.0 (8.6)	7.7 (8.2)
Participation Rate (Avg. Q4 Level)	64.0 (64.1)	63.8 (64.2)	63.9 (64.3)	64.0 (64.0)	63.8 (64.0)	63.7 (63.9)
Avg. Monthly Nonfarm Payroll Growth (Thous.)	147 (134)	234 (186)	207 (185)	147 (133)	183 (142)	192 (175)
SAVING						
Personal Saving Rate (Avg. Q4 Level)	4.5 (3.4)	3.9 (3.2)	3.0 (2.4)	4.5 (4.1)	4.2 (4.9)	3.8 (4.1)
HOUSING						
Housing Starts (Avg. Q4 Level, Thous.)	670 (657)	800 (790)	980 (1035)	670 (700)	800 (800)	1000 (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

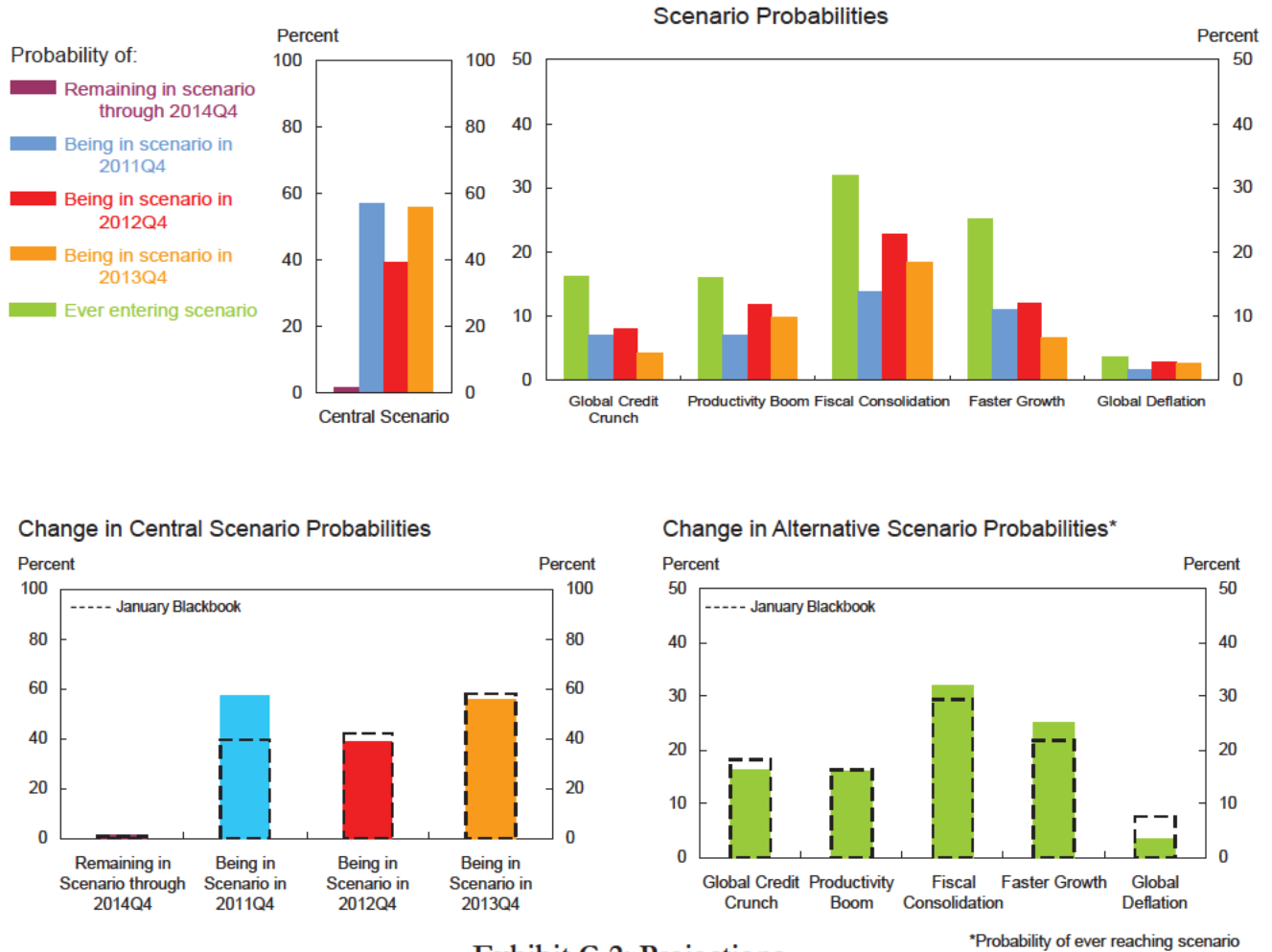
Exhibit B-8: Alternative GDP and Inflation Forecasts

