

**FRBNY BLACKBOOK UPDATE**

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**RESEARCH AND STATISTICS GROUP**

**FOMC Background Material**

**July 2012**

**CONFIDENTIAL (FR) Class II FOMC**

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# FRBNY BLACKBOOK UPDATE

## July 2012

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## 1. Policy Recommendation and Rationale

Economic and financial market developments since the June Blackbook have led us once again to revise downward our real activity outlook and to shift our assessment of the balance of risks for real activity modestly further to the downside. Against this backdrop, we recommend providing more policy accommodation with the following three measures:

- Announcing that the FOMC will maintain the FFR target range at 0-0.25% at least until the paths of real GDP growth and the unemployment rate show clear progress toward their desired long-run values.
- Replacing the Maturity Extension Program (MEP) with a new round of Large Scale Asset Purchases (LSAP), which will expand the Federal Reserve's balance sheet through purchases of a combination of agency MBS and Treasury securities.
- Lowering the IOER from 25bps to 10bps.

These measures would comprehensively strengthen the forward guidance within an integrated policy strategy explicitly linking the extent and length of monetary policy accommodation to the convergence of the path of real variables and inflation to their desired long-run values. Importantly, while the FOMC should reiterate the commitment to a 2% inflation target over the long-run, it should make clear that it would allow the inflation rate to rise somewhat above 2% as long as the unemployment rate lies well above the Committee's assessment of its long-run sustainable level.

### **Rationale—Outlook.**

The real activity releases since the June Blackbook generally came in weaker than expected. Real GDP grew 2.0% (annual rate) in the first quarter of 2012, and according to the advance release, it slowed to 1.5% in 2012Q2, due in part to a marked slowdown in real personal consumption expenditures. The labor market reports have shown considerable softening from April to June. A number of manufacturing indicators (especially the ISM number) also have softened significantly.

Overall CPI and PCE inflation have come down in recent months due to the decline in energy prices, and underlying inflation appears to be stabilizing slightly below the 2% objective.

**Rationale—Uncertainty and Risks.**

The continuing strains in European financial markets and the contractionary impact of a potentially abrupt fiscal consolidation in the US (fiscal ‘cliff’) continue to be major sources of uncertainty and risks for the US and global economies.

Our assessment of the uncertainty around the outlook remains considerably greater than normal, reflecting downward pressures on real activity also from the contraction in economic activity in the European region and slower growth in other regions, and some deterioration in financial market conditions.

**Policy Recommendation.**

Given our outlook of persistently high unemployment along with inflation below target, and our risk assessment, we believe that more policy accommodation is needed to achieve mandate-consistent objectives over a reasonable time framework as well as to insure against the possible realization of risks. While long-term Treasury yields have come down since the June meeting, and market participants have shifted down their expectations of the path of the FFR, we believe that the current policy stance does not provide sufficient accommodation, despite the extension of the MEP program. At the same time, policy continues to be constrained by the zero lower bound while the Federal Reserve balance sheet is, by historical standards, quite elevated.

In this environment, we recommend strengthening the forward guidance within a consistent strategic framework which combines several policy instruments in the direction of providing more policy accommodation.

First, we recommend announcing that the FOMC will maintain the FFR target range at 0-0.25% at least until the paths of real GDP growth and the unemployment rate show clear progress toward their desired long-run values. Such policy should explicitly state that the Committee would tolerate an inflation rate (as measured by the total PCE deflator)

temporarily above target, provided that medium-run inflation projections remain consistent with an eventual return of inflation to the FOMC's long-run target of 2%. Under our assessment of current conditions, such a policy implies that the FFR is expected to remain in this range at least until the end of 2014.

To support this reinforced forward guidance, we also recommend expanding the Federal Reserve's balance sheet through additional purchases of a combination of agency MBS and long-term Treasury securities. We recommend to implement this plan by setting a target for the *overall size* of the Federal Reserve's balance sheet in the near term (e.g., 6 months to a year), as we believe that the overall size (rather than the increase in the size over a given period) is representative of the degree of monetary stimulus. We however recommend announcing that the targeted size of the balance sheet *would* increase further in the event of an unsatisfactory progress towards the objectives. The Committee could alternatively choose to target the increase in the balance sheet by setting a *pace* for increasing the Federal Reserve's holdings of MBS and Treasury securities (a strategy we recommended in the past).

Such a balance-sheet policy would thus be open-ended, with the ultimate size, duration, and composition to be determined over time, depending upon the degree by which economic conditions improve and approach the Committee's mandate-consistent goals. While such a policy could increase the uncertainty about the eventual size of the Fed's balance sheet, tying the size to the FOMC's ultimate objectives should reduce the uncertainty about the dynamic evolution of those economic variables.

Finally, we recommend reducing the IOER from the current 25bps to 10bps. Such a policy would likely ease short-term funding conditions by a few basis points, which would have a marginally beneficial effect on overall economic activity. Lowering of the IOER carries some risks in terms of market functioning, especially with respect to money market mutual funds, should the IOER fall too close to zero. Such funds would see their profit opportunities decline and thus might reduce their market presence. Too rapid a reduction in their participation may lead to significant market disruptions in the short run and to heighten uncertainty.

To maximize the impact of the recommended policy, we suggest that the reinforced forward guidance involving the above-mentioned combination of policy tools be communicated as an integrated policy strategy aimed at providing monetary accommodation as long as the levels of economic activity and employment fail to make enough progress in the direction of their long-run desired objectives, in a context of price stability.

There are implementation problems as well as risks in this proposal. The implementation problems, as we have discussed in the past, lay in the proper characterization of the conditions that would trigger either the termination of exceptionally loose policy, or alternatively the further increase in the balance sheet size.

While there is no simple way to characterize such contingencies, an obvious starting point is gauging economic progress relative to the longer-run goals stated in the January 2012 document. For example, the FOMC could announce that the purchases will continue until the *projected* gap between the unemployment rate and the FOMC estimate of the natural rate has narrowed to 1.5 or 2 percentage points (and is expected to continue to narrow), provided *projections* for the inflation gap are no larger than 1 percentage point. The accommodative policy is then stated in terms of the misses on the employment goal, provided there are not too large positive misses in the price stability objective. More nuanced language could define policy not just in terms of levels relative to objectives, but also in terms of speed at which those objectives are expected to be approached.

Despite the fact that the longer-run goals are defined in terms of unemployment, the FOMC may not want to use the unemployment gap as a trigger in this proposal, as the unemployment rate may be a noisy measure of labor market conditions in the current environment. As an alternative the FOMC may choose (we would recommend that it do so) to refer to other measures of labor market conditions, such as growth of payroll employment or the employment/population ratio. Yet another alternative is to specify the policy objective in terms of a level target for nominal GDP, as discussed in past Blackbooks.

The open-ended nature of the proposed program presents some risks. First, the potential of a large increase in the Fed's balance sheet could lead to dysfunction in financial markets. Indeed high volumes of purchases may not be feasible in the MBS market. Such risks could be alleviated by either expanding the set of eligible MBS or by making additional purchases in longer-term Treasuries. Second, there is the risk of capital losses should the Fed have to liquidate its portfolio rapidly. For this latter risk, we continue to advocate, as we have in the past, that the Fed accumulates some capital cushion to make up for possible future losses, or alternatively reaches a more formal arrangement with the Treasury about how such contingencies could be met.

Finally, we believe that the proposed balance sheet and IOER actions, together with the associated change in communication would speak clearly for the accommodative stance of policy and would not need a specification of a likely time for liftoff of the policy rate. However, if the Committee wishes to continue to indicate a date at which, given current information, it expects a significant move towards objective to take place, we recommend maintaining the current wording of "at least through 2014", to avoid unnecessary language complications and express confidence in the success of the policy strategy.

## 2. Outlook and Risks Update

### 2.1 Central Forecast

#### **Intermeeting developments.**

As was the case over the preceding cycle, economic indicators released since the FOMC meeting on June 19 & 20 have been generally weaker than expected, leading to a marking down of not only our projection of growth of real GDP for 2012Q2 but also for the second half of the year. We now expect growth of real GDP in 2012 of 1.7% (Q4/Q4), down from 2.1% in June and 2.7% in April. With this weaker than anticipated growth path, we now expect the unemployment rate to average 8.2% in 2012Q4, up from 8.0% in the June Blackbook. The outlook for both total and core inflation in 2012 is unchanged at 1.4% (Q4/Q4) and 1.8% (Q4/Q4), respectively. Recent increases of some agricultural commodity prices are unlikely to have much effect on overall inflation this year.

Based on the first estimate, real GDP grew at a 1.5% annual rate in 2012Q2, close to our final estimate just prior to the release. However, the mix of output was notably different, with real final sales growing at just 1.2%, down from 2.4% in the first quarter. Real PCE grew just 1.5% (annual rate) in 2012Q2, down from 2.4% in the first quarter. This slowing of growth of real consumer spending occurred despite a rebound in consumer spending on utilities as more normal weather patterns were established, and despite a boost to real disposable income from a quite sharp decline of gasoline prices. Sales of light-weight motor vehicles retreated somewhat in the second quarter, to a 14.1 million annual rate from 14.6 in the first quarter. Moreover, it appears that the consumer share of total vehicle sales declined in 2012Q2, magnifying the decline in consumer purchases of durable goods.

