# FRBNY BLACKBOOK UPDATE

## RESEARCH AND STATISTICS GROUP

# FOMC Background Material

## January 2013

**CONFIDENTIAL (FR) Class II FOMC**

# FRBNY BLACKBOOK UPDATE

## January 2013

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### EXHIBITS

# 1. Policy Recommendation and Rationale

Our forecasts and balance of risks have changed only modestly in spite of an eventful intermeeting period characterized by the partial resolution of the fiscal cliff. The fiscal measures undertaken with ATRA were broadly in line with our expectations. The composition was different than anticipated, however, resulting in a higher-than-expected drag on consumption and a lower drag on investment. While the fiscal cliff resolution and the postponement of the debt limit negotiations removed some downside risk, the uncertainty associated with the impact of fiscal actions will make assessing the economy in the coming months harder than usual. Moreover, the fiscal consolidation scenario still plays a major role in our risk assessment given that the issues of sequestration, expiration of the continuing budget resolution, and the debt limit have not been resolved.

Data since the December FOMC meeting are mixed. The labor market report was in line with expectations and consistent with slowly improving labor market conditions. Housing data also point to continuing improvements in this sector. The retail sales release indicates that consumption was holding up in December, in spite of the fiscal uncertainty, leading to a stronger assessment of final domestic demand in 2012Q4 relative to the forecasts in the December Blackbook. However, industrial production, inventory, and survey data still point to sluggishness in manufacturing. The drag from inventories is likely to be large in 2012Q4. Inflation is subdued, judging from the December CPI report, and 2014Q4 core PCE inflation is likely to measure below 1%. All in all, while conditions in some sectors of the economy are improving, there is no evidence that existing labor and output gaps are closing at a fast pace.

Given this assessment, we recommend maintaining the accommodative policy stance and the “whatever it takes” approach adopted by the FOMC since the September meeting. Specifically, purchases of longer-term securities should remain at a pace of $85 billion per month, provided that such purchases do not impair market functioning. In terms of communication, the discussion of efficacy and costs of asset purchases, while necessary, should be accompanied by a stated commitment to an accommodative policy stance, possibly employing alternative tools, until labor market conditions improve. The release of the December FOMC minutes suggests that markets may interpret discussions of that kind as a wavering from this commitment, with negative implications for financial market conditions and the achievement of the FOMC employment and price stability objectives.

The adoption of state-contingent timing for the lift-off of the FFR, as embodied by the unemployment and inflation thresholds introduced in the December FOMC statement, was a positive development. Nonetheless thresholds can be misinterpreted as triggers and FOMC communication should continue to stress that they should not be viewed this way. Showing a consensus FOMC forecast in addition to the SEP would enhance the efficacy of the thresholds. Alternatively, the FOMC statement language and communication by FOMC participants should provide more information about the projections of the Committee associated with the policy decision.

The perceived conduct of policy after lift-off is important in determining the effectiveness of policy in supporting the recovery, as emphasized in the DSGE System memo sent to the FOMC in December. Thresholds by themselves fall short of providing information about the FOMC reaction function for the policy rate after lift-off. It is important to communicate that renormalization of the policy rate after lift-off will be gradual unless inflation expectations become unanchored.

The balance sheet remains an important policy tool for determining the degree of policy accommodation and should remain in the policy toolkit after the policy rate leaves the lower bound. The current and projected size of the balance sheet, as well as the composition and duration of its assets are quite different from those projected at the time of the ‘exit principles’ agreed to at the June 2011 FOMC meeting. Moreover, the experience since June 2011 probably has implications for the desired size, composition, and duration of the Fed balance sheet during policy renormalization and in “normal” times. It is therefore important to revisit and revise those principles as well as the policy implementation framework, perhaps devising guidelines for an active management of the balance sheet during the normalization period.

# 2. Outlook and Risks Update

## 2.1 Central Forecast

**Intermeeting developments.**

Data suggest that the headline growth rate of real GDP for 2012Q4 will come in at a quite weak 0.5% (annual rate). Nonetheless, the rate of growth of final sales to domestic purchasers is likely to be around 2 ¼%, firmer than the 1 ¾% average over the preceding two quarters. Despite weakness in the month of October due to Hurricane Sandy, growth of real personal consumption expenditures likely rose at a 2 ¼% to 2 ½% annual rate in the fourth quarter, led by robust spending on durable goods. Sales of light-weight motor vehicles averaged 15.1 million units (annual rate) in the fourth quarter, up from 14.5 million in the third quarter. In addition, the recovery of residential investment continued to gather strength, likely contributing roughly ½ percentage point to the overall growth rate. Finally, while business investment in new nonresidential structures is expected to have declined in the fourth quarter, data on shipments of nondefense capital goods through November suggest a modest rebound in business investment in new equipment and software.

Despite this firming in the rate of growth of final sales to domestic purchasers, overall growth was likely held down by an unusually large decline in the pace of inventory investment. Based on data through November, we expect the change in nonfarm inventories to decline from around $88 billion (constant dollars) in the third quarter to just a little over $30 billion in the fourth quarter, representing a full 1 3/4 percentage point drag on the overall growth rate. (The drought-related decline of farm inventories is likely to be less in the fourth quarter than it was in the third, such that the overall drag on growth from the slower pace of inventory investment should be around 1 ½ percentage points.)

Also holding down the fourth quarter growth rate was unexpected weakness of exports, which more than offset a decline of imports. The net export growth contribution is set to swing to -0.3 percentage point in 2012Q4 from an average of +0.3 percentage points in the preceding two quarters. The slowing of export growth has been heavily concentrated in industrial supplies and materials and, to a lesser extent, capital goods. Export growth has slowed to most regions of the world, but exports to the euro area are actually down on a year-over-year basis.