		Real GDP Growth			
	Release Date	2012Q1	2012Q2	2012 Q4/Q4	2013 Q4/Q4
FRBNY	4/19/2012	2.9 (1.9)	2.0 (2.6)	2.7 (2.6)	2.9 (3.0)
Blue Chip	4/10/2012	2.2 (2.0)	2.3 (2.1)	2.4 (2.3)	2.7 (2.8)
Median SPF	2/10/2012	2.2 (2.4)	2.3 (2.4)	2.5 (2.6)	-- --
Macro Advisers	4/17/2012	3.1 (1.8)	2.4 (1.9)	2.6 (2.3)	3.3 (3.6)
FRBNY-DSGE	4/17/2012	3.0 (3.4)	2.9 (3.3)	2.7 (3.2)	1.9 (2.3)
		Core PCE Inflation			
	Release Date	2012Q1	2012Q2	2012 Q4/Q4	2013 Q4/Q4
FRBNY	4/19/2012	2.2 (1.2)	1.8 (1.2)	1.8 (1.2)	1.8 (1.4)
Median SPF	2/10/2012	1.6 (1.6)	1.7 (1.6)	1.6 (1.6)	1.8 --
Macro Advisers	4/17/2012	2.1 (1.4)	1.6 (1.4)	1.8 (1.4)	1.8 (1.4)
FRBNY-DSGE	4/17/2012	2.2 (0.7)	1.6 (0.7)	1.6 (0.7)	1.4 (1.2)
		CPI Inflation			
	Release Date	2012Q1	2012Q2	2012 Q4/Q4	2013 Q4/Q4
FRBNY	4/19/2012	2.5 (1.3)	2.4 (1.7)	2.3 (1.7)	2.3 (1.9)
Blue Chip	4/10/2012	2.5 (1.8)	2.4 (1.7)	2.3 (2.0)	2.2 (2.2)
Median SPF	2/10/2012	2.0 (2.0)	2.0 (2.0)	2.0 (1.9)	2.2 --
Macro Advisers	4/17/2012	2.5 (1.7)	2.7 (1.6)	2.3 (1.6)	2.0 (1.5)
		Core CPI Inflation			
	Release Date	2012Q1	2012Q2	2012 Q4/Q4	2013 Q4/Q4
FRBNY	4/19/2012	2.1 (1.6)	2.1 (1.5)	2.1 (1.6)	2.2 (1.8)
Median SPF	2/10/2012	1.9 (1.8)	1.8 (1.8)	1.9 (1.8)	2.1 --
Macro Advisers	4/17/2012	2.0 (1.9)	1.8 (1.5)	2.0 (1.6)	2.2 (1.6)

*Note: Numbers in gray are from the previous Blackbook.

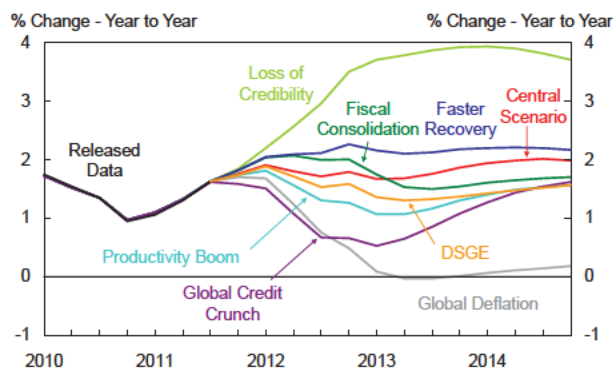
C. FRBNY Forecast Distributions

**Exhibit C-1:
Risks**

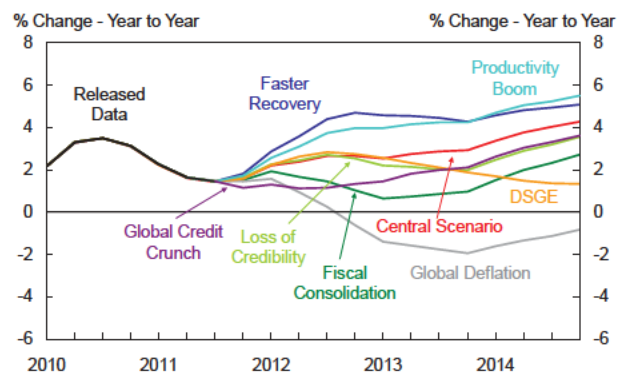


**Exhibit C-2: Projections
under Alternative Scenarios**

Core PCE Inflation under Alternative Scenarios



Real GDP Growth under Alternative Scenarios

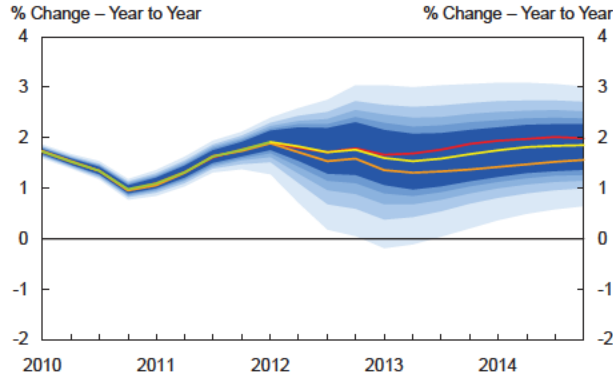


Source: MMS Function (FRBNY)