In contrast to consumer spending, recent data on housing starts has surprised to the upside. Total housing starts averaged 740,000 units (seasonally-adjusted annual rate) in the second quarter, up nearly 30% over 2011Q2 and the highest since 2008Q3. Both categories of starts are up over the past year, with single-family having increased by 23% and multi-family up 46%. Nonetheless, the rate of growth of real residential investment slowed to 9.8% (annual rate) from 20.6% (annual rate) in 2012Q1. This slowing likely reflects a considerable slowing in the rate of growth of additions and alterations. Based on an array of national indices, home prices have moved higher in recent months as the inventory of homes for sale is currently relatively low. While this is a great time to buy a home, according to the Michigan survey of consumers, a majority of homeowners do not regard now as being a good time to sell. This is particularly true for the roughly one in four homeowners with a mortgage who are underwater.

The rate of growth of business fixed investment slowed further in the second quarter, to 5.4% (annual rate) from 7.5% in the first quarter. This progressive slowing has been ongoing after a period of very robust growth in the second and third quarters of 2011. High frequency data suggest that this component of aggregate expenditures entered the second half of 2012 with very little forward momentum. The June advance durables report indicated widespread weakness in new orders for nondefense capital goods excluding aircraft. In addition, the Architectural Billings Index remained at a depressed 45.9 in June.



Growth of real exports remained a source of strength in the second quarter, rising at a 5.3% annual rate. However, the rate of growth of real exports rose to a 6% annual rate, such that the net export growth contribution was -0.3 percentage point. Government spending continued to contract in the second quarter, but the pace of that contraction abated.

With the slowing of growth of real final sales, it appears that firms have become concerned about the pace of inventory accumulation. As a result, several of the supply side indicators weakened over the second quarter and entered the second half of the year with less forward momentum than we had been expecting. The three month moving average of monthly gains in payroll employment slowed to 75,000 in June from a recent high of 250,000 in February. Hours worked by private employees rose by just 0.4% (annual rate) in the second quarter, down from a weather-enhanced 4.3% in the first quarter. The ISM manufacturing composite index fell to 49.7 in June, the first time this index has been below 50 since July of 2009.

While very little data for July is available at this point, what there is suggests that the second half of the year is starting out much as the first half ended. The Ward's Automotive estimate of motor vehicle sales in July, based on sales over the first two weeks of the month, is 14.1 million, equal to June and the second quarter average. July readings of some of the regional business conditions indices have been mixed, with the Richmond Fed manufacturing composite index down sharply, the Philadelphia Fed Business Outlook index essentially unchanged at a level consistent with contracting activity, and Empire State manufacturing index up slightly to a level suggesting modest growth. Initial claims for unemployment insurance have been quite volatile in recent weeks likely due to changes in the seasonal pattern of operations in the motor vehicle industry. Nonetheless, the four-week moving average of initial claims remains somewhat above where it was in March.

### **The Outlook.**

As mentioned above, the US economy entered the second half of 2012 with less forward momentum than expected back in June. Inventory accumulation in the second quarter of the year appears to have been more than desired, leading to a scaling back of production as the second quarter progressed. As a result, we have lowered projected growth of real GDP for the second half of the year from 2 ¼% (annual rate) to around 1.6% (annual rate). At

the time of this writing, the third quarter growth rate is likely to be comparable to the second quarter growth rate of just 1.5%, if not lower.

In this weakened state, the US economy is extremely vulnerable to external shocks. But absent such a shock, our modal forecast does not envision the economy slipping into recession. While that is certainly a risk, the most likely course of events over the forecast horizon is for the various forces that are impeding growth at the present to gradually subside, allowing the substantial degree of monetary accommodation to more fully exert itself. Indeed, the recent improvement in housing starts actually strengthens the case. Thus, while we continue to expect some improvement in economic performance in 2013 and beyond, we have dampened somewhat the projection for growth of real GDP in 2013 to 2.4% from 2.6% in June.

Unlike last year, the annual revision of the National Income and Product Accounts does not provide any basis for altering our view that the economy's potential growth rate is around 2 ¼%. Even though growth is likely to be only modestly above that rate in 2013, we expect some gradual decline of the unemployment rate to an average of around 7.6% by 2013Q4. This is based on our analysis of the behavior of the unemployment rate over this cycle to date. (We also assume an unchanged labor force participation rate). With inflation expectations well anchored and oil prices rising only very modestly over the course of 2013, the four-quarter change of the total PCE deflator rises to the mandate-consistent range 1 ¾% to 2%.

As is our standard practice, we adopt the same fiscal assumptions as in the Tealbook, which are essentially unchanged from April. For 2012, the Tealbook expects fiscal (federal and state and local government combined) drag of 1/2 percentage points, which rises to a full percentage point in 2013. At the federal level, the increase in fiscal drag in 2012 is due to the expiration of the payroll tax cut and Emergency Unemployment Compensation (EUC) at the end of 2012 as well as the spending restraint resulting from the discretionary spending caps enacted last August. In contrast, the 2001-2003 tax cuts that are set to expire at the end of 2012 are assumed to be extended. In addition, the further cuts in spending mandated by the automatic sequestration provisions of the Budget Control Act are assumed to be replaced with a much more gradual spending reduction program.

## 2.2 Alternative Scenarios and Risks

Since the June Blackbook, we have shifted our assessment of the balance of risks for real activity modestly further to the downside.

The data releases since the June Blackbook led us to lower the probability associated with the most optimistic scenario, namely the *Faster Growth* scenario [Exhibit C-1]. and increase the likelihood of the *Fiscal Consolidation* scenario. This scenario, which reflects the risks from fiscal retrenchment and higher inflation in the short-term, remains the most likely alternative scenario.

The *Central* scenario forecasts show slightly lower growth relative to the last Blackbook, and so do the paths for real GDP growth associated with the various scenarios [Exhibit C-2].

As in the June Blackbook, the forecast distribution for core PCE inflation is slightly asymmetric around our model forecast, with some mass in deflationary territory. The forecast distribution for real GDP growth reflects an increase in downside risk [Exhibit C-3], and as a consequence, the probability of a recession through the end of 2013 is now 63.6% up from 56.8% 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 of 2001.

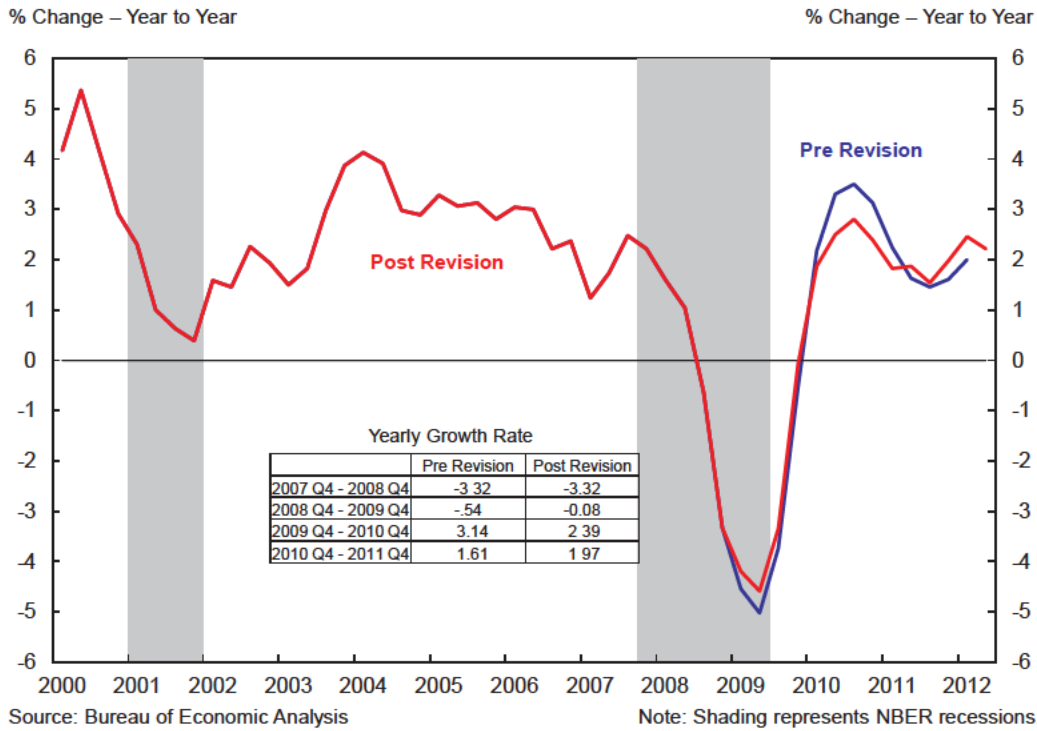
Exhibit C-3 also shows mean forecasts from the FRBNY DSGE model. The DSGE forecasts for real GDP are close to the *Central* scenario through mid-2013 and are lower afterwards. The inflation forecasts are however significantly below the expected value of the FRBNY forecast distribution, which in turn is below the *Central* scenario, particularly after mid-2012. Detailed forecasts from the DSGE model are presented in Exhibit E.

