FRBNY BLACKBOOK

RESEARCH AND STATISTICS GROUP

FOMC Background Material

December 2010

CONFIDENTIAL (FR) Class II FOMC

FRBNY BLACKBOOK

December 2010

CONTENTS

EXHIBITS

EXHIBIT OVERVIEW

1. Policy Recommendation and Rationale

We recommend maintaining the target for the federal funds rate in the 0–0.25% range until 2012Q2, the same trajectory as in the October Blackbook. According to our recommendation the earliest hike would occur two quarters after the lift-off date implied by the current market-implied path. We also suggest maintaining the existing policy of reinvesting principal payments from securities holdings, and reaffirming the intention of the FOMC to purchase $600 billion of long-term Treasury securities by the end of 2011Q2, as announced after the November FOMC meeting.

Our recommendation to maintain unchanged size and pace of the asset purchase program is the outcome of two offsetting sets of considerations.

Over the inter-meeting period, asset prices have displayed considerable sensitivity to changes in expectations on the ultimate size of the ongoing round of asset purchases, boosting our confidence in the effectiveness of the program as a tool to ease financial conditions. In light of the continued build-up of disinflationary pressures and the greater risk of negative spillovers from the European sovereign debt crisis, such increased confidence in the efficacy of asset purchases would support the case for a more stimulative stance and call for an increase in the size of the program.

However, the moderately positive tenor of the data releases in the inter-meeting period, as well as budgetary developments which enhance the prospect of additional fiscal stimulus going forward, suggest that a more conservative strategy would be appropriate. In fact, the possibility cannot be ruled out that a further increase in Treasury purchases might be misconstrued by market participants as directed at monetizing the additional debt associated with the new fiscal package, with undesirable reputational effects.

We continue to regard balance sheet expansion as most effective within a framework that explicitly ties the extent of monetary accommodation to specific objectives. In the current environment, with inflation low and falling, a reference to the cumulated deviations of inflation from mandate-consistent levels would represent an especially valuable component of such a framework. A commitment to maintaining policy accommodation until the repayment of this "inflation debt" is considered within reach should reinforce expectations of looser financial conditions, help prevent inflation expectations from falling, and pave the way for a smoother exit from the current accommodative monetary policy stance when appropriate.

2. Evolution of Outlook and Risks

2.1 Central Forecast

Data released over the intermeeting period has, on balance, been stronger than expected, leading to a significant marking up of projected growth for the second half of 2010. We now expect real GDP to grow at a 2.9% annual rate in 2010H2, up from 1.9% in our previous Blackbook and modestly faster than the 2.7% pace of growth over the first half of the year. Moreover, we now expect real final sales to grow at a around a 2 ¾% annual rate over 2010H2, up from just 1% in the first half. The primary contributor to this improvement has been consumer spending, which we expect to increase at a 2 ½% to 2 ¾% annual rate over the second half of 2010, up from 2% in the first half of the year and 1.5% over the final six months of 2009. Despite the stronger tone of consumer spending, the personal saving rate in 2010Q4 is likely to be around 5 ½% rather than the 5% to 5 ¼% projected in the October Blackbook. This reflects the fact that, based on more authoritative data, the Bureau of Economic Analysis has revised up the level of labor compensation for 2010Q2 and 2010Q3.

In contrast to consumer spending, real residential investment is estimated to contract at a 17% annual rate in the second half of 2010 following a modest, home buyer tax credit induced increase over the first half. Real business fixed investment has continued to expand in the second half of 2010 but at a rate below that of the first half, due mainly to some loss of forward momentum in investment in equipment and software. Growth of real government spending has been somewhat stronger in the second half than the first, as investment spending within the state and local sector has ramped up and stimulus projects have finally got underway. Net exports are likely to be about neutral for growth in 2010H2 after being a significant drag in the first half, due primarily to a sharp slowing in the rate of growth of imports in the fourth quarter. However, this is largely balanced by the fact that inventory investment is likely to be essentially neutral for growth in the second half after having been a significant plus in 2010H1.

The firming of growth in the second half of 2010 has been associated with a slightly faster rate of growth of hours worked in the nonfarm business sector. With data through November, we expect those hours to increase at a 2 ½% annual rate in 2010H2, up from around 2 ¼% over the first half. The rate of growth of private sector wage and salary disbursements has increased to around 5% (annual rate), although they remain more than 2% below the level at the previous business cycle peak. But the growth of hours has been achieved to a large extent through increases in the average workweek. Moreover, productivity growth has rebounded and is likely to increase at a 2% to 2 ¼% annual rate in 2010H2. Consequently, employment growth has been grudging. From July through November, the average monthly change in private nonfarm payroll employment has been around 115,000, only modestly above the 98,000 per month of the first half of the year. The unemployment rate has been stuck at 9.7% (on average) all year, despite a downward trend of the labor force participation rate.

Lastly, consistent with the continued large amount of slack in the economy, trend inflation has continued to move lower over the second half of 2010. The core PCE deflator increased at just a 0.8% annual rate in the third quarter and, based on data through October, is likely to increase at just 0.5% to 0.6% (annual rate) in the fourth quarter.

Conditioning assumptions. We continue to assume that potential GDP growth is around 2 ½%. This is composed of 1% trend hours growth and trend productivity growth of around 1 ½% (on a GDP basis, which is equivalent to about 1 ¾% on a nonfarm business sector basis). The Board staff estimates of potential in the December Tealbook are 2.5% for 2010 and 2011 and 2.6% for 2012, all unchanged from October.

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

The FRBNY outlook for foreign real GDP growth over the forecast horizon is essentially unchanged at 3.6% (Q4/Q4 on a GDP-weighted basis) in 2010, 3.0% in 2011, and 3.0% in 2012. The Board staff projections for foreign GDP growth are also little changed at 3.6% in 2010, 2.7% in 2011, and 3.3% in 2012.