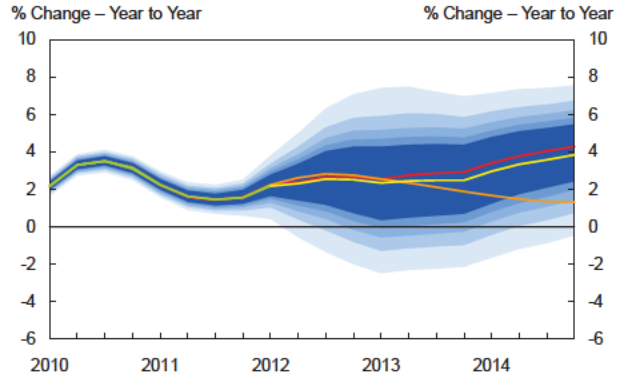
C. FRBNY Forecast Distributions

Exhibit C-3: Inflation and Output Forecast Distributions

Core PCE Inflation Forecast Distribution

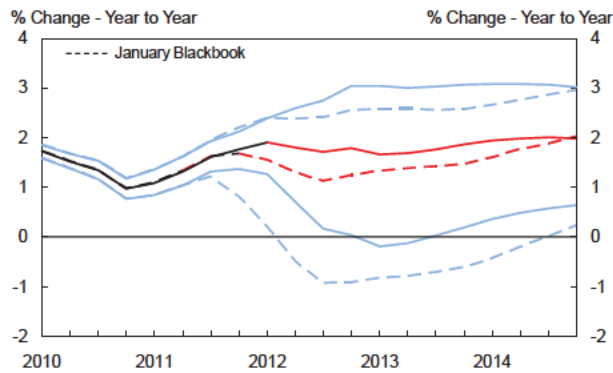


Real GDP Growth Forecast Distribution

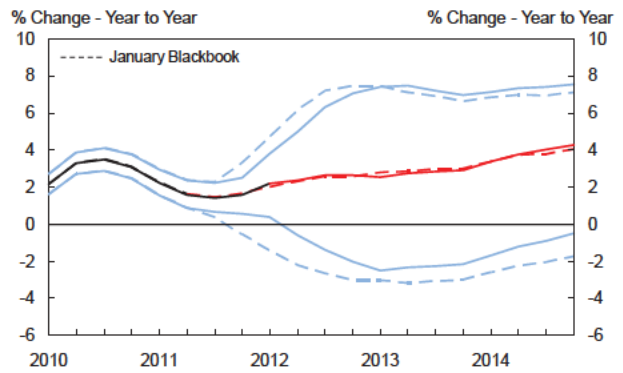


The yellow line represents the expected value of the forecast distribution, the red line represents the FRBNY central projection, the orange line represents the DSGE forecast, and the green line represents released data. The shading represents the 50, 60, 70, 80 and 90 percent probability that the four-quarter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

Change in Core PCE Inflation Forecast Distribution

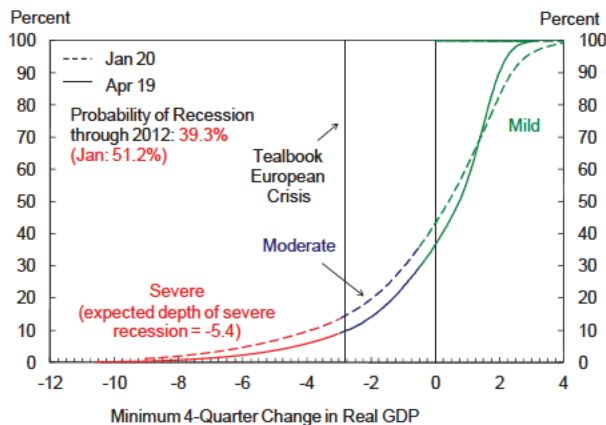


Change in Real GDP Growth Forecast Distribution

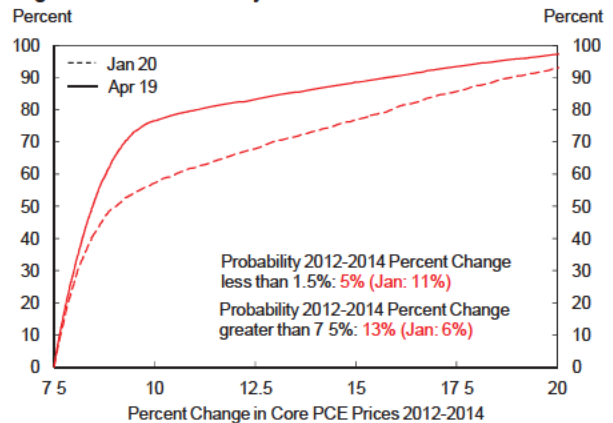


The blue lines are the 90% chance the four-quarter change will be within the lines, the red line is the central scenario projection, and the black line is released data. Dashed lines represent forecasts from the previous Blackbook.