### 3. 2012Q2 GDP Release and Annual Revisions

- **This morning's release of the first estimate of 2012Q2 GDP included revised data for the period from 2009Q1 through 2012Q1. The revisions incorporate more complete source data.**
- **As annual revisions go, this one was quite tame, particularly on the expenditure side of the accounts. The post-revision level of nominal GDP in 2012Q1 was only \$10 billion (0.06%) above the pre-revision level. Changes in 2012Q1 nominal levels of individual expenditure components were also relatively mild.**
- **Changes in price indices were also quite modest. The compound annual rate of change of the GDP deflator over the period from 2009Q1 to 2012Q1 was revised to 1.48% from 1.49%. Over the same period, the compound annual rate of change of the PCE deflator was revised to 1.84% from 1.87%. For the core PCE deflator the revision was to 1.54% from 1.55%.**
- **The pattern of real GDP growth over the past three years was changed somewhat. Growth of real GDP in 2009 was revised to -0.1% (Q4/Q4) from -0.5%, while growth in 2010 was revised down to 2.4% from 3.1% and growth in 2011 was revised to 2.0% from 1.6%. Netting these revisions, the level of real GDP in 2012Q1 is 0.1% higher than the pre-revision estimate.**
- **The levels of nominal personal income and disposable personal income in 2012Q1 were essentially unchanged.**
- **One noteworthy change is that the level of corporate profits over most of the three year revision period was revised downward. The post-revision level of corporate profits in 2012Q1 is now 4.1% lower than the pre-revision estimate. Expressed as a share of national income, the 2012Q1 level is now estimated at 13.9% rather than the pre-revision estimate of 14.4%.**
- **The revision brought the income and expenditure side of the accounts into closer alignment. The statistical discrepancy for 2012Q1 is now +\$12 billion rather than -\$73 billion.**