The payroll employment data improved somewhat in the fourth quarter. The average monthly gain in private nonfarm payroll employment rose to 181,000 over the final three months of the year versus 140,000 in the third quarter and 88,000 in the second quarter. The rate of growth of aggregate hours worked rose to 1 ½% (annual rate) from 1% in the third quarter. Some of this improvement may be due to the fact that the weather in December 2012 was unusually mild, with heating degree days in the 48 contiguous states 15% below the average of the preceding five year. For example, construction employment rose by 30,000 in December, well above its recent trend, bringing the fourth quarter average monthly increase to 15,000. Nonetheless, employment and hours worked in the manufacturing sector and the private service-providing sector also expanded more rapidly in the fourth quarter. The fourth quarter also witnessed some firming of the year-over-year growth rate of average hourly earnings, which had been slowing since mid 2011. However, the absolute rate of increase remains quite low.

Price data have been subdued. The total CPI fell 0.3 percent in November and was essentially unchanged in December, bringing the 12-month change as of December down to 1.7%. In September of 2011 that 12-month change was 3.9%. Of course, much of this slowing of overall inflation was due to energy prices and, to a lesser extent, food prices. However, the 12-month change of the core CPI also slowed, to 1.9% as of December from a recent high of 2.3% in the second quarter of 2012. The 12-month change of core goods prices slowed to 0.3% in December 2012 from 2.2% a year earlier. This has been associated with a sharp slowing in the rate of increase of nonpetroleum import prices, likely reflecting the weakening of global demand as well as the appreciation of the exchange value of the dollar from mid 2011 through mid 2012. In contrast, the rate of increase of prices of core services has leveled off around 2 ½%.

**Conditioning assumptions.**

Our estimate of potential GDP growth is around 2 ¼%, reflecting trend growth of productivity of 1 ¼% and trend growth of hours worked of 1%. The Board staff estimate of potential for 2013 has been lowered modestly, to 1.9% from 2.0% in the December

Tealbook. Estimates for 2012 and 2014 are 1.8% and 2.1%, respectively, unchanged from the previous Tealbook.

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 gradually move up to the FOMC's objective of 2.0% by 2014. In contrast, the Tealbook forecast expects core PCE deflator inflation to remain below 2% over the entire forecast horizon.

In both the Tealbook and Blackbook, projections of global real GDP growth in 2013 have been increased modestly—to 2.8% (Q4/Q4) from 2.7% (Q4/Q4) in the case of the Blackbook and to 2.8% from 2.6% in the case of the Tealbook. In both cases, the main source of this higher projected growth rate in a significant upgrading of growth prospects in Japan in response to a new government spending initiative. In 2014, we anticipate global growth to remain near the 2013 pace while the Board staff anticipates a strengthening to 3.0%, reflecting relatively modest firming of growth in the Euro Area and in China.

In both the Tealbook and the Blackbook forecasts, the exchange value of the dollar is projected to decline somewhat more than previously expected in 2013, but then decline somewhat less than previously expected in 2014. The net result is essentially no change in the path of the level of the real exchange value of the dollar through 2014.

Both spot and futures prices of oil have moved somewhat higher over the intermeeting period. Accordingly, we have moved our assumed path of oil prices over the forecast horizon upward by an average of $4.50 per barrel in 2013 and $2.50 per barrel in 2014. We now expect the WTI price per barrel to average $94.50 in 2013Q4 and $92 in 2014Q4. The Board's projected path is quite similar to ours.

As is our standard practice, we adopt the same federal fiscal assumptions as in the Tealbook. The Board's measure of fiscal impetus for 2013 has been revised to -0.8 percentage points from the previous estimate of -1.1 percentage points. While taxes on upper-income households were increased, which was not part of the previous fiscal assumptions, both the Emergency Unemployment Compensation (EUC) program and the bonus depreciation provision were extended for one year whereas the previous assumption had been that they would be allowed to expire. Also key to the fiscal assumptions of this forecast is the expectation that the fairly significant cuts in spending called for by the sequestration provisions of the Budget Control Act of 2011 will be replaced with a much more gradual path of fiscal consolidation. If that turns out not to be the case and the full sequester does take effect, the fiscal impetus measure for 2013 would go to around -1.3 percentage points. For 2014 fiscal impetus is adjusted to -0.5 percentage points from the previous estimate of -0.4 percentage points due to the fact that the emergency unemployment benefits and bonus depreciation are now assumed to expire at the end of 2013.

We also adopt the Tealbook assumptions regarding equity and home prices. Equity prices are currently about 6 1/2% above the level expected to prevail at this point in time in the December Tealbook. From that higher starting point, equity prices are expected to rise at an 8% annual rate in 2013 and 2014, down from the 10% rate assumed in December. The net result is that the level of equity prices at the end of the forecast horizon is roughly 3 ½% higher than was the case in December. Regarding home prices, recent readings of the CoreLogic national home price index have been firmer than expected while the months' supply of existing homes for sale has continued to decline. As a result, the projected increase of the CoreLogic index in 2013 has been boosted to 4 ½%, up from the previous estimate of 2 ½%. For 2014, the index is expected to rise 3 ½% as rising mortgage interest rates dampen cash flow affordability. However, this is above the previous assumption of a 2 ½% increase.

**The Outlook.**

All things considered, growth of real final sales to domestic purchasers ended 2012 a bit stronger than we were expecting back in December. In particular, the recoveries of consumer spending on durable goods and of housing construction have been somewhat stronger than expected. As we enter 2013, there are three key issues that will determine the near term pace of growth. The first is the reaction of consumers to the increases in taxes stemming from the recent fiscal agreement. The second is the outcome of negotiations regarding the sequester and the continuing resolution. The third is where we stand in the adjustment of production to the substantial buildup of unwanted inventories that occurred over the first three quarters of 2012. Of course, these issues are interrelated.