Depth of Recession



High Inflation Probability and Distribution

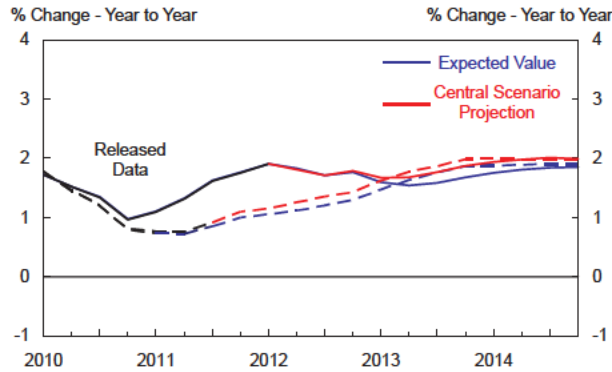


Source: MMS Function (FRBNY)

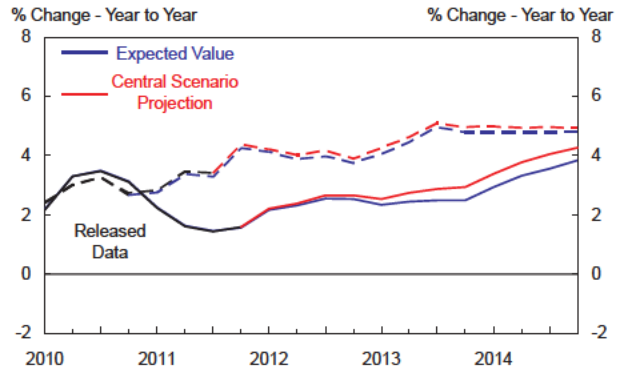
C. FRBNY Forecast Distributions

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

One-Year Comparison of Core PCE Inflation Forecast

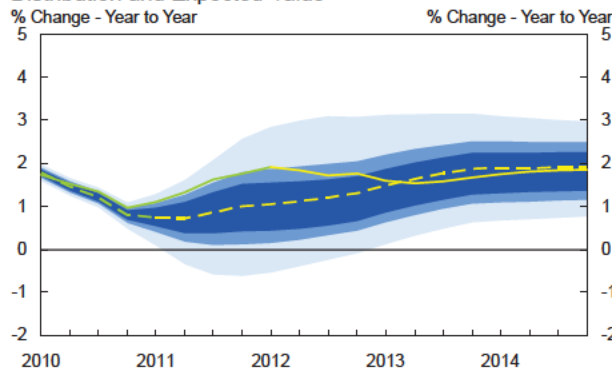


One-Year Comparison of Real GDP Growth Forecast

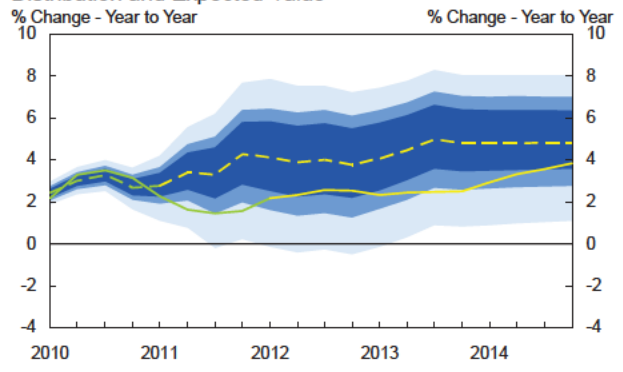


The solid lines represent the current central scenario projection and expected value, while the dashed lines represent those from the year-ago Blackbook.

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



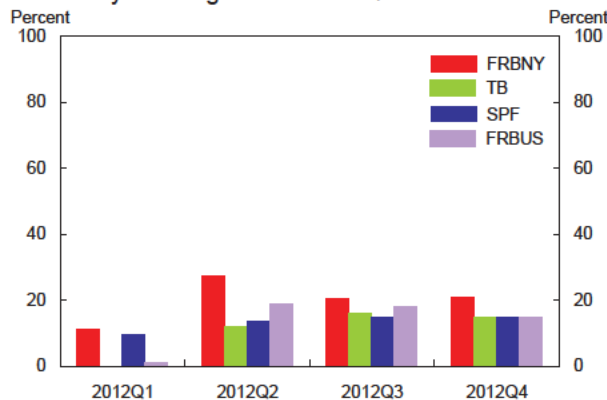
One-Year Comparison of Real GDP Growth Forecast Distribution and Expected Value



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

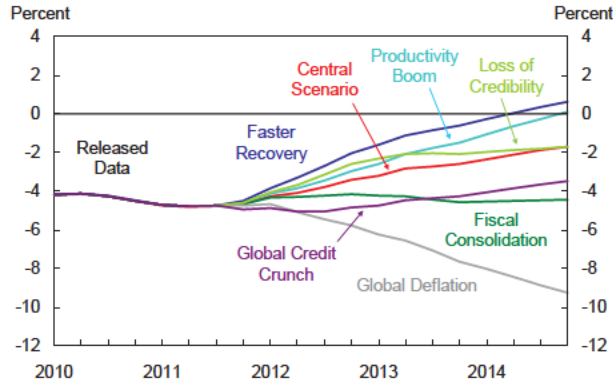


Source: MMS Function (FRBNY)