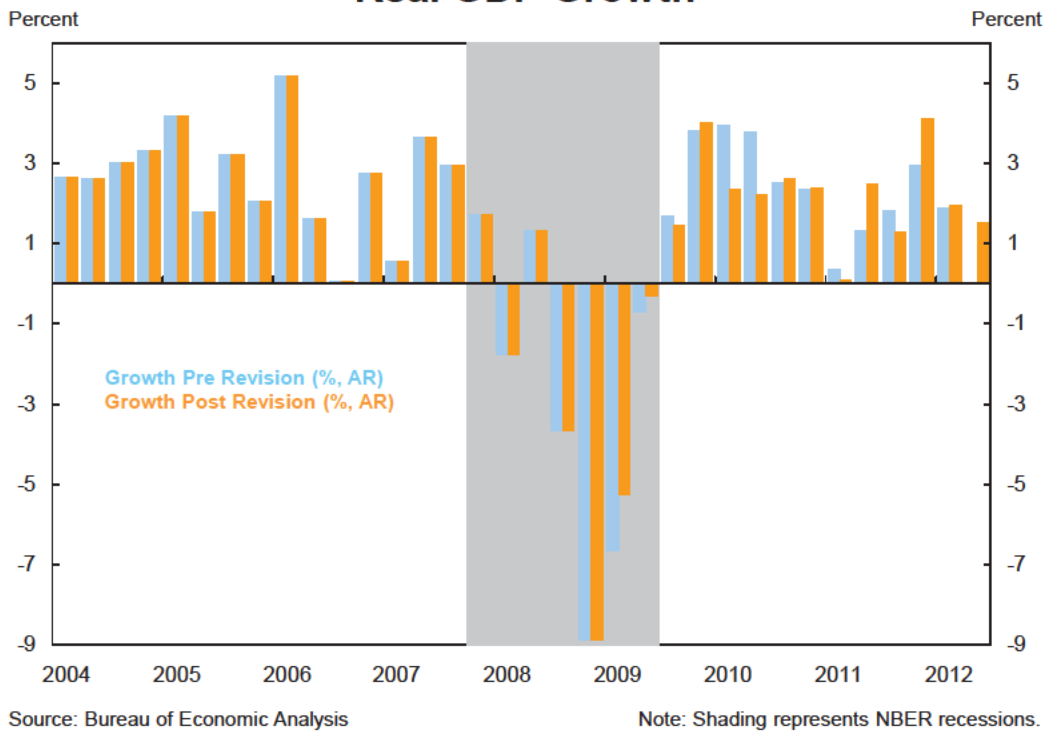
# Real GDP Growth Rate

1



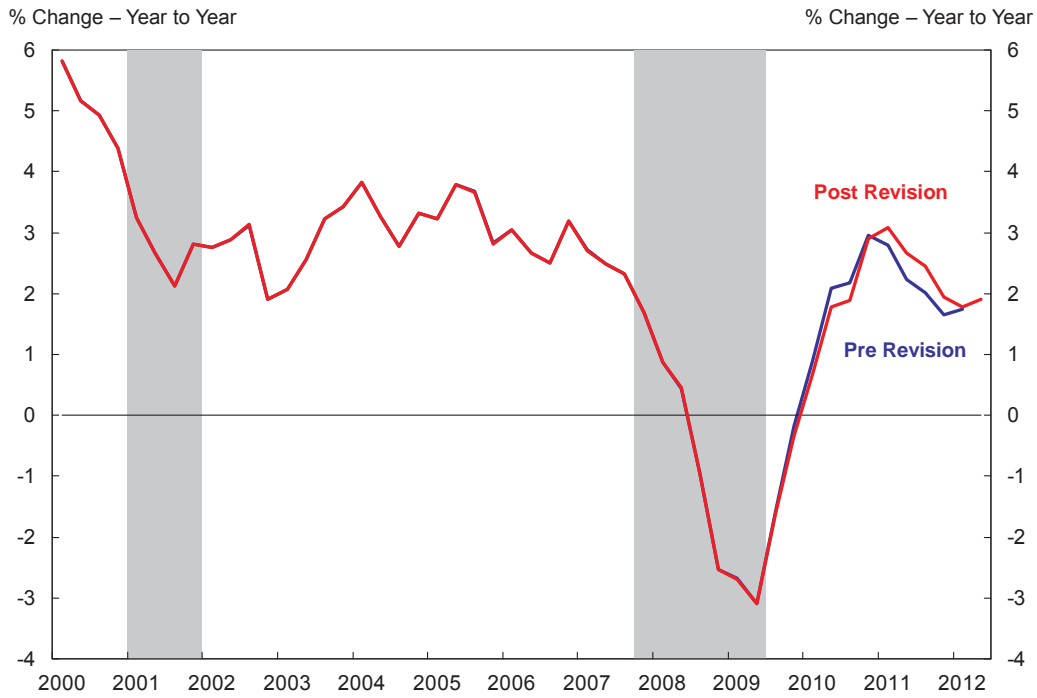
# Real GDP Growth

2



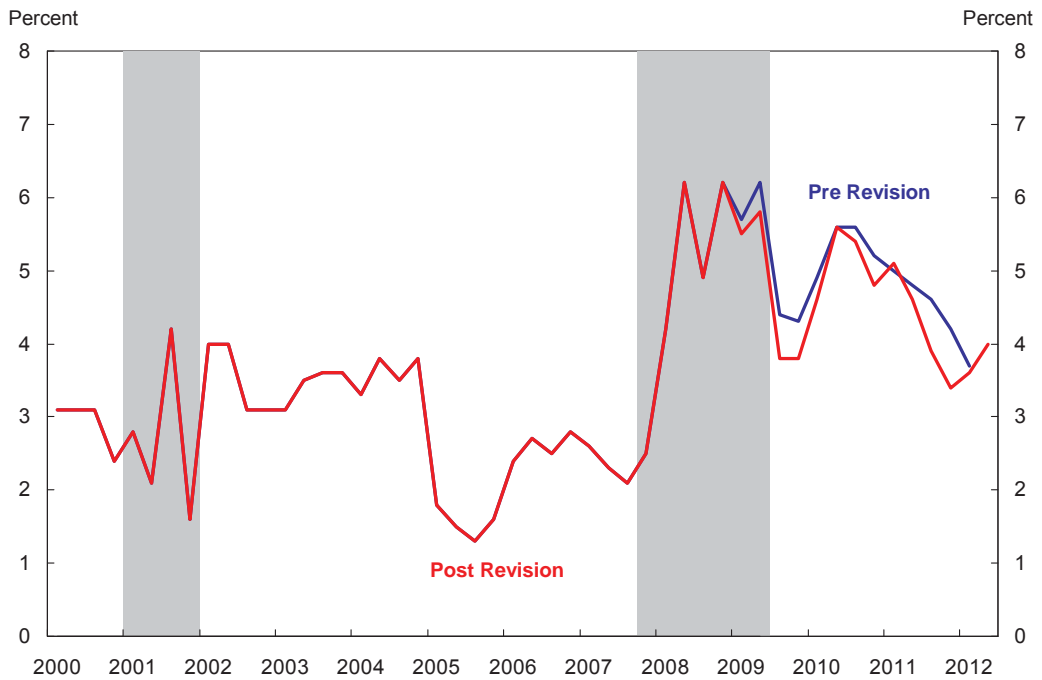
### Real PCE Growth Rate

3



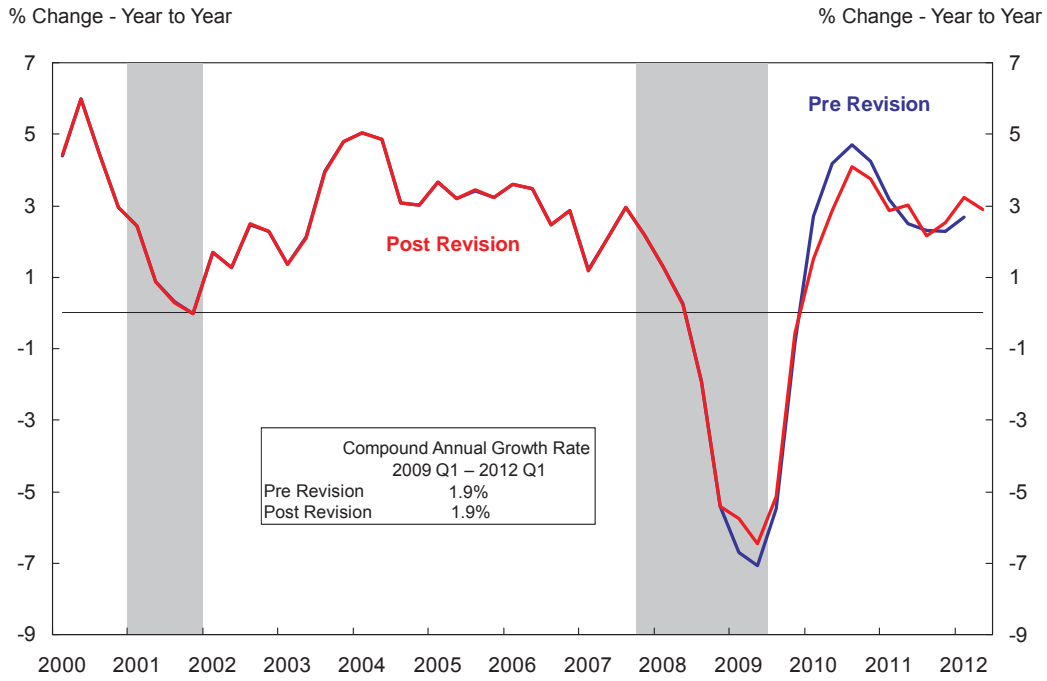
### Personal Saving Rate

4



## Non-farm Business Sector Output Growth

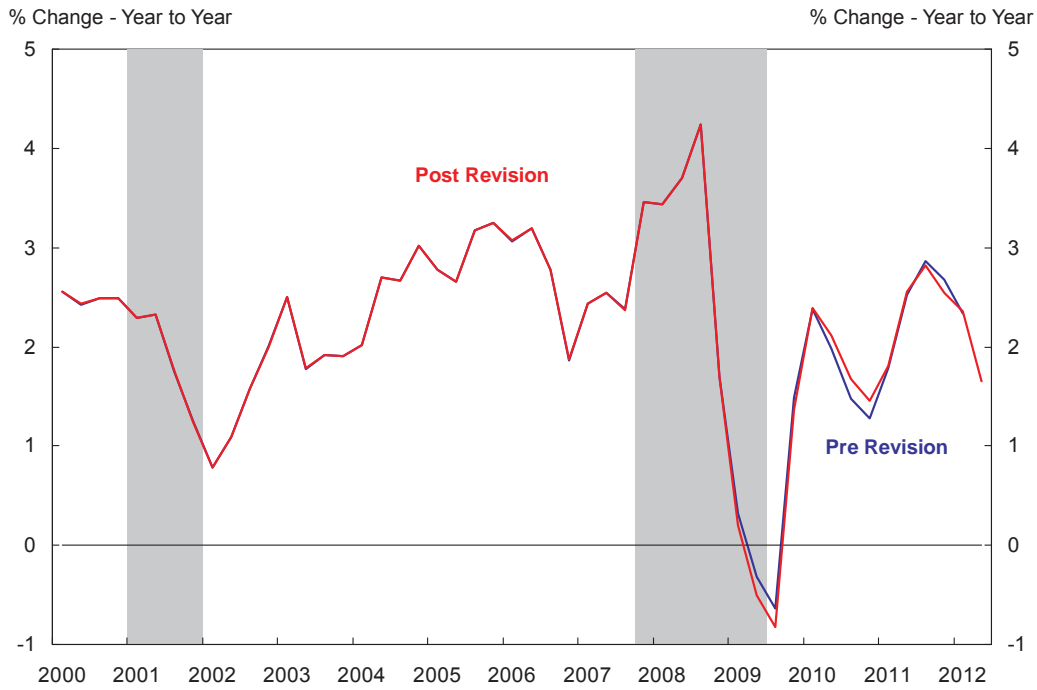
5



Source: Bureau of Economic Analysis and Bureau of Labor Statistics Note: Shading represents NBER recessions.

## PCE Deflator Growth Rate

6

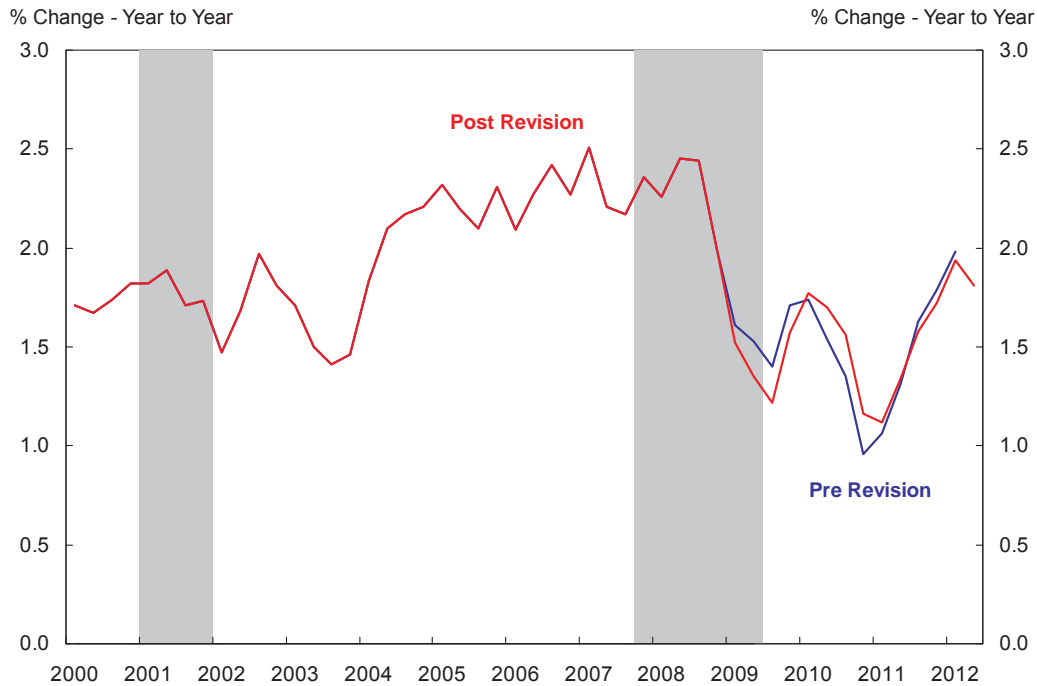


Source: Bureau of Economic Analysis

Note: Shading represents NBER recessions.

7

## Core PCE Deflator Growth Rate



## Income and Expenditures for 2012-Q1 Pre and Post Revisions

8

### SAAR, Billions of Dollars

|                                    | Income |        | Expenditures           |        |        |
|------------------------------------|--------|--------|------------------------|--------|--------|
|                                    | Pre    | Post   | Pre                    | Post   |        |
| Gross Domestic Product             | 15,468 | 15,478 | Gross Domestic Product | 15,468 | 15,478 |
| Net Factor Income                  | 177    | 215    | Consumption            | 11,007 | 11,007 |
| Gross National Product             | 15,645 | 15,693 | Durables               | 1,231  | 1,205  |
| Consumption of Fixed Capital       | 2,004  | 1,985  | Nondurables            | 2,554  | 2,551  |
| Private Consump. of Fixed Capital  | 1,638  | 1,626  | Services               | 7,222  | 7,251  |
| Gov't Consumption of Fixed Capital | 366    | 359    | Investment             | 2,047  | 2,032  |
| Net National Product               | 13,640 | 13,708 | BFI                    | 1,614  | 1,596  |
| Statistical Discrepancy            | -72.7  | 12     | Equipment              | 1,181  | 1,141  |
| National Income                    | 13,713 | 13,696 | Structures             | 433    | 455    |
| Compensation of Employees          | 8,442  | 8,485  | Residential            | 361    | 364    |
| Wage and Salary Accruals           | 6,807  | 6,816  | Change in Inventories  | 72     | 73     |
| Suppl. to Wages and Salaries       | 1,635  | 1,669  | Farm                   | -8     | -4     |
| Proprietors Income with Adj        | 1,132  | 1,184  | Nonfarm                | 80     | 77     |
| Rental Income of Persons With Adj  | 445    | 445    | Net Exports            | -604   | -616   |
| Corporate Profits                  | 1,981  | 1,900  | Exports                | 2,152  | 2,158  |
| Net Interest and Misc. Payments    | 534    | 516    | Imports                | 2,756  | 2,774  |
| Taxes on Production and Imports    | 1,061  | 1,068  | Government             | 3,018  | 3,055  |
| Business Current Transfer Payments | 136    | 131    | Federal                | 1,219  | 1,208  |
| Current Surplus of GSEs            | -19    | -32    | State and Local        | 1,799  | 1,847  |