In the short run, the projected path of oil prices has been raised once again. We expect an average price of WTI of $85 per barrel for 2010Q4, $3 per barrel higher than in October. The Board assumes $86.00 per barrel for 2010Q4, $4 per barrel higher than in October. Further out, the oil futures curve is quite flat, with assumptions of $87.50 and $90 for 2012Q4 for us and the Board, respectively.

As is our usual practice, our assumptions regarding federal fiscal policy are the same as that of the Tealbook. In October, it was assumed that all of the 2001-2003 tax cuts would be extended through 2012, including those for high income taxpayers. In addition, it was assumed that the Emergency Unemployment Compensation (EUC) program would be extended through 2011. However, the Making Work Pay tax credit was assumed to expire at the end of 2010. Under these assumptions, the Board's fiscal impulse measure indicated that fiscal policy would subtract about 0.1 percentage point from growth in 2011 and 0.5 percentage points in 2012 after contributing 1 percentage point in both 2009 and 2010.

The December Tealbook now incorporates the fiscal agreement announced earlier this week. In addition to features already included in the forecast, this agreement includes a two percentage point reduction in the employees share of the OASDI payroll tax and a provision that allows businesses to expense all qualified investment in 2011, followed by 50 percent bonus depreciation on investment put in place in 2012. According to the Joint Committee on Taxation, the two year revenue loss associated with these two provisions is $112 billion and $110 billion, respectively. The Board's fiscal impulse measure now suggests that fiscal policy will add 0.2 percentage points to growth in 2011 but subtract 0.6 percentage points in 2012.

The Tealbook assumption for equity prices, which we also adopt, is little changed. From a somewhat higher base than assumed in October, equity prices increase at an 11% annual rate through the end of 2012 with the endpoint value essentially unchanged. The main driver of this increase in equity prices is the return of the equity premium to more normal levels. Similarly, the Board's assumed path of the nominal exchange value of the dollar is little changed, with a decline of 1.5% in 2010, 1% in 2011, and 2.3% in 2012.

Finally, as a rule we adopt the Board's assumed path of home prices. In the December Tealbook the Board staff has introduced a significantly more downbeat assessment of the likely path of home prices over the forecast horizon. Following some firming over the first half of 2010, all widely-followed national home price indices have come under renewed downward pressure in the third quarter. The Core Logic repeat sales home price index (formerly known as the Loan Performance Home Price Index) declined at a 9.3% annual rate in 2010Q3. The Board staff now assumes that home prices will continue to decline through 2011 and then stabilize in 2012. For 2012Q4 the level of the Core Logic index is 8% lower than assumed in October and nearly 10% below the 2010Q2 level. One consequence of this change for the Tealbook forecast is that the ratio of household net worth over disposable income is now essentially flat over the forecast horizon rather than rising slightly.

The Outlook. For the last several FOMC cycles we have expected growth of the US economy to strengthen to around 4% in 2011 and then to the 4 ½% to 5% range in 2012. These growth rates are sufficiently above potential to begin to generate a sustained decline of the unemployment rate to around 7% by the end of 2012. Moreover, with slack being absorbed, import prices rising, and inflation expectations well anchored, trend inflation rises back to the mandate consistent range of 1 ½% to 2% for the core PCE deflator.

The main reason for anticipating this stronger growth is our assessment that the various headwinds confronting the US economy are gradually easing and will continue to do so over the forecast horizon. First, overall financial conditions have improved. As of this writing, the S&P500 stock price index is up roughly 20 percent from its early July low, surpassing the levels of late April. While up over the intermeeting period, mortgage interest rates remain at very attractive levels and cash flow housing affordability is quite high. As measured by the Senior Loan Officer Survey, bank lending standards have begun to ease modestly and C&I loans on bank balance sheets have stopped declining. Second, the household deleveraging process appears to quite far along. Based on historical relationships, the current level of the personal saving rate appears to be about where it should be given current levels of household net worth. According to the Flow of Funds data for 2010Q3, the rate of decline of household liabilities has begun to slow. Combined with an improving labor market, conditions are in place for a steady strengthening of the rate of growth of consumer spending. Third, while we have been disappointed with the weakness of housing market activity of late, it is even more the case that there is nowhere but up for that sector. Fourth, continued favorable growth prospects among our major trading partners along with a lower exchange value of the dollar are expected to produce sustained strong growth of exports. Fifth, improving domestic and foreign demand is likely to induce stronger growth of business investment. Finally, with incomes rising, tax revenues to state and local governments are anticipated to recover and help put that sector on a more solid fiscal position.

As mentioned above, the revised assumptions underlying this forecast result in somewhat more fiscal impulse to growth in 2011 and somewhat less in 2012. Nonetheless, our forecast for growth of real GDP in 2011 is unchanged at 4% (Q4/Q4). Of course, with the reduction of payroll taxes and the immediate expensing provision, we have boosted expected growth of both consumer spending and business investment. In addition, the personal saving rate at the end of 2012 is somewhat higher since a portion of the reduction of payroll taxes is saved. Overall, our assessment is that these provisions will boost domestic demand in 2011 by 0.4 to 0.5 percentage points. However, both consumer spending and business investment in equipment and software have a relatively large import content, so imports will grow more rapidly than previously expected, taking about 0.1 percentage point away. Moreover, as was done by the Board, we have lowered and dampened the path of housing starts in this forecast in light of the surprisingly weak recent performance, the continued large flow of foreclosures started, and somewhat higher path for long term interest rates. The net impact of these and several other minor changes is an unchanged growth rate of around 4% with the unemployment rate declining to around 8 ¼% by the end of 2011. Trend inflation follows a similar but modestly lower path to the last Blackbook, with the core PCE deflator rising 1.1% in 2011.