As mentioned above, the amount of fiscal drag imposed on the economy in 2013 stemming from the recently enacted budget agreement is likely somewhat less than what we have been assuming for some time. However, some of the individual provisions are different. As expected, the 2 percentage point reduction of the payroll tax, in place during 2011 and 2012, has expired, resulting in a roughly $125 billion (annual rate) reduction of disposable income. Also expected, tax increases on upper-income households resulting from the Affordable Care Act took effect on January 1, reducing disposable income by about another $25 billion (annual rate). What was not anticipated was an increase in the top marginal tax rate to 39.6% (from 35%) on joint individual returns with taxable income above $450,000. In addition, the phase out of personal exemptions and itemized deductions for upper-income taxpayers has been reintroduced to the tax code at a rate of 3% of the amount of adjusted gross income above $300,000 (joint return). These tax increases are estimated to amount to around $35 billion (annual rate). Combined with a modest increase in the estate tax, the total increase in taxes comes to just under $200 billion or about 1% of GDP. In contrast, the Emergency Unemployment Benefit and the bonus depreciation program were extended for one year.

Based on our analysis and assumed multipliers, the increase in taxes is likely to depress both consumer spending and the personal saving rate by a substantial amount in the first quarter of 2013 and then a somewhat lesser extent in the second quarter. For the entire first half of 2013, growth of real PCE is reduced to around 1% (annual rate) from around 2% over the second half of 2012. At the same time, the personal saving rate averages 2% versus 3.3%. It should be noted that not everyone agrees that the effect on consumer spending will be this severe. For example, the Tealbook forecast expects growth of real PCE of a little over 2% over the first half of 2013. Their write up sites the fact that the Emergency Unemployment Benefit program has been extended while underlying fundamentals, such as equity prices, home prices, the labor market, and access to credit, are all somewhat better in this forecast round than was true in December. Clearly, interpreting the incoming data on consumer spending over the next several months will be quite challenging.

With regard to the inventory-production cycle, very recent information out of the manufacturing sector has been somewhat improved. For example, as mentioned above, both employment and hours worked in the manufacturing sector improved in December, as did the ISM manufacturing index. Of particular note, the new exports orders component rose to above 50 after six consecutive months of below 50 readings. Combined with a modest effect from the increase of taxes on consumer spending, the Tealbook forecast assumes a strong rebound of manufacturing output in 2013Q1 with a +0.9 percentage point growth contribution from inventory accumulation. We envision a more modest increase of manufacturing output with a +0.4 percentage point inventory growth contribution.

Looking beyond the first half of 2013, both the numbers and the conceptual underpinnings of our forecast for growth and inflation are essentially unchanged.
We expect a firming of growth to around 2 ¾% (annual rate) over the second half of 2013 as the headwinds that have been restraining growth over the past few years, such as household deleveraging and restricted access to credit, more fully subside. Also contributing to this firming of growth is the further strengthening of the recovery of the housing market, leading not only to sustained gains in residential investment but also greater confidence in stable to rising home values with associated positive impacts on consumer spending. Uncertainty about the U.S. fiscal path is likely to diminish somewhat as the year progresses while world growth picks up as the euro area emerges from recession and Japan responds to fresh policy stimulus. With stronger domestic and foreign demand and increased confidence, firms are expected to begin to fulfill pent up demand for additions to productive capacity. For all of 2013, we expect growth of real GDP of around 2 ½%, with the unemployment rate ending the year around 7 ½%.

The fiscal drag is expected to be greatly diminished by 2014, allowing the full force of monetary accommodation and the natural healing of the economy to be realized. Growth contributions from consumer spending, residential investment, and business fixed investment all move notably higher, while even the state and local government sector begins to add positively. The increase of real GDP in that year is likely to be around 3 ½%, with the unemployment rate declining by about one full percentage point to 6 ½%.

Total and core PCE deflators are expected to rise 1.5% in 2012, down significantly from what was expected just a few FOMC cycles ago. With this lower jump off point, we expect the core PCE deflator to increase around 1 ½% again in 2013, down from 1 ¾% in December, though there is still a gradual uptrend over the course of the year. In 2014, as the economy begins to establish greater forward momentum with slack being absorbed at a more rapid pace, we expect both total and core inflation to move gradually higher, to around 2 ¼% and 2%, respectively. In addition to the decline in slack, well anchored inflation expectations and the expected decline of the exchange value of the dollar contribute to this firming in the rate of increase of prices.

## 2.2 Alternative Scenarios and Risks

The assessment of risks to the outlook has changed modestly over the intermeeting period, with the downside risks to activity slightly lower compared to the December Blackbook. Over the medium term, the balance of risks for both activity and inflation is now roughly balanced. The assessment of risks to the outlook is conditional upon the assumed path of policy in our recommendation. Our policy recommendation removes some of the downside risks to the outlook while adding to the upside risks.