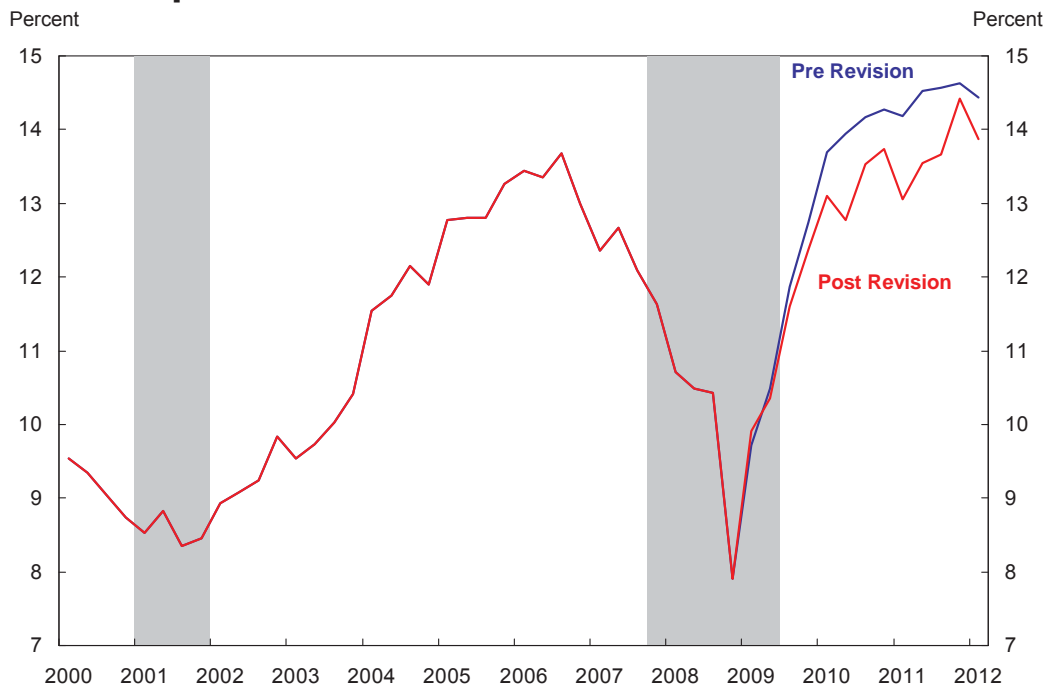


## Personal Income for 2012-Q1 Pre and Post Revisions

SAAR, Billions of Dollars

|   | Pre    | Post   |
|---|--------|--------|
| Compensation of Employees                         | 8,442  | 8,485  |
| Wage and Salary Disbursements                     | 6,807  | 6,816  |
| Supplements to Wages and Salaries                 | 1,635  | 1,669  |
| Adjusted Proprietors Income                       | 1,132  | 1,184  |
| Adjusted Rental Income                            | 445    | 445    |
| Personal Income on Receipts and Assets            | 1,807  | 1,696  |
| Personal Current Transfer Receipts                | 2,350  | 2,348  |
| Less: Personal Contributions for Social Insurance | 949    | 942    |
| Equals: Personal Income                           | 13,227 | 13,217 |
| Less: Personal Taxes                              | 1,447  | 1,449  |
| Equals: Personal Disposable Income                | 11,780 | 11,768 |
| Less: Personal Outlays                            | 11,346 | 11,349 |
| Personal Consumption Expenditures                 | 11,007 | 11,007 |
| Personal Interest Payments                        | 165    | 175    |
| Personal Current Transfer Payments                | 175    | 166    |
| Equals: Personal Saving                           | 434    | 420    |
| Personal Saving Rate                              | 3.7    | 3.6    |

## Corporate Profits' Share of National Income

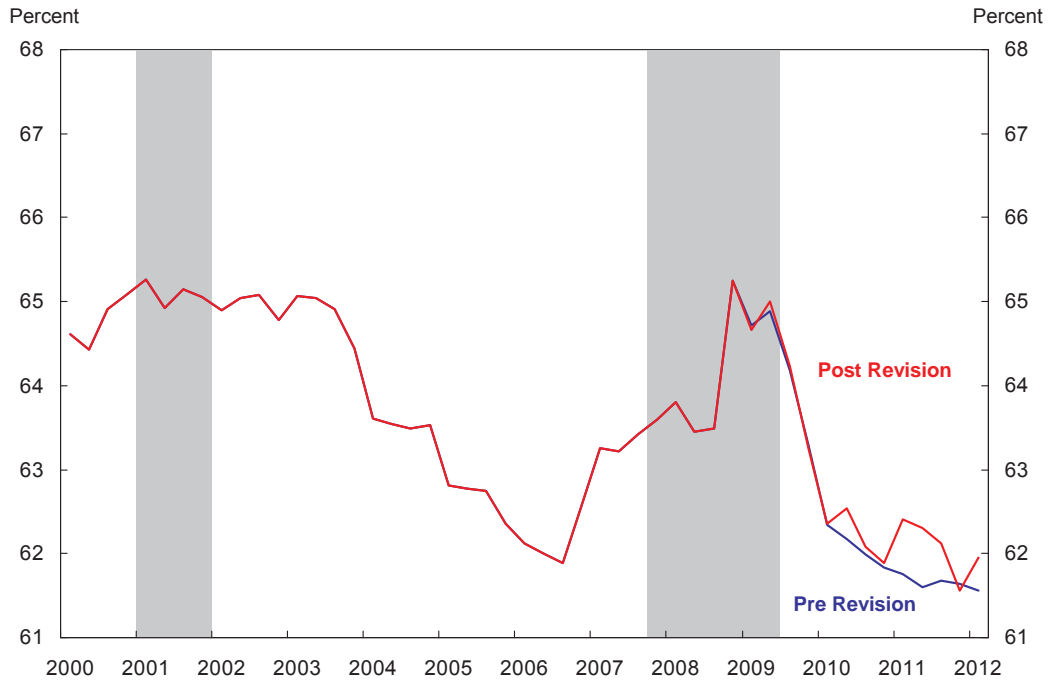


Source: Bureau of Economic Analysis

Note: Shading represents NBER recessions.

## Labor Compensation as Percentage of National Income

11

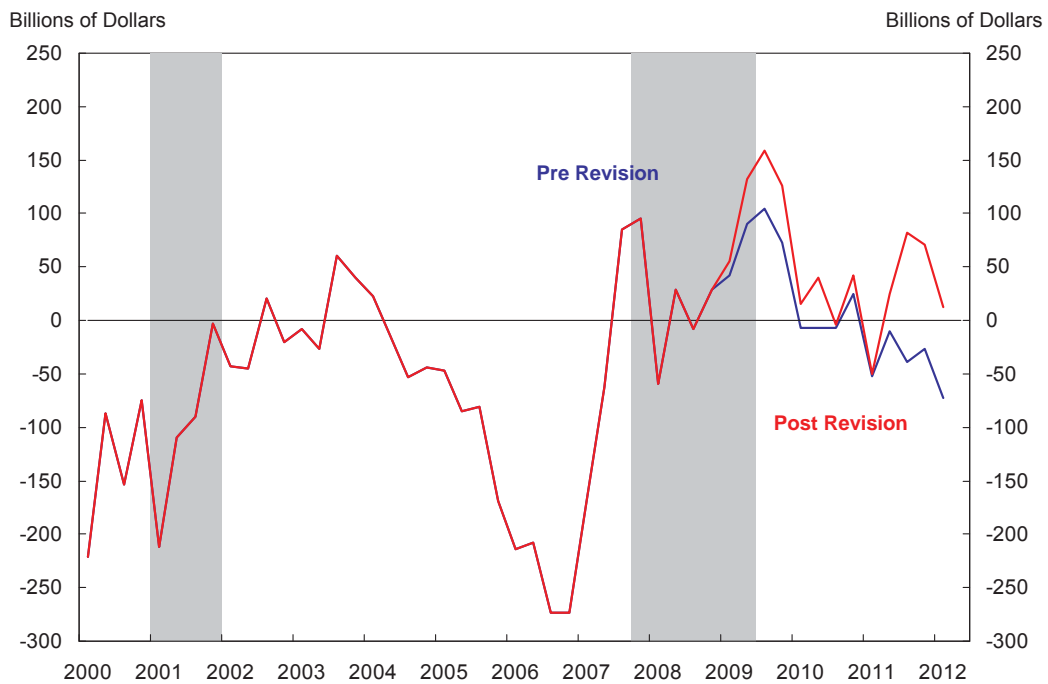


Source: Bureau of Economic Analysis

Note: Shading represents NBER recessions.

## Statistical Discrepancy

12



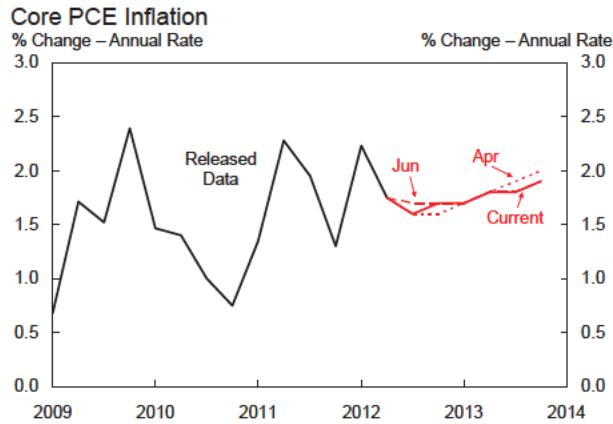
Source: Bureau of Economic Analysis

Note: Shading represents NBER recessions.