The underlying fundamentals of the economy are expected to continue to improve in 2012, with a better-established recovery of the housing sector and modest growth of business investment of nonresidential structures. However, fiscal impulse will turn negative, reversing the stimulus to consumer spending and dampening the stimulus to business investment in equipment and software. Thus, growth of real GDP is likely to be somewhat less than the 4 ½% projected in the October Blackbook. Overall, however, the level of real GDP at the end of 2012 is somewhat higher than in the previous forecast, with the unemployment rate at 6 ¾% at the end of that year, about ¼ percentage point lower. Trend inflation is expected to be back in the mandate consistent range.

2.2 Alternative Scenarios and Risks

The risk assessment has worsened over the intermeeting period. On the inflation front the risks have increased both on the upside and the downside. Upside risks originate from concerns about the projected increase in US government debt following the extension of the 2001-2003 tax cuts, which may reduce market confidence in the Federal Reserve's ability to control long-term inflation. A further erosion of anti-inflationary credibility may emerge in an environment in which political factors appear to be undermining the independence of the central bank. Downside risks stem from external developments such as the European debt crisis and its possible spillovers to US financial markets. Moreover, recent numbers for 12-month inflation have reached historical lows. On the output front risks have not changed significantly, as the disappointing labor market report counterbalances a spate of relatively good news.

In order to capture the increased inflation risks on the upside, the likelihood of the *Fiscal Consolidation* scenario has been increased to almost 25% [Exhibit C-1]. This scenario envisions a depreciation of the dollar and an increase in inflation expectations following concerns about fiscal sustainability. The *Fiscal Consolidation* scenario is now the second most likely scenario after the *Productivity Boom*, which has an associated probability of about 35%. The likelihood of the *Loss of Credibility* scenario has also increased, and now stands at almost 10%. Finally, in order to capture downside risks to inflation, the probability of the *Global Deflation* scenario has increased to about 7%. The likelihood of the *Global Credit Crunch* scenario – not shown – is slightly above 15%, considerably lower than in the last Blackbook.

The paths for core PCE inflation and real GDP growth associated with the various scenarios have changed largely because of the changes in the *Central* scenario, as all alternative scenarios are defined relative to our modal forecast [Exhibit C-2]. Increased inflation uncertainty results in a widening of the bands of the forecast distribution for core PCE Inflation [Exhibit C-3]. Quantitatively, this widening is more noticeable on the downside than on the upside. Uncertainty about real GDP forecasts is about the same as it was in the last Blackbook. Not surprisingly, the “Low Inflation/Deflation Probability and Distribution” chart shows an increase in the probability that the average core PCE inflation be less than .5% in 2010-12 (from 15% to 20%). The “Scale of Recovery Through End of 2011” chart is virtually identical to that in the last Blackbook, showing a dismal likelihood that the cyclical upturn will be as strong as the 1981-1982 recovery.

Exhibit C-3 also shows, for comparison, the mean forecasts from the FRBNY DSGE model. The forecasts for inflation are below the expected value of the FRBNY forecast distribution, especially for 2011, but the difference is small. The forecasts for output are close to the *Central Scenario* in the short run, but the DSGE model does not foresee a rebound in output in 2011 and 2012.

3. Forecast Comparison

3.1 Tealbook Comparison.

The Tealbook and Blackbook forecasts for real GDP in 2010 were both revised upward owing to positive surprises in near term real activity, while the two real GDP projections for 2011 were essentially unchanged, as a result of offsetting contributions from the recently-announced tax-cut stimulus plan and from downward revisions to the outlook for the housing sector. Both the Tealbook and Blackbook core PCE inflation projections in 2010 and 2011 were revised slightly downward. Headline PCE inflation projections for 2011 were unchanged since the last meeting.

Conditioning Assumptions. In the Tealbook, the main revisions to the conditioning assumptions are related to developments in fiscal policy and the housing sector. Reflecting the most recent budget negotiations, the Tealbook now assumes an extension of President Bush tax cuts for the next two calendar years, as well as 2011 payroll tax reduction and provisions for qualified investment spending. These revisions are expected to boost real GDP by about ½ percent in 2011. Largely offsetting this upward revision, Board staff downgraded their outlook for the housing sector in light of the continued weakness in housing indicators. In particular, the housing price path was sharply downgraded, and is now 8 percent lower at the end of 2012 than assumed in the October Tealbook. Regarding other financial market assumption, there was a sharp upward revision in the near-term path for long-term Treasury yields, in line with the significant rise in 10-year Treasury yields over the intermeeting period. Investment grade corporate bonds and mortgage rate spreads to Treasuries were revised upward in line with Treasury yields, leaving their spreads to Treasuries essentially unchanged. Balancing the recent dollar appreciation and assumptions about a slightly faster depreciation rate in 2011 the Board staff's path for the real dollar is now a little higher through the end of 2011 than assumed in the October Tealbook. Partially offsetting the headwinds from the abovementioned more stringent financial conditions, the path for equity prices was revised 3 percent higher reflecting positive recent data. Board staff continues to assume a double-digit stock market appreciation over the next two years, due to the anticipated reversion of equity risk premiums to their long-run norms. Regarding global demand, the Board staff outlook for foreign activity was little changed since the October Tealbook, with downward revisions to European peripherals being offset by a more buoyant outlook for Germany.