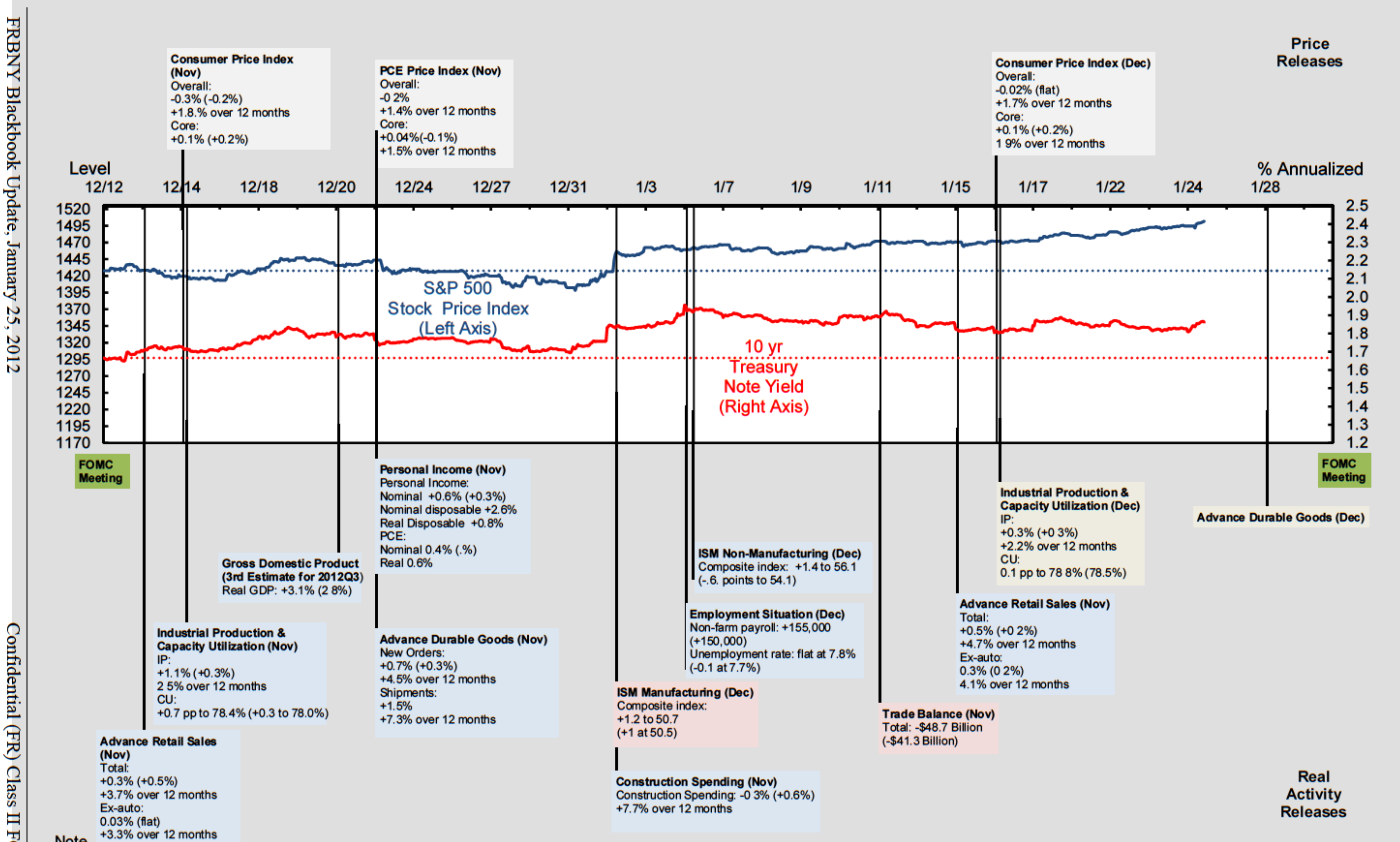
The partial resolution of the fiscal cliff is the main reason for the decrease in the downside risks to real economic activity in the near and medium term. Consequently, we have somewhat decreased the weight on the *Fiscal Consolidation* scenario. Yet, strong headwinds from fiscal policy remain due to the uncertainty associated with the debt ceiling and sequestration. *Fiscal Consolidation* remains the most likely alternative scenario with the probability of ever reaching that scenario now standing just above 30 percent [Exhibit C-1]. The improvements due to less uncertainty associated with the fiscal cliff as well as the solid increases of retail sales in the face of these headwinds translate into a slightly higher probability associated with the *Faster Growth* scenario, which is the second most likely alternative scenario with a probability of about 30 percent. Changes in the other scenarios relative to the December Blackbook are minor.

The forecast for GDP growth under the *Central* scenario has changed only modestly compared to the December Blackbook. Conversely, core PCE inflation is now projected to be almost half a percentage point lower throughout 2013. Because the paths under the alternative scenarios are defined relative to the *Central* scenario outlook, inflation forecasts under the alternative scenarios have also shifted down compared to the December Blackbook [Exhibit C-2].

As a result of the changes in the scenario probabilities, downside risks to activity have decreased slightly at the medium term horizon relative to the December Blackbook, while the forecast distribution for core PCE inflation has symmetrically shifted downward along with the central forecast [Exhibit C-3].