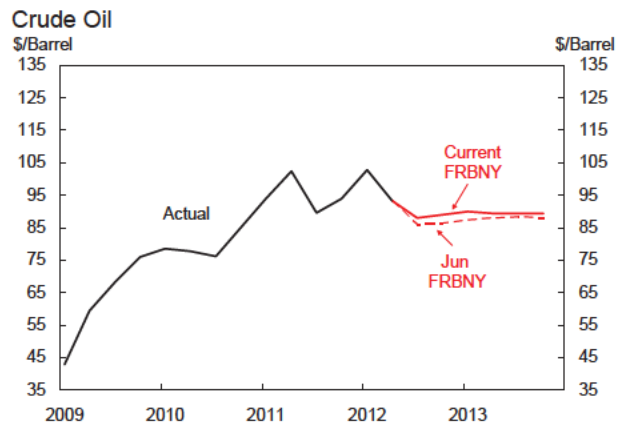
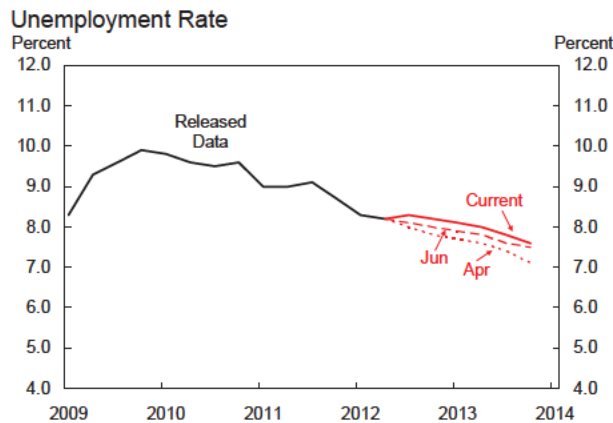
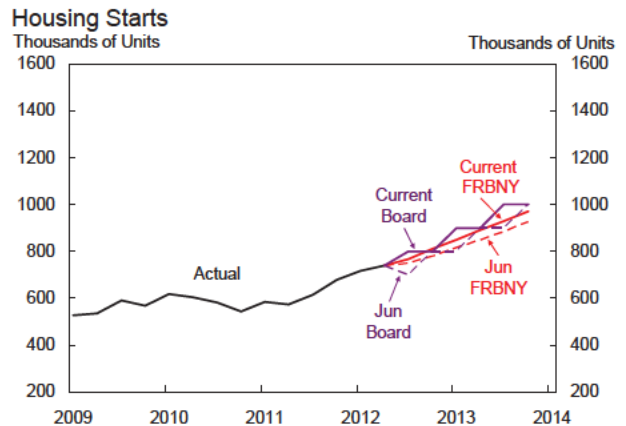
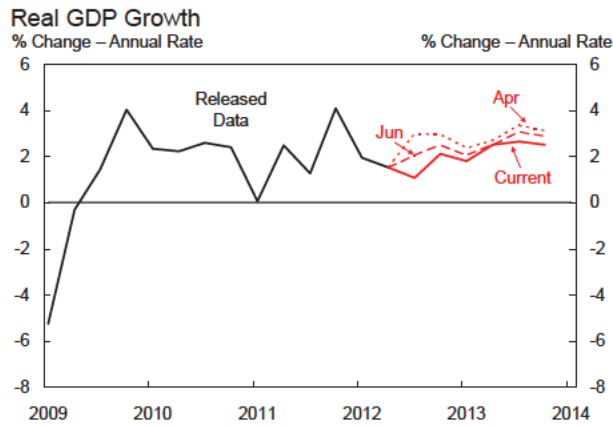
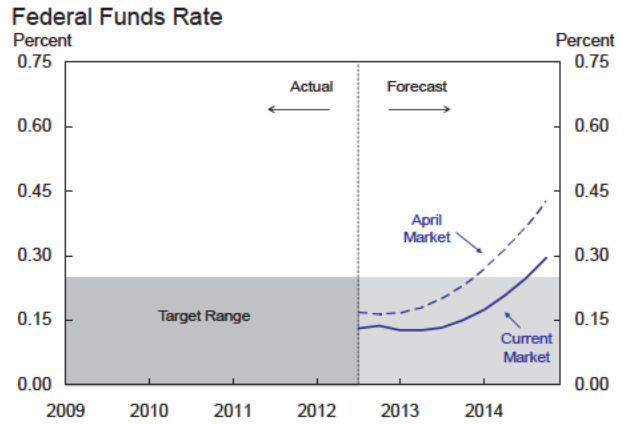
## B. FRBNY Forecast Details

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

### Key Indicators



### Forecast Assumptions



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

## B. FRBNY Forecast Details

### Exhibit B-3: Near-Term Projections

|   | Quarterly Growth<br>Rates (AR) |                | Quarterly Growth<br>Contributions (AR) |                |
|---|--------------------------------|----------------|--|----------------|
|   | 2012Q3                         | 2012Q4         | 2012Q3                                 | 2012Q4         |
| <b>OUTPUT</b>                             |                                |                |  |                |
| <b>Real GDP</b>                           | 1.1<br>(2.1)                   | 2.1<br>(2.5)   | 1.1<br>(2.1)                           | 2.1<br>(2.5)   |
| <b>Final Sales to Domestic Purchasers</b> | 1.4<br>(1.8)                   | 1.7<br>(2.1)   | 1.5<br>(1.9)                           | 1.8<br>(2.1)   |
| <b>Consumption</b>                        | 1.8<br>(2.1)                   | 1.9<br>(2.1)   | 1.3<br>(1.5)                           | 1.4<br>(1.5)   |
| <b>BFI: Equipment and Software</b>        | 4.0<br>(6.0)                   | 6.0<br>(8.0)   | 0.3<br>(0.4)                           | 0.4<br>(0.6)   |
| <b>BFI: Nonresidential Structures</b>     | 4.0<br>(2.0)                   | 4.0<br>(4.0)   | 0.1<br>(0.1)                           | 0.1<br>(0.1)   |
| <b>Residential Investment</b>             | 12.5<br>(15.0)                 | 12.5<br>(12.0) | 0.3<br>(0.3)                           | 0.3<br>(0.3)   |
| <b>Government: Federal</b>                | -3.2<br>(-3.1)                 | -3.2<br>(-3.1) | -0.2<br>(-0.2)                         | -0.2<br>(-0.2) |
| <b>Government: State and Local</b>        | -2.3<br>(-1.8)                 | -1.8<br>(-1.2) | -0.3<br>(-0.2)                         | -0.2<br>(-0.1) |
| <b>Inventory Investment</b>               | --<br>--                       | --<br>--       | -0.8<br>(-0.1)                         | -0.1<br>(0.1)  |
| <b>Net Exports</b>                        | --<br>--                       | --<br>--       | 0.4<br>(0.3)                           | 0.4<br>(0.2)   |
| <b>INFLATION</b>                          |                                |                |  |                |
| <b>Total PCE Deflator</b>                 | 0.8<br>(1.1)                   | 1.6<br>(1.5)   |  |                |
| <b>Core PCE Deflator</b>                  | 1.6<br>(1.7)                   | 1.7<br>(1.7)   |  |                |
| <b>PRODUCTIVITY AND LABOR COSTS*</b>      |                                |                |  |                |
| <b>Output per Hour</b>                    | 1.1<br>(1.5)                   | 1.5<br>(1.5)   |  |                |
| <b>Compensation per Hour</b>              | 1.4<br>(1.8)                   | 1.6<br>(2.0)   |  |                |
| <b>Unit Labor Costs</b>                   | 0.3<br>(0.3)                   | 0.1<br>(0.5)   |  |                |

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 |                |                |
|---|--------------------|----------------|----------------|----------------------------|----------------|----------------|
|   | 2011               | 2012           | 2013           | 2011                       | 2012           | 2013           |
| <b>OUTPUT</b>                             |                    |                |                |                            |                |                |
| <b>Real GDP</b>                           | 2.0<br>(1.6)       | 1.7<br>(2.1)   | 2.4<br>(2.6)   | 2.0<br>(1.6)               | 1.7<br>(2.1)   | 2.4<br>(2.6)   |
| <b>Final Sales to Domestic Purchasers</b> | 1.7<br>(1.4)       | 1.7<br>(1.9)   | 2.0<br>(2.4)   | 1.7<br>(1.5)               | 1.8<br>(2.0)   | 2.1<br>(2.4)   |
| <b>Consumption</b>                        | 1.9<br>(1.6)       | 1.9<br>(2.3)   | 1.7<br>(2.1)   | 1.4<br>(1.2)               | 1.4<br>(1.7)   | 1.2<br>(1.5)   |
| <b>BFI: Equipment and Software</b>        | 11.4<br>(9.6)      | 5.6<br>(5.7)   | 9.5<br>(10.0)  | 0.8<br>(0.7)               | 0.4<br>(0.4)   | 0.7<br>(0.8)   |
| <b>BFI: Nonresidential Structures</b>     | 6.9<br>(4.4)       | 5.3<br>(0.6)   | 7.0<br>(6.0)   | 0.2<br>(0.1)               | 0.2<br>(0.0)   | 0.2<br>(0.2)   |
| <b>Residential Investment</b>             | 3.9<br>(3.5)       | 13.8<br>(16.5) | 10.0<br>(10.0) | 0.1<br>(0.1)               | 0.3<br>(0.4)   | 0.3<br>(0.3)   |
| <b>Government: Federal</b>                | -4.2<br>(-3.2)     | -2.7<br>(-3.2) | -3.5<br>(-3.1) | -0.4<br>(-0.3)             | -0.2<br>(-0.3) | -0.3<br>(-0.2) |
| <b>Government: State and Local</b>        | -2.7<br>(-2.5)     | -2.1<br>(-2.0) | 0.0<br>(0.0)   | -0.3<br>(-0.3)             | -0.2<br>(-0.2) | 0.0<br>(0.0)   |
| <b>Inventory Investment</b>               | --<br>--           | --<br>--       | --<br>--       | 0.2<br>(0.1)               | -0.3<br>(-0.0) | 0.1<br>(0.0)   |
| <b>Net Exports</b>                        | --<br>--           | --<br>--       | --<br>--       | 0.0<br>(0.0)               | 0.2<br>(0.1)   | 0.2<br>(0.2)   |
| <b>INCOME</b>                             |                    |                |                |                            |                |                |
| <b>Personal Income</b>                    | 4.1<br>(4.2)       | 4.4<br>(3.9)   | 3.2<br>(3.2)   |                            |                |                |
| <b>Real Disposable Personal Income</b>    | 0.3<br>(0.4)       | 2.6<br>(1.9)   | 0.8<br>(0.8)   |                            |                |                |
| <b>Personal Saving Rate</b>               | 3.4<br>(4.2)       | 4.0<br>(3.8)   | 2.9<br>(2.5)   |                            |                |                |
| <b>Corporate Profits Before Taxes</b>     | 9.2<br>(7.0)       | -3.6<br>(2.9)  | 0.7<br>(1.1)   |                            |                |                |

Note: Numbers in parentheses are from the previous FOMC meeting. The 2011 columns are released data.