Real Activity. The Blackbook and Tealbook 2010(Q4/Q4) projections are very similar and were both revised higher. The Blackbook's modal forecast for real growth in 2010(Q4/Q4) now stands at 2.6 percent, up from 2.3 percent in November, while the Tealbook forecast was revised three-tenths higher to 2.7 percent. The Blackbook 2011(Q4/Q4) GDP growth projection was unchanged at 4.0 percent and remains three-tenths higher than in the Tealbook. The Tealbook's real GDP growth forecast was revised three-tenths lower to 4.4 percent since the last meeting, while the Blackbook's forecast was revised four-tenths lower to 4.1 percent.

The Tealbook projection for unemployment in 2010Q4 remains unchanged since September t 9.7 percent, the same as in the Blackbook. Further out, the Tealbook projection for unemployment in 2011:Q4 was revised one-tenth lower to 8.9 percent, and remains significantly higher than the 8.3 percent level assumed in the Blackbook. The 2010 nonfarm payroll employment projections in the Blackbook and Tealbook were revised upward. The 2011 Tealbook projection for nonfarm employment is now at 2.7 million, slightly above expectations at the time of the last meeting, and significantly below the Blackbook projection of about 4.1 million. This continuing gap among forecasts is likely due to differences in the projected average work week.

Inflation. The 2010 core PCE inflation forecasts in the Tealbook and Blackbook were both revised lower to 0.9 percent. The Tealbook also projects core PCE inflation at 0.9 percent in 2011 and 2012, compared to 1.0 and 1.5 percent, respectively, for 2011 and 2012 in the Blackbook. Headline 2010 PCE inflation projections in the Tealbook and Blackbook stand at 1.2 percent. Tealbook headline PCE projections are 1.1 and .9

percent respectively for 2011 and 2012, significantly lower than the 1.4 and 1.8 percent forecasts over the next two years in the Blackbook.

International Trade. The FRBNY forecast for 2010 is for net exports to subtract 0.9 percentage point from GDP growth, which is very close to the Board's forecast of -1.0 percentage point. In 2011 and 2012, the FRBNY is slightly more optimistic than the Board: the FRBNY forecast is for net exports to contribute 0.4 percentage point to GDP growth in 2011 and 0.2 percentage point in 2012, whereas the Board's forecast is for net exports to contribute 0.2 percentage point in 2011 and have a neutral effect in 2012. These small differences arise from the FRBNY's higher foreign demand elasticity.

Uncertainty around the forecasts. Both the Tealbook and Blackbook risk assessments have changed relative to October. As in the last FOMC cycle, the FRBNY's staff inflation forecast continues to exhibit more downside risk in 2010, as captured by the lower bound on the 70% confidence intervals. The lower bound of the FRBNY forecast for 2011 is also below that of the Board. For 2012, the Board forecast continues to assign a higher probability to lower inflation realizations, and relative to the October Tealbook the lower bound has slightly shifted downward. The Board staff's inflation rate projections for 2010 and 2011 are close to the median of our inflation forecast distributions.

The downside risks to our forecast for real activity continue to be somewhat larger than the risks in the Tealbook. The FRBNY intervals for 2010 real GDP growth narrowed by 0.5 percentage point, while this range increased slightly by 0.1 percentage points in the Board staff's forecast. The Board staff's projection remains more balanced than our forecast, which continues to have substantially more downside risk. As a result, the Tealbook point forecast in 2010 remains within the right tail of our real GDP forecast distribution.

Table 1: Comparison of 70% Intervals around FRBNY and Board Forecasts

	Core PCE Inflation		Real GDP Growth	
	FRBNY	*Board*	*FRBNY*	*Board*
2010	0.5, 1.2 (0.4, 1.3)	0.7, 1.1 (0.9, 1.3)	1.6, 3.6 (0.8, 3.3)	2.1, 3.2 (1.9, 2.9)
2011	-0.1, 1.7 (0.1, 1.7)	0.2, 1.6 (0.4, 1.7)	1.1, 5.8 (1.4, 5.9)	2.0, 5.5 (1.9, 5.4)
2012	0.4, 2.0 (0.6, 2.1)	0.1, 1.7 (0.2, 1.9)	1.2, 6.0 (2.0, 6.3)	2.7, 6.2 (2.9, 6.5)

Table 2: Percentile of Tealbook Forecast in FRBNY Forecast Distribution

	Core PCE Inflation	Real GDP Growth
2010	54 (68)	51 (56)
2011	55 (57)	51 (47)
2012	39 (35)	60 (56)

Alternative Tealbook forecasting scenarios. The December Tealbook considers six alternative scenarios. Four of these are similar to those examined in the October Tealbook. The remaining two new scenarios feature alternative risks arising from a potential recession in Europe on account of the ongoing sovereign debt crisis.

The optimistic *Stronger Recovery* scenario assumes a quicker recovery driven by more optimism and improved credit and labor market conditions relative to the baseline, which in turn feeds into higher equity prices. As a result, GDP grows about 5.2 and 5.3 percent in, respectively, 2011 and 2012. In contrast, the *Weaker Recovery* scenario considers weaker-than-expected improvements in confidence as well as credit and labor market conditions that result in weaker aggregate demand than in the baseline. This translates into GDP growth rates in 2011 and 2012 that remain below 3 percent.

The *Greater Disinflation* scenario considers the case of a stronger-than-expected disinflation, with zero inflation by 2012 and moderate deflation thereafter. The resulting delay in the first FFR increase keeps GDP growth close to the baseline. In the *Higher Inflation* scenario commodity prices rise more than expected with possibly a higher pass-through to core inflation. Therefore the FFR starts to rise earlier than in the baseline, causing a downward shift in the GDP growth path.