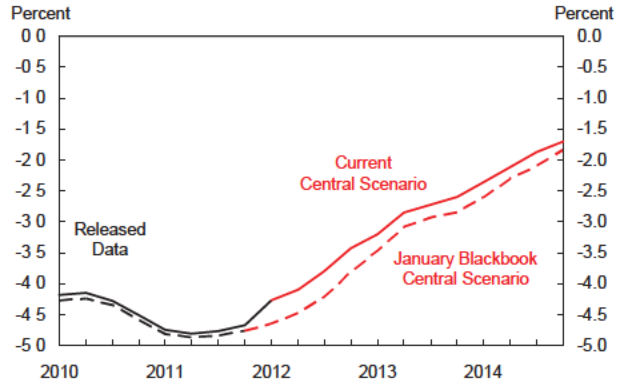
D. FRBNY Fed Funds Rate Projections

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

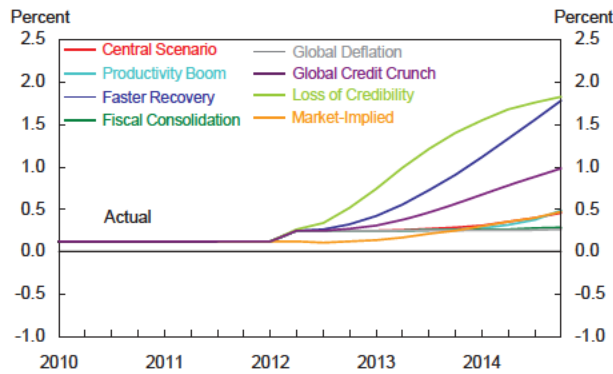
Real FFR under Alternative Scenarios



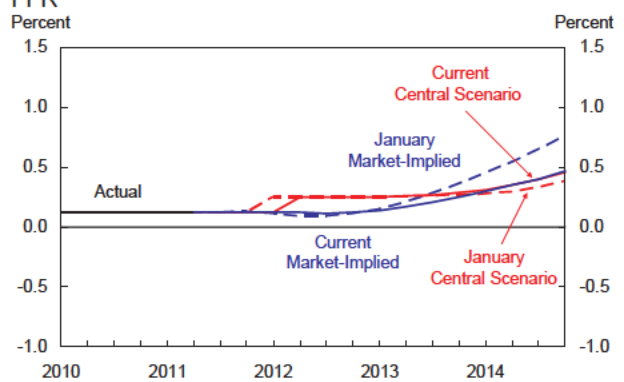
Change in Central Scenario Real FFR



Nominal FFR under Alternative Scenarios

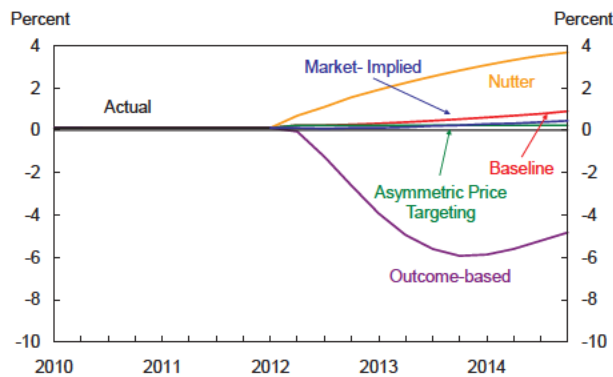


Change in Central Scenario and Market-Implied Nominal FFR



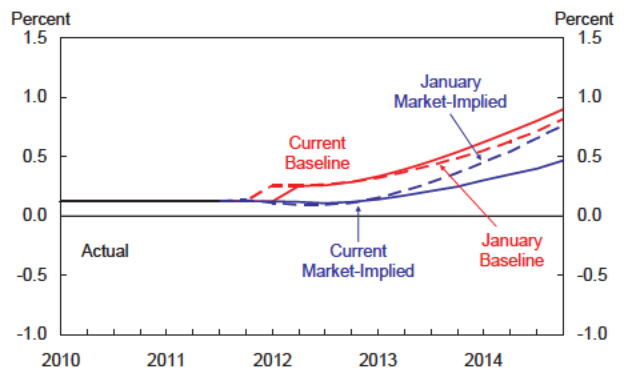
**Exhibit D-2: Alternative Policy Rules under
Expected Value of Forecast Distribution**

Nominal FFR using Alternative Policy Rules*



*Evaluated using yellow line from C-3

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



*Evaluated using yellow line from C-3

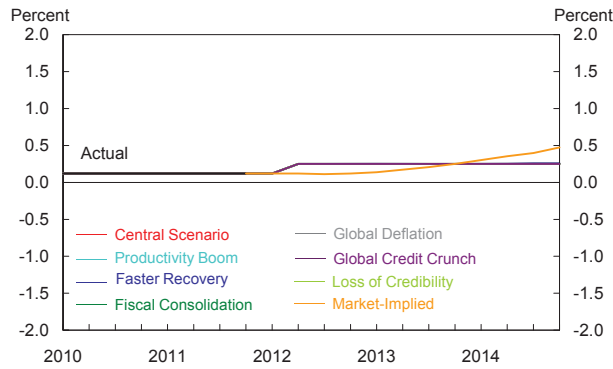
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

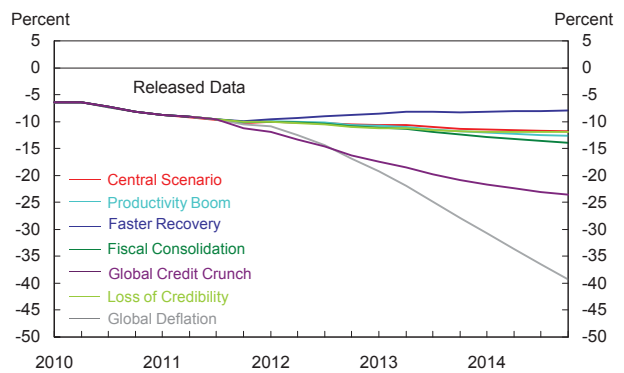
Exhibit D-3: Alternative Policy Rule Analysis