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

# Key Data Releases




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

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

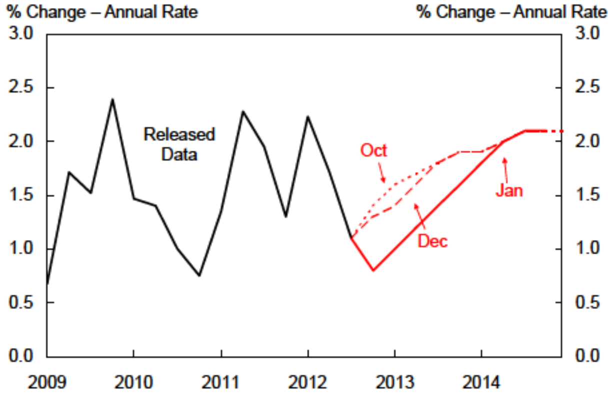
# B. FRBNY Forecast Details

## Exhibit B-2: Evolution of Projected Quarterly Paths

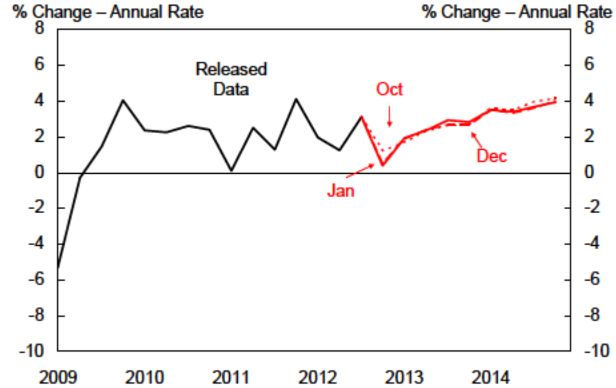
### Key Indicators

### Forecast Assumptions

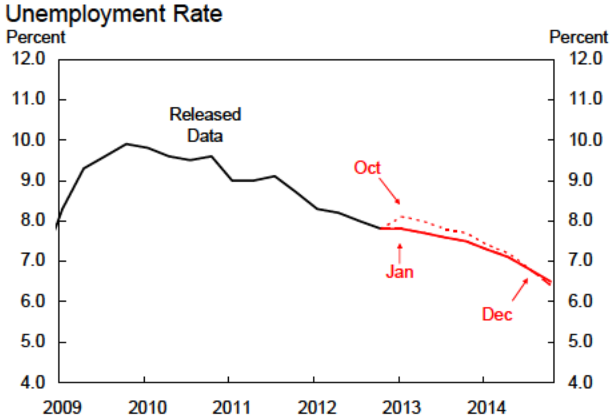
Core PCE Inflation



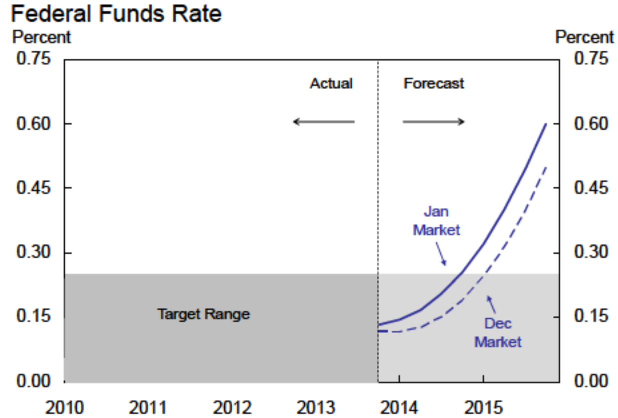

Real GDP Growth



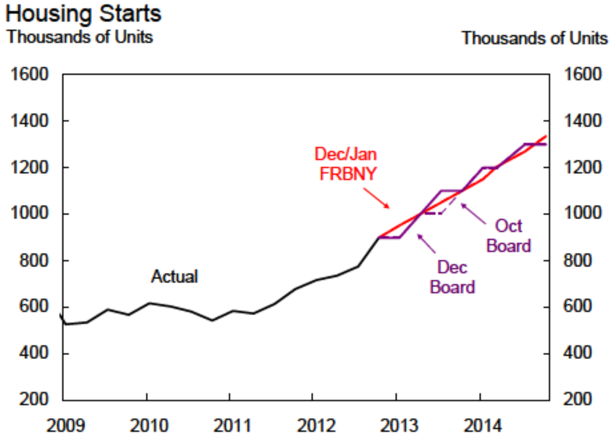

Unemployment Rate



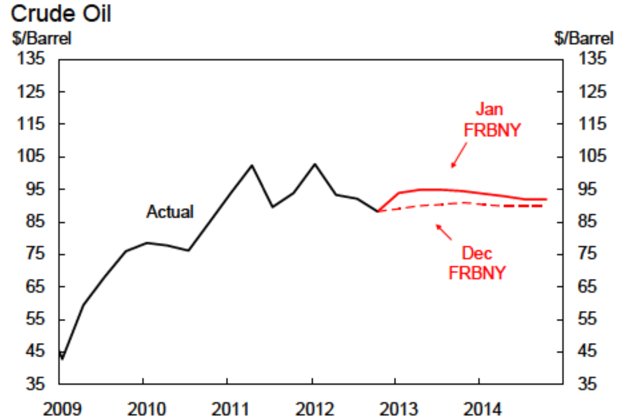

Federal Funds Rate




Housing Starts




Crude Oil




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

# B. FRBNY Forecast Details

## Exhibit B-3: Near-Term Projections

| | Quarterly Growth Rates (AR) | | Quarterly Growth Contributions (AR) | |
|---|---|---|---|---|
| | 2012Q4 | 2013Q1 | 2012Q4 | 2013Q1 |
| **OUTPUT** | | | | |
| **Real GDP** | 0.4 | 1.9 | 0.4 | 1.9 |
| | (0.9) | (1.7) | (0.9) | (1.7) |
| **Final Sales to Domestic Purchasers** | 2.3 | 1.1 | 2.3 | 1.1 |
| | (1.6) | (1.3) | (1.6) | (1.3) |
| **Consumption** | 2.4 | 0.7 | 1.7 | 0.5 |
| | (1.8) | (1.2) | (1.3) | (0.8) |
| **BFI: Equipment and Software** | 10.0 | 6.0 | 0.7 | 0.4 |
| | (3.0) | (5.0) | (0.2) | (0.4) |
| **BFI: Nonresidential Structures** | -5.0 | 3.0 | -0.1 | 0.1 |
| | (2.0) | (4.0) | (0.1) | (0.1) |
| **Residential Investment** | 18.0 | 20.0 | 0.4 | 0.5 |
| | (18.0) | (16.0) | (0.4) | (0.4) |
| **Government: Federal** | -2.0 | -4.0 | -0.2 | -0.3 |
| | (-3.2) | (-4.0) | (-0.2) | (-0.3) |
| **Government: State and Local** | -1.5 | -0.4 | -0.2 | 0.0 |
| | (-1.0) | (-0.8) | (-0.1) | (-0.1) |
| **Inventory Investment** | -- | -- | -1.5 | 0.4 |
| | -- | -- | (-0.8) | (-0.1) |
| **Net Exports** | -- | -- | -0.4 | 0.4 |
| | -- | -- | (0.2) | (0.5) |
| **INFLATION** | | | | |
| **Total PCE Deflator** | 1.2 | 0.4 | | |
| | (2.8) | (2.0) | | |
| **Core PCE Deflator** | 0.8 | 1.0 | | |
| | (1.4) | (1.6) | | |
| **PRODUCTIVITY AND LABOR COSTS*** | | | | |
| **Output per Hour** | -0.2 | 1.6 | | |
| | (2.0) | (1.5) | | |
| **Compensation per Hour** | 1.0 | 1.2 | | |
| | (1.6) | (1.8) | | |
| **Unit Labor Costs** | 1.2 | -0.4 | | |
| | (-0.4) | (0.3) | | |