## B. FRBNY Forecast Details

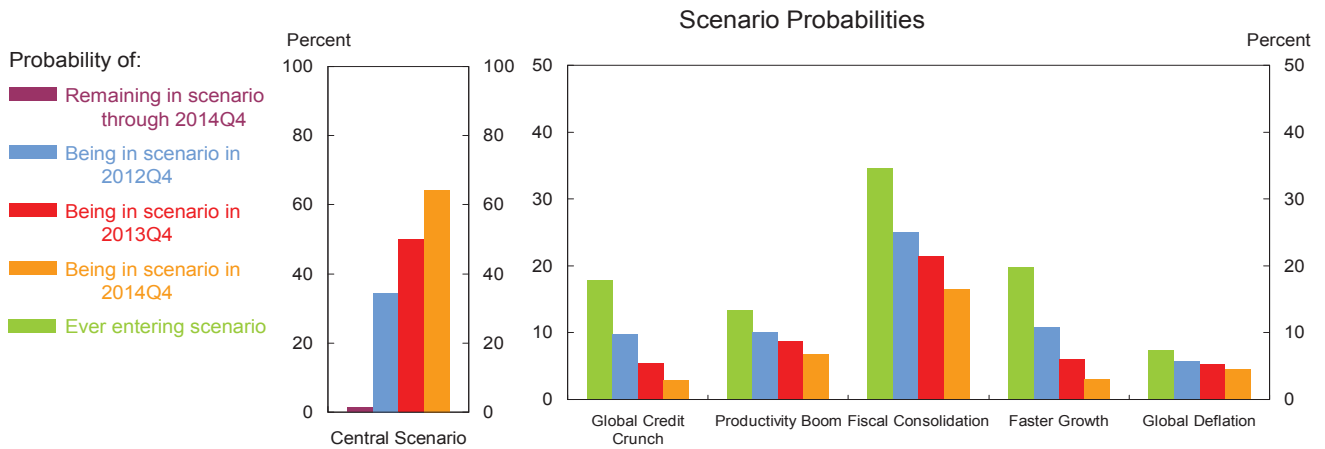
### Exhibit B-5: Medium-Term Projections, Continued

|   | Q4/Q4 Growth Rates |                |                |
|---|--------------------|----------------|----------------|
|   | 2011               | 2012           | 2013           |
| <b>INFLATION</b>                                    |                    |                |                |
| <b>Total PCE Deflator</b>                           | 2.5<br>(2.7)       | 1.4<br>(1.4)   | 1.9<br>(1.9)   |
| <b>Core PCE Deflator</b>                            | 1.7<br>(1.8)       | 1.8<br>(1.8)   | 1.8<br>(1.8)   |
| <b>Total CPI Inflation</b>                          | 3.3<br>(3.3)       | 1.6<br>(1.9)   | 2.3<br>(2.4)   |
| <b>Core CPI Inflation</b>                           | 2.2<br>(2.2)       | 2.3<br>(2.4)   | 2.3<br>(2.3)   |
| <b>GDP Deflator</b>                                 | 2.0<br>(2.1)       | 2.0<br>(2.1)   | 1.7<br>(1.7)   |
| <b>PRODUCTIVITY AND LABOR COSTS*</b>                |                    |                |                |
| <b>Output</b>                                       | 2.3<br>(2.3)       | 2.3<br>(2.8)   | 3.1<br>(3.4)   |
| <b>Hours</b>  | 1.9<br>(1.9)       | 1.5<br>(1.7)   | 1.6<br>(1.6)   |
| <b>Output per Hour</b>                              | 0.4<br>(0.4)       | 0.8<br>(1.1)   | 1.5<br>(1.8)   |
| <b>Compensation per Hour</b>                        | 2.5<br>(2.5)       | 1.2<br>(1.7)   | 1.9<br>(2.0)   |
| <b>Unit Labor Costs</b>                             | 2.1<br>(2.1)       | 0.4<br>(0.6)   | 0.4<br>(0.3)   |
| <b>LABOR MARKET</b>                                 |                    |                |                |
| <b>Unemployment Rate (Avg. Q4 Level)</b>            | 8.7<br>(8.7)       | 8.2<br>(8.0)   | 7.6<br>(7.5)   |
| <b>Participation Rate (Avg. Q4 Level)</b>           | 64.0<br>(64.0)     | 63.7<br>(63.7) | 63.7<br>(63.7) |
| <b>Avg. Monthly Nonfarm Payroll Growth (Thous.)</b> | 147<br>(147)       | 143<br>(182)   | 181<br>(171)   |

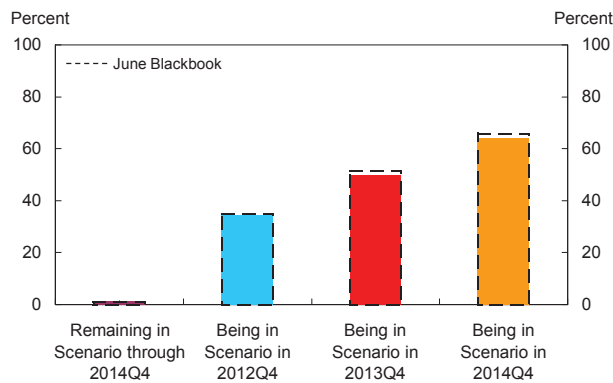
Note: Numbers in parentheses are from the previous FOMC meeting. The 2011 column is released data.  
\*Nonfarm business sector.

## C. FRBNY Forecast Distributions

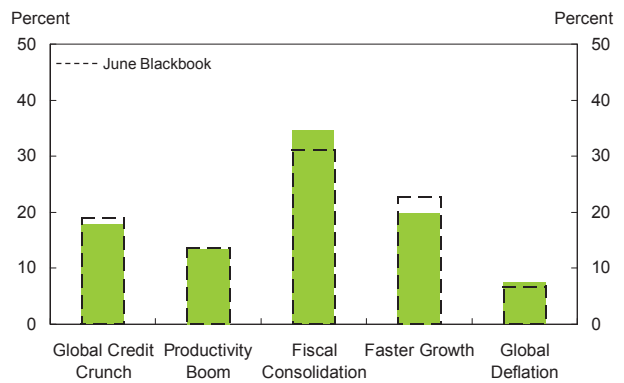
Exhibit C-1:  
Risks



Change in Central Scenario Probabilities



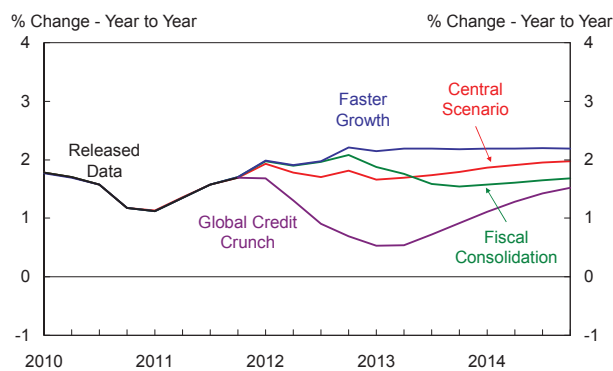
Change in Alternative Scenario Probabilities\*



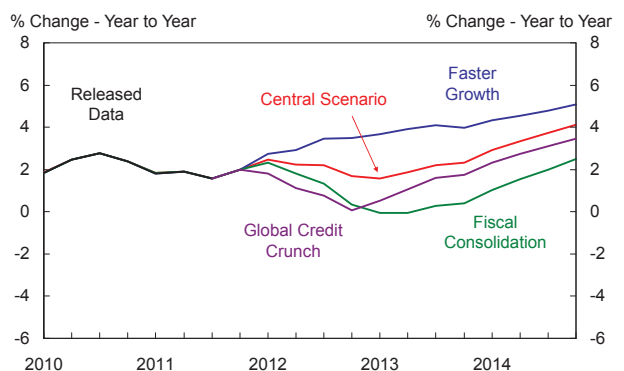
\*Probability of ever reaching scenario

Exhibit C-2: Projections  
under Alternative Scenarios

Core PCE Inflation under Alternative Scenarios Selected



Real GDP Growth under Alternative Scenarios Selected

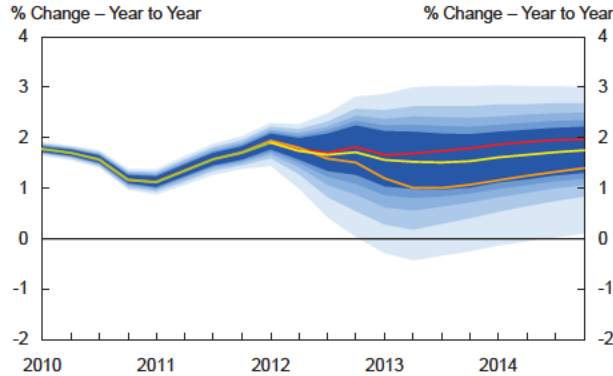


Source: MMS Function (FRBNY)