The two new scenarios consider cases where the peripheral sovereign debt crisis in the euro area pushes the European economies in a recession. In the first scenario (*Mild European Recession*) the sovereign debt crisis results in somewhat larger European yield increases and faster euro depreciation than in the baseline, while in the second scenarios these developments are more amplified (*Severe European Recession)*. In both scenarios, GDP growth is affected significantly only in 2011 and 2012, with growth at most 1.0 percentage point below the baseline.

3.2 Comparison with Private Forecasters[1]

The FRBNY forecast for GDP growth is higher than implied by the range of private forecasts for 2010Q4, 2010 (Q4/Q4) and 2011 (Q4/Q4). Our inflation projections for 2010 are generally consistent with those of private forecasters. For 2011 (Q4/Q4), the FRBNY forecasts of all inflation measures remain above Macro Advisers but they are close to or below other private forecasts (Median SPF and Blue Chip).

GDP Growth. Relative to the last FOMC meeting, private forecasts for 2010 (Q4/Q4) have been revised in both directions. Macro Advisers and Blue Chip have upgraded their forecast, whereas the Median SPF forecast has been downgraded. The FRBNY forecast is now 2.6%, up from 2.3% in the October Blackbook. Our projection is above that of Blue Chip (2.6%), Macro Advisers (2.5%) and the Median SPF (2.4%). Compared to the previous Blackbook, the FRBNY forecast for 2011 (Q4/Q4) remained unchanged at

[1] The details of the forecast comparison are in Exhibit B-8. Release dates of the private forecasts discussed in this section are in parentheses: Blue Chip consensus (12/10), SPF (11/15), and Macro Advisers (12/06). Quarterly numbers are SAAR.

4.0%. This projection is above those from Macro Advisers (3.7%), Blue Chip (2.9%) as well as Median SPF (2.8%).

Inflation. The FRBNY projection for core PCE in 2010 (Q4/Q4) has been slightly revised down from 1.0% in the October Blackbook to 0.9%. Our projection is similar to Macro Advisers and only slightly below the Median SPF. As before, our 2011 (Q4/Q4) forecast for core PCE inflation (1.0%, down from 1.2% in the last Blackbook) lies between Median SPF (1.5%) and Macro Advisers (0.7%). Our forecasts for headline CPI inflation in 2010 (Q4/Q4) is 1.1%, the same as Macro Advisers and Blue Chip, and slightly above Median SPF (1.0%). The FRBNY projection for core CPI in 2010 (Q4/Q4) is 0.6%, close to Median SPF and Macro Advisers at 0.8% and 0.6%, respectively.

4. Robustness of Policy Recommendation

4.1 Sensitivity to Alternative Scenarios and Policy Rules

Our current policy recommendation is to maintain the target range for the federal funds rate at 0–0.25% through 2012Q2 – as in the last Blackbook. Our recommendation is consistent with the *Baseline* policy rule under the *Central*, *Global Deflation*, and *Productivity Boom* scenarios [Exhibit D-1]. Under the *Loss of Credibility* scenario the *Baseline* policy rule suggests anticipating the lift-off one year earlier, in 2011-Q2. Under the *Global Credit Crunch* scenario the lift-off would occur one quarter earlier, in 2012-Q1. This coincides with the prescription from the *Baseline* policy under the expected value of the forecast distribution [Exhibit D-2]. Exhibit D-2 shows also the implied nominal FFR ignoring the zero bound for the *Outcome-based* rule. Under the expected value of the forecast distribution, the unconstrained nominal FFR is below -4% by 2011Q4 and remains below zero through the end of the forecast horizon.

Exhibit D-3 shows the prescriptions from alternative policy rules. The *Nutter* rule, which entails a strong response to inflation and no response to the output gap, prescribes an immediate (2010Q4) lift-off under the *Loss of Credibility* scenario. Under the *Central* scenario, renormalization according to this rule would begin in 2011Q3. FFR paths under the *Asymmetric Price Targeting* rule are at the lower bound (.25%) throughout the forecast horizon, while those for the *Outcome-based* rule are well below zero under all scenarios through the end of 2012.

Exhibit D-1 shows the real FFR rates implied by the baseline rule under the various scenarios, ignoring the zero bound constraint. The *Baseline* rule under the *Central* scenario implies a real rate of about -4% in the current quarter. Exhibit D-3 shows the real rate (under alternative scenarios) for *Asymmetric Price Targeting*, the *Nutter*, and the *Outcome-based* rules. We also use the DSGE model to assess the current stance of monetary policy. We perform a counterfactual exercise by eliminating current and past policy shocks. We find that the DSGE model predicts a counterfactual FFR for the current quarter roughly in line with the policy rate.

4.2 Comparison to Market Expectations

During the intermeeting period the start of the renormalization process implied by FFR futures shifted backward by about one year, from 2012Q3 to 2011Q3. This represents an abrupt reversal of the trend observed over 2010, where the market-implied start of the lift-off was pushed further and further into the future. In contrast, the distribution of responses from the primary dealers' survey about the timing of the FFR lift-off did not shift toward earlier dates. Almost 40% of respondents currently envision a lift-off in 2012Q4 or later, versus 30% in November, and only about 15% of respondents forecast an increase in rates before 2012. About 55% of respondents expect the total cumulative size of the asset purchase program to be between 600 and 900bn, while about 35% expect a larger size, between 900 and 1200bn. The remaining 10% expects an even larger size of the program.