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

# B. FRBNY Forecast Details

## Exhibit B-4: Medium-Term Projections

| | Q4/Q4 Growth Rates | | | Q4/Q4 Growth Contributions | | |
|---|---|---|---|---|---|---|
| | 2012 | 2013 | 2014 | 2012 | 2013 | 2014 |
| **OUTPUT** | | | | | | |
| **Real GDP** | 1.7 | 2.5 | 3.6 | 1.7 | 2.5 | 3.6 |
| | (1.6) | (2.4) | (3.6) | (1.6) | (2.4) | (3.6) |
| **Final Sales to Domestic Purchasers** | 2.0 | 1.9 | 4.0 | 2.0 | 2.0 | 4.1 |
| | (1.7) | (1.9) | (4.0) | (1.7) | (1.9) | (4.1) |
| **Consumption** | 2.0 | 1.4 | 2.8 | 1.4 | 1.0 | 2.0 |
| | (1.7) | (1.6) | (2.8) | (1.2) | (1.1) | (2.0) |
| **BFI: Equipment and Software** | 4.3 | 9.0 | 15.5 | 0.3 | 0.7 | 1.2 |
| | (2.3) | (7.5) | (15.5) | (0.2) | (0.5) | (1.2) |
| **BFI: Nonresidential Structures** | 1.9 | 5.7 | 13.0 | 0.1 | 0.2 | 0.4 |
| | (3.2) | (5.0) | (13.0) | (0.1) | (0.1) | (0.4) |
| **Residential Investment** | 15.1 | 18.5 | 16.0 | 0.3 | 0.5 | 0.5 |
| | (16.7) | (17.5) | (16.0) | (0.4) | (0.5) | (0.5) |
| **Government: Federal** | 0.6 | -4.0 | -2.5 | 0.0 | -0.3 | -0.2 |
| | (0.3) | (-4.0) | (-2.5) | (0.0) | (-0.3) | (-0.2) |
| **Government: State and Local** | -1.1 | -0.1 | 2.2 | -0.1 | 0.0 | 0.3 |
| | (-1.1) | (-0.1) | (2.2) | (-0.1) | (-0.0) | (0.3) |
| **Inventory Investment** | -- | -- | -- | -0.5 | 0.3 | 0.1 |
| | -- | -- | -- | (-0.4) | (0.2) | (0.2) |
| **Net Exports** | -- | -- | -- | 0.1 | 0.2 | -0.6 |
| | -- | -- | -- | (0.2) | (0.3) | (-0.7) |
| **INCOME** | | | | | | |
| **Personal Income** | 3.3 | 2.9 | 5.8 | | | |
| | (3.6) | (3.3) | (5.8) | | | |
| **Real Disposable Personal Income** | 1.7 | 0.7 | 3.4 | | | |
| | (1.9) | (0.9) | (3.3) | | | |
| **Personal Saving Rate** | 3.1 | 2.4 | 3.0 | | | |
| | (3.5) | (2.9) | (3.4) | | | |
| **Corporate Profits Before Taxes** | 1.1 | 2.2 | 3.8 | | | |
| | (2.2) | (2.3) | (3.7) | | | |