Policy Rule: *Asymmetric Price Targeting*

Nominal FFR under Alternative Scenarios

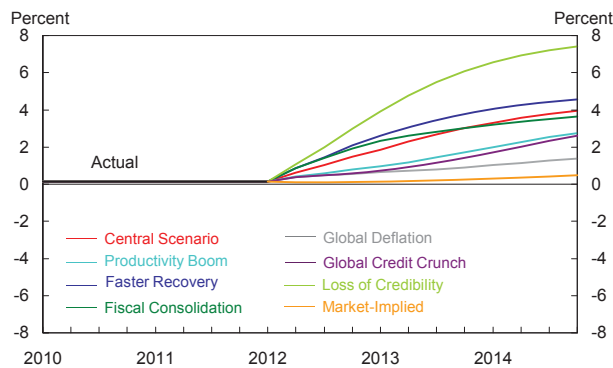


Real FFR under Alternative Scenarios

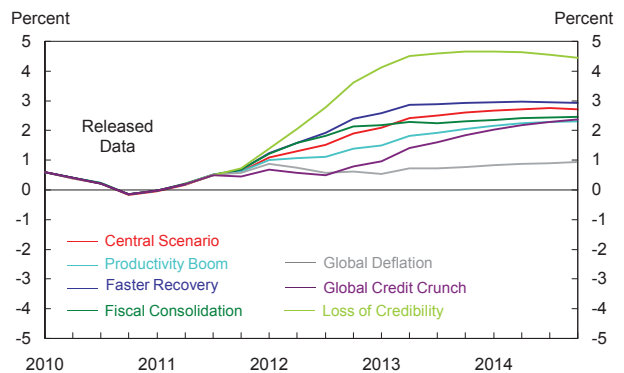


Policy Rule: *Nutter*

Nominal FFR under Alternative Scenarios

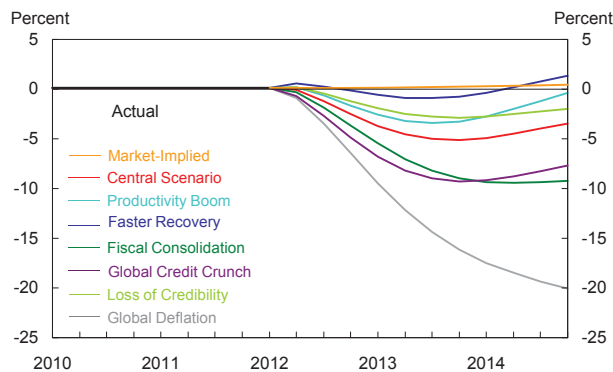


Real FFR under Alternative Scenarios

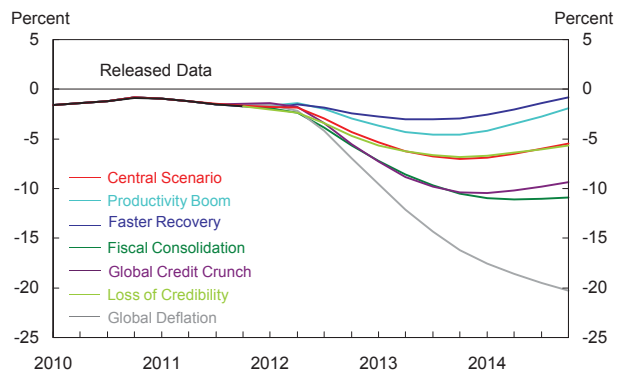


Policy Rule: *Outcome-based*

Nominal FFR under Alternative Scenarios



Real FFR under Alternative Scenarios



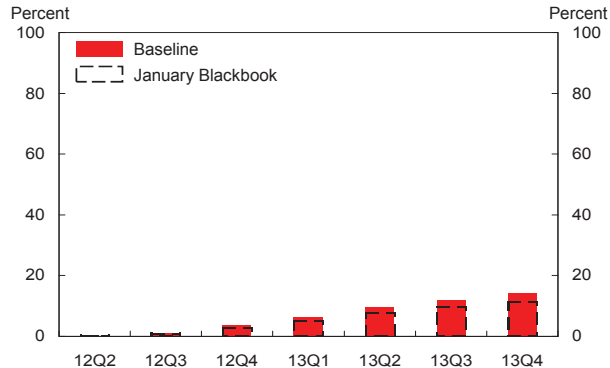
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

Exhibit D-4: FFR Probabilities

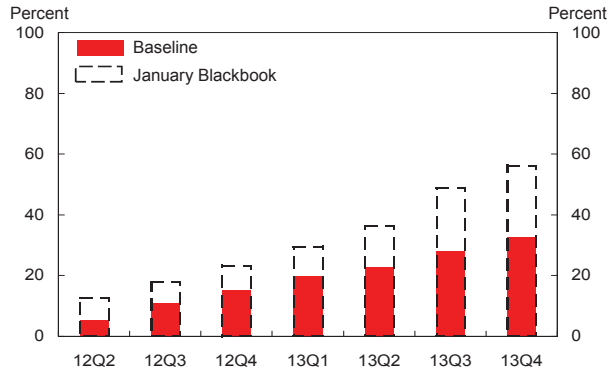
Probability of FFR above 0.5% for Next Year