5. Significant Developments

5.1 Economic Developments

Real Activity. *GDP*: Growth of real GDP in 2010Q3 was revised up to 2.5% (annual rate) from the advance estimate of 2.0%. Growth of real personal consumption expenditures (PCE) was revised up to 2.8% from 2.6%, and the personal saving rate was

revised up to 5.8% from 5.5%. Growth of business investment in equipment and software was also revised upward by a significant amount, to 16.8% (annual rate) from 12.0%, while the growth of real business investment in nonresidential structures was revised down to -5.7% (annual rate) from the advance estimate of +3.9%. The only surprise in the real expenditure data was that the growth contribution from inventory investment was revised down to 1.3 percentage points from 1.4 percentage points whereas the incoming monthly data had suggested an upward revision.
Production: Total industrial production was unchanged in October, after falling 0.2% in September, while manufacturing production increased a fairly robust 0.5%. The total capacity utilization rate was also unchanged at 74.8%, while it rose moderately to 72.7% in manufacturing.

Construction: The value of construction put in place increased 0.7% in October after an increase of 0.7% in September. The 12-month change in total construction spending was -9.3% in October, a modestly less severe decline than seen earlier in the year.

Orders and Shipments: New orders at durable goods manufacturers fell 3.3% in October, and orders excluding transportation decreased 2.7%; however, there were sizable upward revisions for September. Inventories at durable goods manufacturers increased 0.4%. Shipments of nondefense capital goods ex aircraft fell 1.5%, while orders for these goods decreased 4.5%.

ISM: The ISM manufacturing composite index printed at 56.6 in November, only 0.3 points below October's reading, and in line with expectations. The ISM non-manufacturing index edged up another 0.7 point to 55 in November.

PCE: Personal consumption expenditures rose 0.4% in nominal terms and 0.3% in real terms in October. The personal saving rate edged up to 5.7%, reversing the recent downward trend since June. Furthermore, revisions in personal income pushed up the savings rate since April. With these revisions, the saving rate was 5.6% in September and 5.9% in August (up from 5.3% and 5.6%, respectively).

Inventories: Total business inventories rose 0.9% in September, following an upwardly revised 0.9% increase in August. This brings the total business inventory-sales ratio to 1.27, up from a recent low of 1.23 in April, but still well below its value of 1.48 in January of 2009.

Home sales/starts: Overall existing home sales (single-family and condos/coops) decreased 2.2% in October to 4.43 million units (seasonally adjusted annual rate). Single-family existing home sales fell 2.0% to a level of 3.89 million units. With sales still lackluster, there remains considerable supply in the market: the overall inventory of existing homes was 3.86 million units, representing a 10.5 month supply. This inventories-sales ratio has been in double digits for four consecutive months. The inventory of single-family homes was equivalent to a 10.1 month supply, which was also above 10 for the fourth consecutive month. New single-family home sales decreased 8.1% in October to 283,000 units (seasonally adjusted annual rate). The inventory of new single-family homes for sale declined slightly in October from 203,000 to 202,000, bringing the months' supply of new homes to 8.6 from 7.9 in September. Total housing starts fell 11.7% in October to 519,000 (seasonally-adjusted annual rate) units, as multi-family starts dropped sharply. Single family starts fell a more modest 1.1%, and remained depressed. In addition, there was a sizable downward revision to the September level of housing starts, which now show a decline in that month rather than the modest increase originally reported. Building permits rose 0.5% in October, as single-family permits increased 1.0%.

Labor: Total nonfarm payroll employment rose by just 39,000 in November, well below the consensus expectation of a gain of 150,000. Employment changes of the preceding two months were revised up by a net 38,000. Total private payroll employment rose by 50,000; employment in the federal government rose slightly, while employment in the state and local sector continued to decline at a much slower rate than seen earlier in the year. Hours worked by all private sector employees rose 0.1% following a 0.4% increase in October. Average hourly earnings were unchanged in November and up just 1.6% on a year-over-year basis, continuing a slowing trend in place since late 2008, when the year-over-year change was 3.5%. The unemployment rate rose to 9.8% after being 9.6% over the preceding three months. The labor force participation rate was unchanged at 64.5% but the employment-to-population ratio fell again, to 58.2%, equaling its low since 1983.

Prices and Income. *CPI*: The overall CPI increased 0.2% in October, with energy prices up 2.6%. The 12-month change in the headline index was +1.2%, very close to what it has been since June. The core CPI fell 0.007%. Its 12-month change was 0.6%, compared to 0.8% in September and 1% in the five previous months.

PCE deflator: The PCE price index rose 0.2% in October. Its 12-month change was 1.3%, down from 1.4% in September. The core PCE price index was unchanged in October. Its 12-month change was 0.9%, significantly lower than in September (1.2%), and its lowest level since the beginning of the series in 1959.

Personal income: Nominal personal income increased 0.5% in October, while disposable income increased by 0.4%. Furthermore, there were upward revisions to personal income since April.

Home Prices: The seasonally-adjusted Case-Shiller 20 city composite home price index fell 0.8% in September while the decline in August has been revised to -0.5% from the initial estimate of -0.3%. The 12-month change was 0.6%. The seasonally-adjusted FHFA purchase-only national home price index fell 0.7% in September and was down 3.4% on a 12-month change basis, the largest such decline since February of 2010. In addition, the August level of this index was revised down and is now unchanged from July versus the initial report of a 0.4% increase. For 2010Q3 as a whole, this index declined at a 6.4% annual rate after increasing at a 2.7% annual rate in 2010Q2. The seasonally-adjusted CoreLogic national home price index fell 2.4% in September (-1.8% non-seasonally adjusted). The 12-month change in the (non-seasonally adjusted) index was -2.8%, the second consecutive month that this change has been negative.

Trade. The trade deficit narrowed from a revised $44.6 billion in September to $38.7 billion in October. Export volumes rose over the previous month, while import volumes fell. Export volumes rose 3.3 percent, in line with expectations and trend growth. Nonoil import volumes were flat, following unusually high increases in the previous quarter. Oil volumes fell much more than we expected, by 9.7 percent over the previous month. These data suggest the net export contribution to GDP growth will add 2.0 percentage points in 2010 Q4.