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

# B. FRBNY Forecast Details

## Exhibit B-5: Medium-Term Projections, Continued

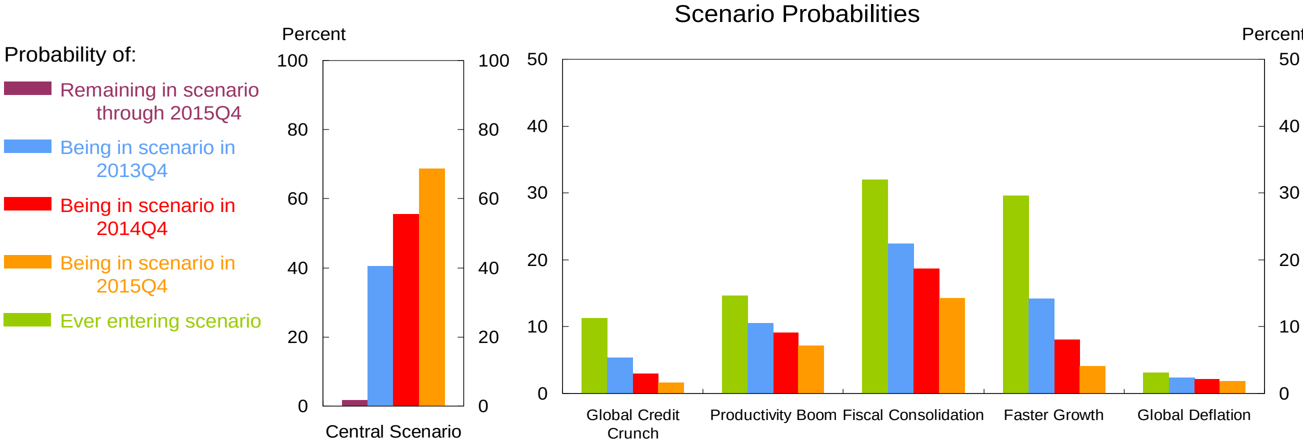
| | Q4/Q4 Growth Rates | | |
|---|---|---|---|
| | 2012 | 2013 | 2014 |
| **INFLATION** | | | |
| **Total PCE Deflator** | 1.5 | 1.4 | 2.2 |
| | (1.6) | (1.8) | (2.2) |
| **Core PCE Deflator** | 1.5 | 1.3 | 2.0 |
| | (1.6) | (1.7) | (2.0) |
| **Total CPI Inflation** | 1.9 | 2.1 | -- |
| | (1.9) | (2.4) | -- |
| **Core CPI Inflation** | 1.9 | 2.0 | -- |
| | (2.0) | (2.0) | -- |
| **GDP Deflator** | 1.8 | 1.6 | 2.3 |
| | (1.9) | (1.8) | (2.2) |
| **PRODUCTIVITY AND LABOR COSTS*** | | | |
| **Output** | 2.5 | 3.3 | 4.6 |
| | (2.5) | (3.2) | (4.6) |
| **Hours** | 1.5 | 1.8 | 2.6 |
| | (1.5) | (1.7) | (2.6) |
| **Output per Hour** | 1.0 | 1.5 | 2.0 |
| | (1.0) | (1.5) | (2.0) |
| **Compensation per Hour** | 2.2 | 1.5 | 2.3 |
| | (2.4) | (1.7) | (2.3) |
| **Unit Labor Costs** | 1.2 | 0.0 | 0.3 |
| | (1.3) | (0.2) | (0.3) |
| **LABOR MARKET** | | | |
| **Unemployment Rate (Avg. Q4 Level)** | 7.8 | 7.5 | 6.5 |
| | (7.8) | (7.5) | (6.4) |
| **Participation Rate (Avg. Q4 Level)** | 63.7 | 63.6 | 63.7 |
| | (63.6) | (63.6) | (63.7) |
| **Avg. Monthly Nonfarm Payroll Growth (Thous.)** | 157 | 183 | 265 |
| | (151) | (177) | (270.1) |

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

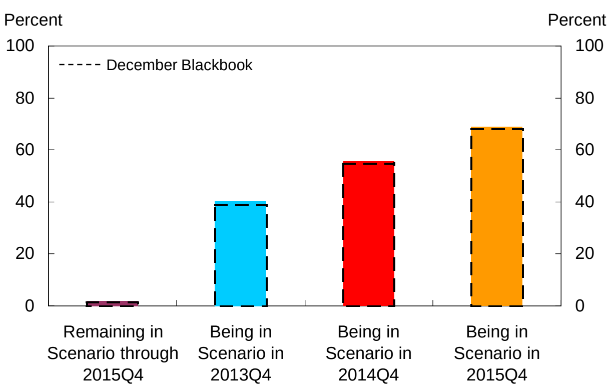
# C. FRBNY Forecast Distributions

## Exhibit C-1:
## Risks

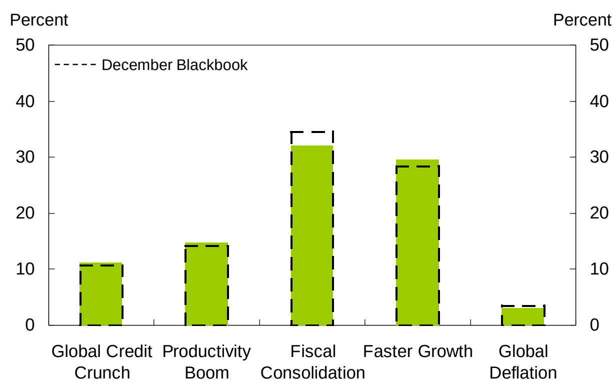
Scenario Probabilities




Change in Central Scenario Probabilities



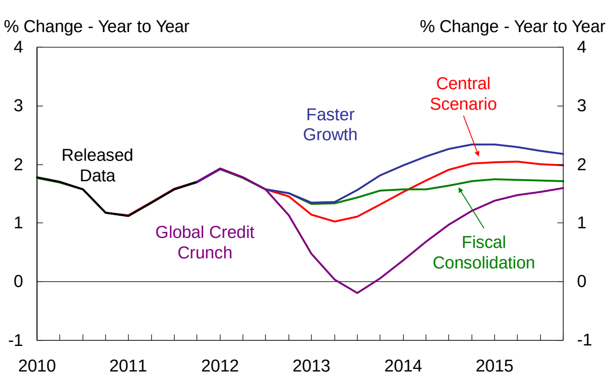

Change in Alternative Scenario Probabilities*



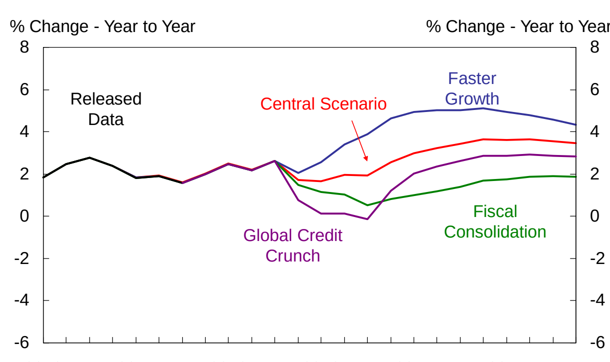

*Probability of ever reaching scenario

## Exhibit C-2: Projections under Alternative Scenarios

Core PCE Inflation under Alternative Scenarios Selected




Real GDP Growth under Alternative Scenarios Selected

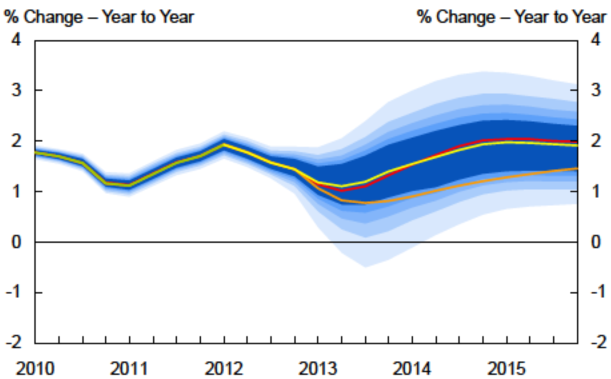



Source: MMS Function (FRBNY)