FRBNY Forecast Distributions

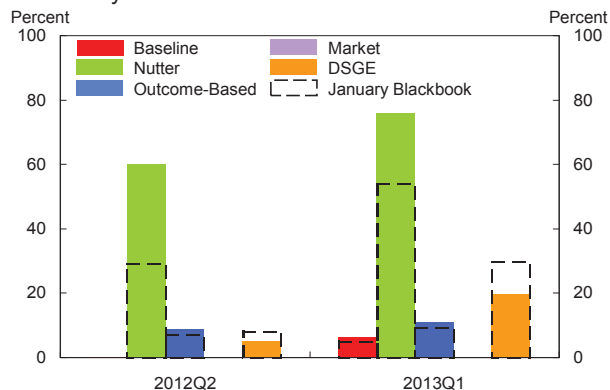


Probability of FFR above 0.5% for Next Year

FRBNY DSGE Model



Probability of FFR above 0.5% for Next Year

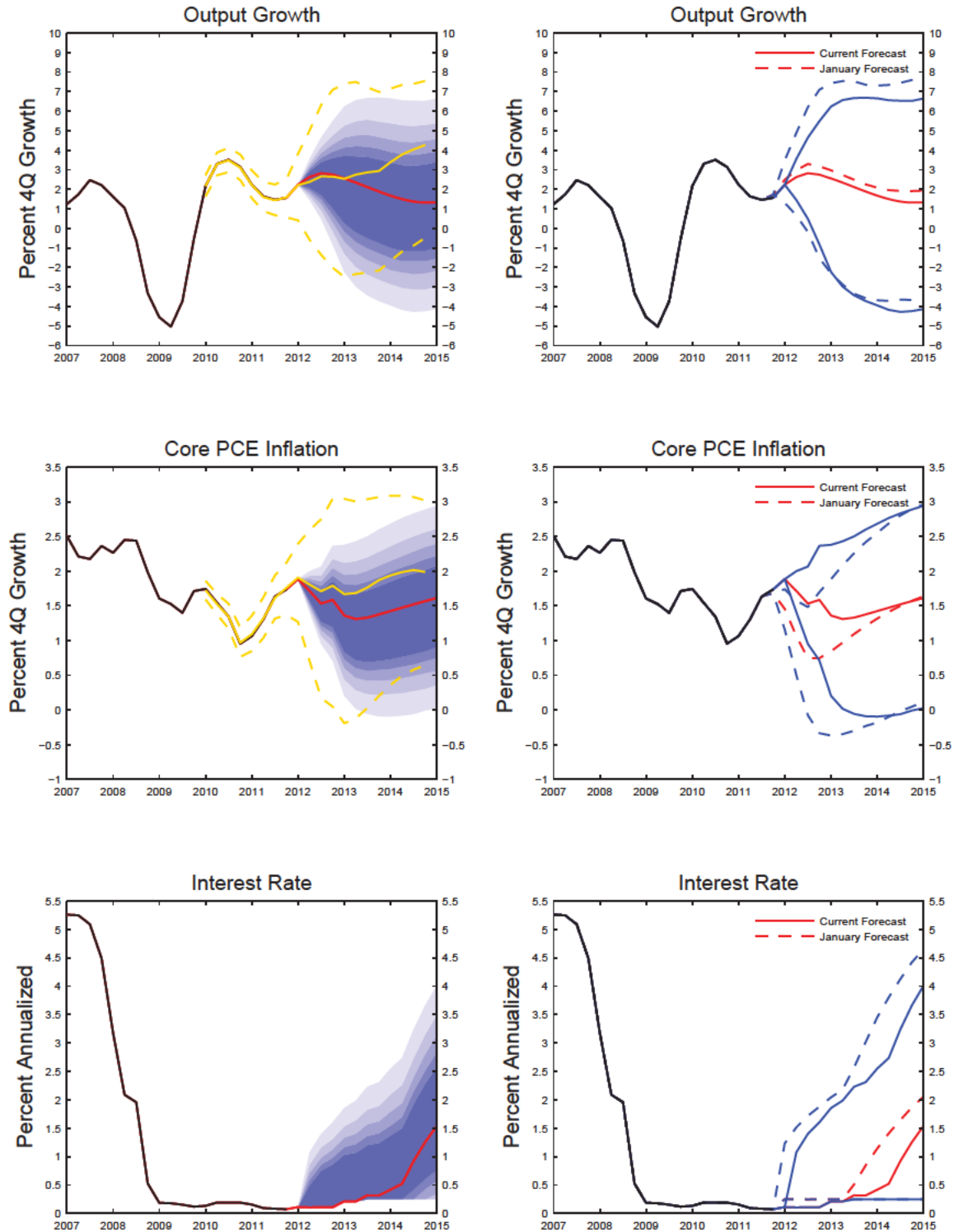


Note: Probability displayed is probability of FFR being above 0.5% in quarter noted and remaining above 0.5% in subsequent four quarters. DSGE results are shown for model including zero bound restriction.