Foreign Data Releases. Based on the data released over the intermeeting period there was no significant change in the foreign outlook. There was a general slowdown in foreign growth in Q3 as the large boost from the inventory cycle over the past year ended, with key exceptions being China, Japan, and the United Kingdom, which reported accelerations in Q3. Most major countries are projected to have similar or better growth in Q4, although Japan is expected to exhibit significant payback after its unsustainable Q3 growth rate.

Euro area: GDP slowed to 1.5% (saar) in Q3. Consumption and exports were solid, while investment spending was flat after the positive Q2 figure, the first major increase since the end of 2007. Manufacturing faltered a bit in September after a good August reading. However, strong German production data for October suggest the euro area had a solid start to Q4. Euro area business and consumer confidence measures improved again in November with the economic sentiment index exceeding its long-run average by 5 percent. At the depth of the downturn, the index was 30 percent below the average. Core inflation was 1.1% in October, staying near the pace set at the beginning of 2010.

U.K.: The UK economy grew 3.2% (saar) in Q3, boosted by consumption and exports. Data suggest robust growth is continuing in Q4. Production was up sharply in October and the manufacturing PMI hit a 15-year high in November.

Japan: The Japanese economy grew at a faster-than-expected 4.5% (saar) in Q3. Consumption was very strong, while export growth moderated. The strong consumption reading likely reflects pulled-forward demand in anticipation of the end of government subsidies on car purchases in September. Data are pointing to a fall in Q4 output due, in part, to payback for the strong Q3 reading. Production was down for the fifth consecutive month in October and domestic car sales continued to decline in November reflecting the end of a government program to promote purchases.

EM Asia: China domestic demand continues to be vigorous with manufacturing surveys in Q4 pointing to continued strength. Import growth has been especially robust for intermediate goods, including commodities. Higher food prices are contributing to mounting inflation pressures with CPI coming in at 4.4% over the year in October, above the unofficial full-year target. Further monetary tightening is expected to follow suit. The NIE growth slowed in Q3 as the inventory cycle turned from supportive to negative and export momentum waned. Domestic demand, however, stayed resilient. The business confidence figures are improving, suggesting that overall growth should move back to trend in coming quarters.

Latin America:

Brazilian growth is estimated to have slowed to a relatively subdued 2% (saar) in Q3 despite continued strong consumer demand growth. A drawdown of inventories and an increase in imports likely absorbed much of the incremental demand. Indicators point to momentum entering Q4 with inventories no longer a drag and consumption supported by record low unemployment and strong expansion of real wages and consumer credit. In Mexico**,** GDP growth slowed to 3.0% in Q3 due to diminished support from the export-oriented manufacturing sector. Consumer demand appears to be picking up gradually, supported by steady job creation. Argentina's growth has been fueled by heavy fiscal stimulus, a near-record agricultural harvest, higher commodity prices, and strong foreign demand. CPI inflation is estimated to be running near 25%.

5.2 Financial Markets

Domestic Financial Markets. Over the intermeeting period, Treasury yields increased sharply, the expected path of policy rates shifted up, and equity markets rose modestly.

Market-based measures of expected inflation over the next five years increased, whereas expected inflation 5 to 10 years out stayed largely unchanged.

Nominal Interest Rates: Treasury yields increased sharply since the last FOMC meeting. The increase reflected investors' revised expectations of the likely size of the Fed's large-scale asset purchases, as economic data suggested a somewhat improved economic outlook, and as the Administration and Congress reached a tentative agreement on a fiscal package. The 10-year Treasury yield, which was 2.6% at the start of the intermeeting period, and just 20 basis points off its low for the year at the time, rose 65 basis points to 3.24% on December 8. The yield on the 2-year note, close to an all-time low at the start of the intermeeting period, rose 27 basis points to 0.62% on December 8. (Exhibit A-3: Treasury Yields)

Expected Policy Rate Path: Consistent with the increase in Treasury yields, the expected path of the fed funds rate inferred from futures markets shifted up since the last FOMC meeting. Market prices are now consistent with a target federal funds rate of 0.0-0.25% through mid 2011. Professional forecasters have revised down their expected policy paths over the medium term to levels closer to those implied by market prices. The median expectation from the Blue Chip Financial Forecasts Survey for the fourth quarter of 2011 stood at 0.25% in November, down from 0.6% in September. (Exhibit A-5: Policy Expectations)

Inflation Compensation: Market-based measures of expected inflation over the next five years increased, whereas expected inflation 5 to 10 years out stayed largely unchanged. The 0-5 year inflation compensation rose 18 basis points to 1.77% on December 8, but remains below the 2-2.75% range observed in the years before the crisis. Meanwhile, 5-10 year inflation compensation rose just 3 basis points to 3.11%, which is well within the range observed in recent years, suggesting that inflation expectations remain well-anchored. (Exhibit A-4: Real Yields and Implied Inflation)

Equity Markets: Equity markets rose modestly over the intermeeting period with the S&P 500 up about 3%. The S&P 500 has now risen 20% from its summer lows and is slightly above its April 2010 peak, and at its highest level since September 2008. Implied equity volatility, as measured by the VIX is now at about 18%, down slightly from its level at the beginning of the intermeeting period and well below the recent May 2010 peak. (Exhibit A-6: Equity)

Credit Spreads: Credit spreads declined moderately over the intermeeting period. Spreads on A-rated corporates narrowed 2 basis points to 160 basis points, whereas spreads on BB-rated corporates narrowed 21 basis points to 420 basis points. Spreads on financials also narrowed moderately, with A-rated and BB-rated spreads coming in 3 and 11 basis points, to 227 basis points and 363 basis points, respectively. (Exhibit A-7: Credit)