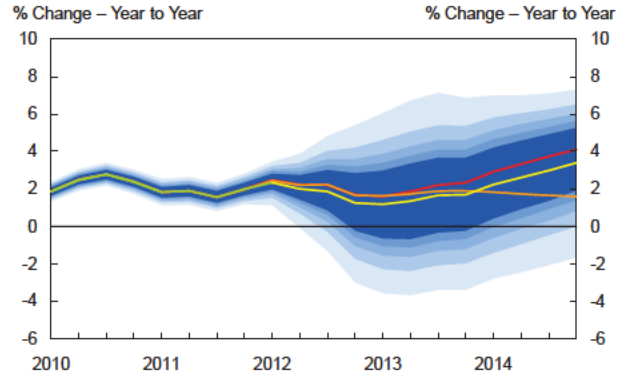
## C. FRBNY Forecast Distributions

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

**Core PCE Inflation Forecast Distribution**

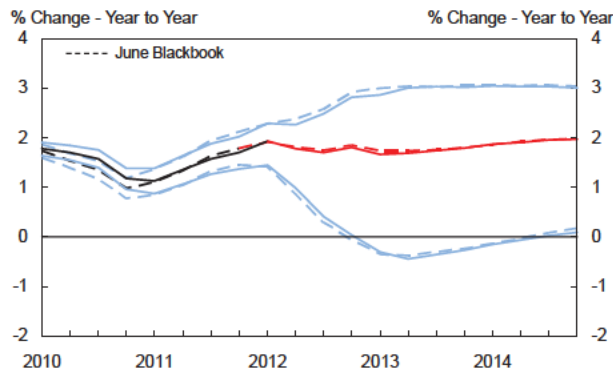


**Real GDP Growth Forecast Distribution**

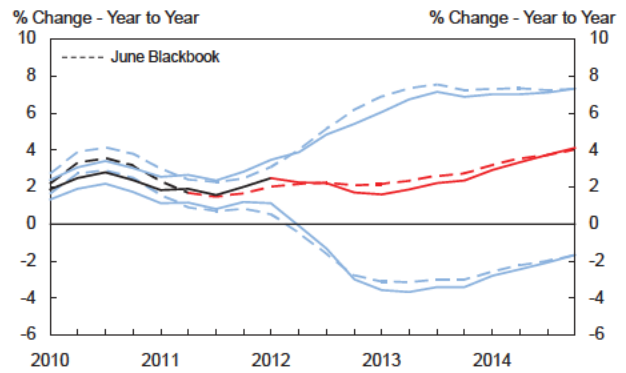


The yellow line is the expected value of the forecast distribution, the red line is the FRBNY central projection, the orange line is the DSGE forecast, and the green line is released data. The shading represents the 50, 60, 70, 80 and 90 percent probability that the four-quarter change will be within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

**Change in Core PCE Inflation Forecast Distribution**

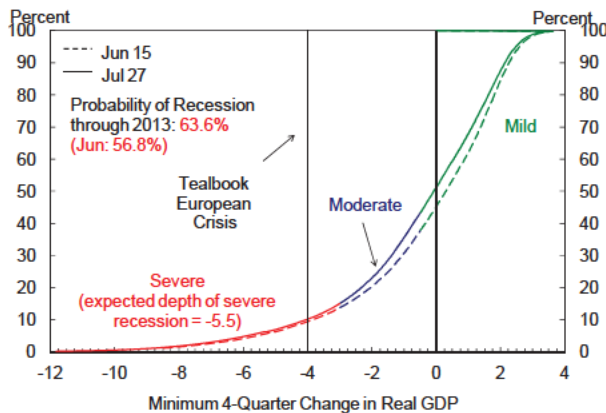


**Change in Real GDP Growth Forecast Distribution**

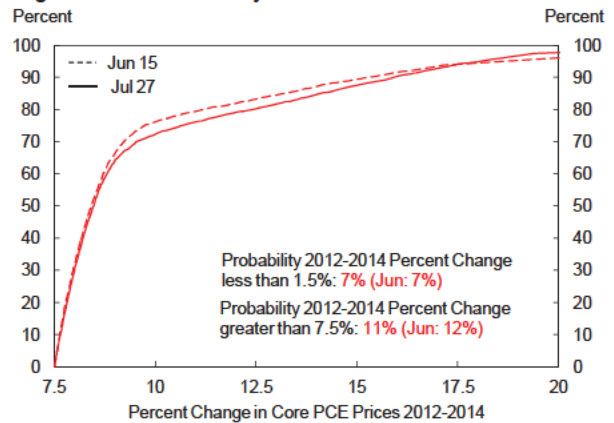


The blue lines are the 90% chance the four-quarter change will be within the lines, the red line is the central scenario projection, and the black line is released data. Dashed lines represent forecasts from the previous Blackbook.

**Depth of Recession**



**High Inflation Probability and Distribution**

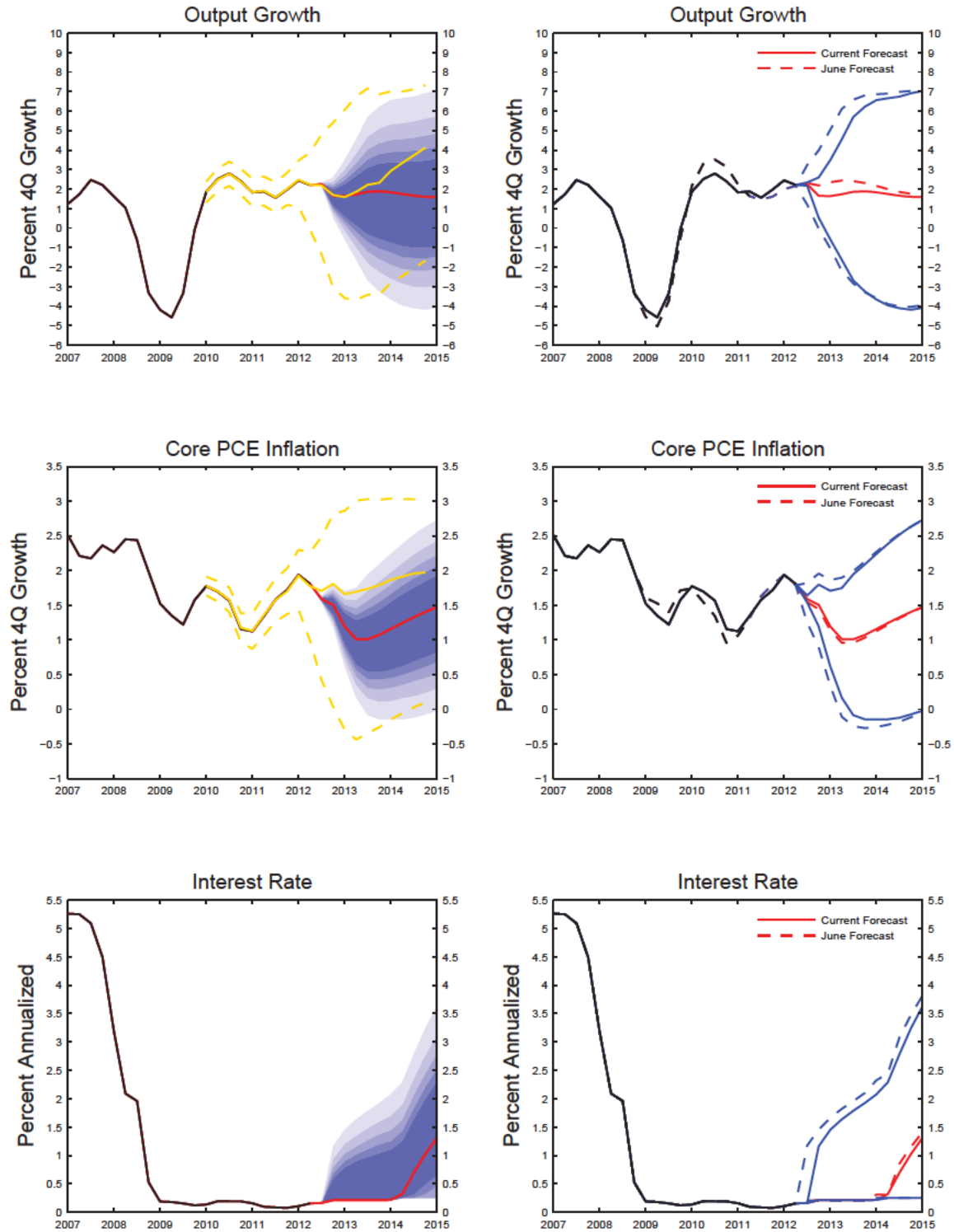


Source: MMS Function (FRBNY)



## 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)