Source: MMS Function (FRBNY)

E. FRBNY-DSGE Model

Exhibit E-1: FRBNY-DSGE Forecasts

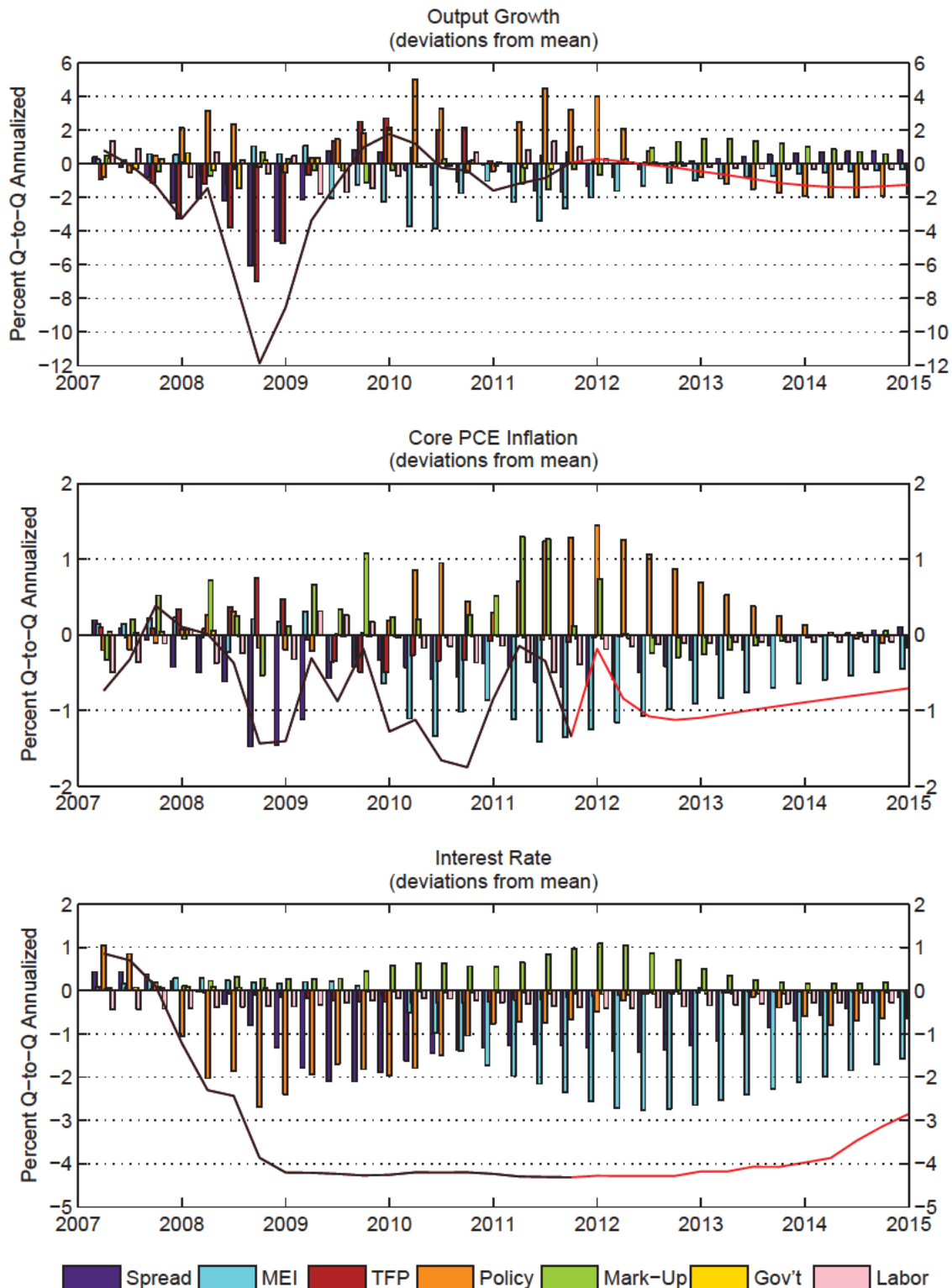


Note: Black lines indicate data, red lines indicate mean forecasts, and shaded areas mark the parameter and shock uncertainty associated with our forecast as 50, 60, 70, 80, and 90 percent probability intervals. For comparison, we report the FRBNY Central Projection for output growth and inflation (solid 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 expectations². [As stated earlier, the near-term implications of this scenario are similar to those of a supply shock or productivity slump, which is one reason we have folded in the weight of the old *Productivity Slump* scenario into this scenario.] However, after several quarters, with the government embarking on a credible fiscal consolidation, inflation declines below the central forecast as a consequence of the drop in aggregate demand and output growth.

Alternative 3: *Faster Growth/Recovery*

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

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

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

Alternative 4: *Loss of Credibility*

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

Alternative 5: *Global Credit Crunch*

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

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

Alternative 6: *Global Deflation*

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

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

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

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

Policy Rule Descriptions

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

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

Baseline Policy Rule Specification:

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

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

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

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

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

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

π_t : core PCE, 4 - quarter average

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

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

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

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

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

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

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

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

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

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

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