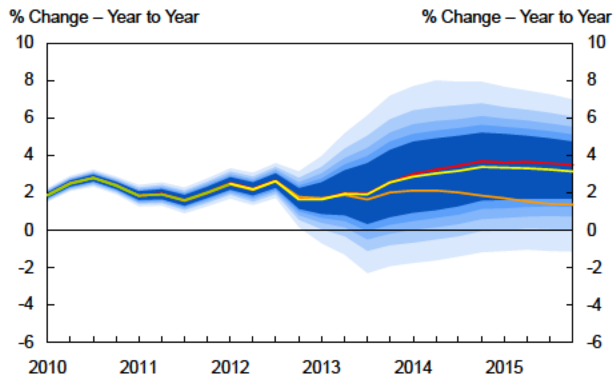
# C. FRBNY Forecast Distributions

## Exhibit C-3: Inflation and Output Forecast Distributions

### Core PCE Inflation Forecast Distribution

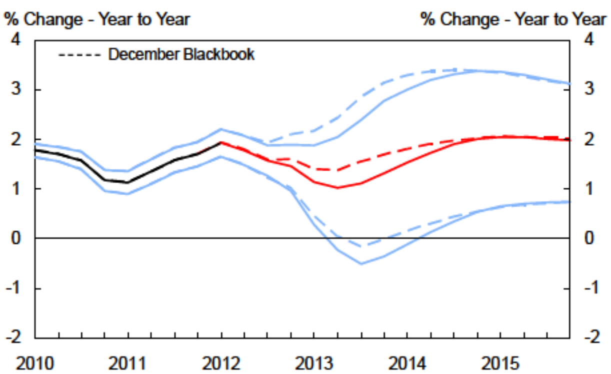



### Real GDP Growth Forecast Distribution

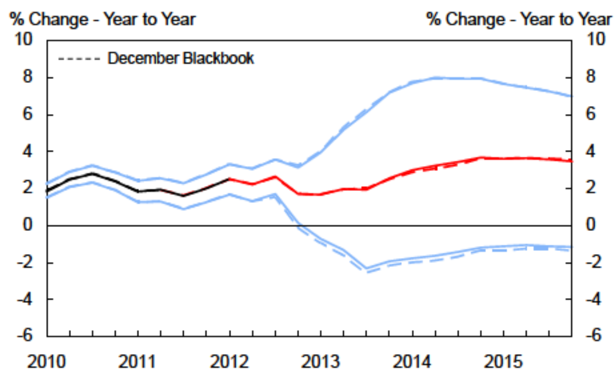



The yellow line is the expected value of the forecast distribution, the red line is the FRBNY central projection, the orange line is the DSGE forecast, and the green line is released data. The shading represents the 50, 60, 70, 80 and 90 percent probability that the four-quarter change will be within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

### Change in Core PCE Inflation Forecast Distribution

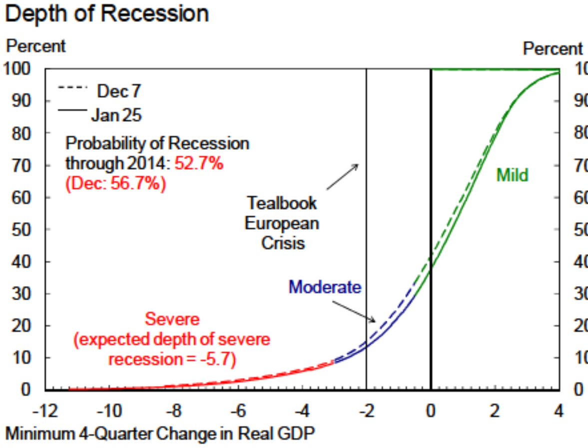



### Change in Real GDP Growth Forecast Distribution

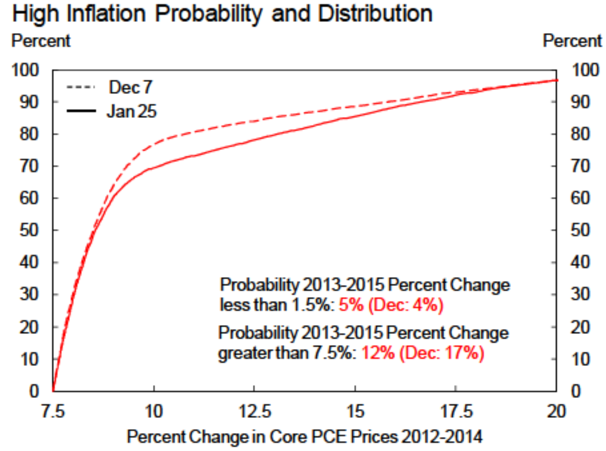



The blue lines are the 90% chance the four-quarter change will be within the lines, the red line is the central scenario projection, and the black line is released data. Dashed lines represent forecasts from the previous Blackbook.

### Depth of Recession




### High Inflation Probability and Distribution




Source: MMS Function (FRBNY)