Money Markets: Most measures of money market stress were largely unchanged over the intermeeting period despite the intensification of the financial turmoil in Europe. The FX basis implied by euro/dollar swaps spreads have ticked up in recent weeks, however, which may be indicative of somewhat increased stresses on overseas borrowers of U.S. dollars. (Exhibit A-9: Money Markets)

Foreign Financial Markets. Fiscal concerns about the euro area periphery resurfaced over the intermeeting period, which impacted global funding conditions, especially in the euro area. The euro area 3-month LIBOR-OIS spread increased 14 basis points and remained broadly unchanged elsewhere. Peripheral sovereign spreads increased significantly over the period, in large part because of uncertainties about funding conditions and the possible establishment of a sovereign debt restructuring mechanism after mid-2013. In particular Irish spread were up due to ongoing concerns about the Irish banking sector, ratings downgrades by S&P and Fitch, and the reluctance of Irish authorities to officially request aid from the EU and IMF. Irish authorities finally requested aid on November 21. Belgian sovereign yields increased on account of renewed concerns about Belgium’s high debt levels and political instability.

Emerging Market (EM) asset prices fell since the last FOMC amidst volatility induced by the ongoing peripheral euro area sovereign debt crisis. Consequently, the pace of EM portfolio inflows slowed down but they remain nonetheless above year-to-date averages. Emerging Market bond issuances declined, as issuers responded to credit market volatility emanating from Europe.

Bond yields in Germany and the U.S. increased over the period on account of better than expected data releases. The trade-weighted U.S. dollar index went up since the last FOMC meeting, with the dollar appreciating relative to the euro and the yen. These moves were consistent with increased investors' risk aversion on the back of resurging fiscal concerns in the euro area periphery as well as more positive data releases and the extension of 2001-2003 tax cuts in the U.S. The dollar depreciated about 10 basis points against the Chinese yuan, with one-year forward contracts pointing to a continued moderate strengthening of the yuan *vis-à-vis* the dollar.

5.3 Global Economic Policy

The likelihood of further monetary easing in advanced economies remained relatively high, particularly in the euro area, Japan and the U.S. In the rest of the world, monetary policy has switched to a tightening bias due to a more benign economic outlook.

The ECB kept its policy rate unchanged at 1.0% at its December meeting, as has been the case since March last year. The major announcement was that the unlimited allotments of the ECB's refinancing operations would continue through at least April 2011. Before the announcement, expectations pointed to exit from unconventional operations around Q1 2011. The policy of only modest purchases of peripheral government securities continues, contrary to some expectations before the meeting that the Bank would become more aggressive. The pace of sovereign bond purchases under the "Securities Markets Program" (SMP) increased from zero during the last three weeks of October to €2 billion in the week ending December 3. The cumulative amount of peripheral debt purchased now totals €69 billion.

The Bank of Japan kept its policy rate in a range of 0.0-0.10 percent and will continue to do so until its official projections suggest price stabilization in the near-to-medium term, with price stabilization defined as an annual 1% CPI (excl. food) inflation rate. In October, the new official inflation projections point to inflation rates of 0.1% and 0.6% for FY2011 and FY2012 respectively. The Bank will commence in early December an asset purchase program to buy up to ¥5 trillion in government and private securities. These purchases will not be sterilized as has been done up to now. The Bank has explicitly signaled further expansions of this program in the near future in response to continued yen strengthening.

Chinese domestic demand and credit growth remained robust over the intermeeting period, and inflation accelerated further. Authorities in China therefore implemented two 25 basis points hikes in reserve requirements in November and announced various administrative measures to contain inflation. Additional hikes in reserve requirements and official interest rates are expected in the months ahead. Moreover, official credit growth targets for 2011 will likely be scaled back. Tightening campaigns are also continuing elsewhere in Emerging Asia, with India, Korea and Thailand hiking rates by 25 basis points in the last six weeks. Overall, policy rates in the region are expected to rise by an average of roughly 80 basis points by 2011H2.

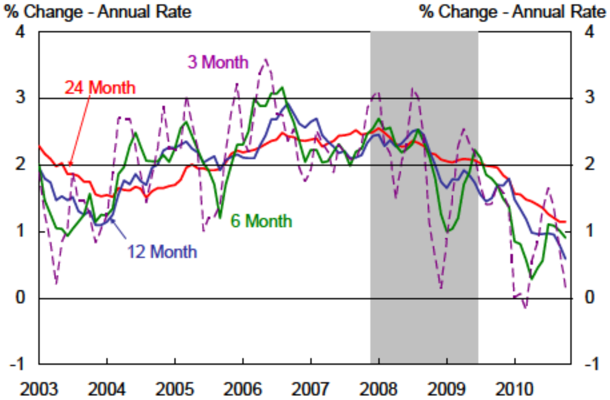
Brazil and Mexico held their policy rates unchanged. Expectations of policy rate increases in Mexico continued to be pushed back, with surveys now suggesting that the central bank will hold rates steady until January 2012 (previously September 2011). Brazil's central bank is expected to resume its tightening cycle in Q1 2011, with anticipated rate hikes in 2011 now at 150 basis points, up from 100 basis points in the previous intermeeting period. In early December, the central bank announced a series of macro-prudential measures including higher capital and reserve requirements. It also withdrew roughly R$61 billion (1.6 % of GDP) of liquidity from the banking system in the face of rapidly rising inflation expectations.

In Sweden, on October 26th the Riksbank hiked its policy rate by 25 basis points to 1.0%. The Reserve Bank of Australia raised its policy rate in November by 25 basis points to 4.75% on account of continued high commodities demand from East Asia, but kept it steady at its December meeting. Other central banks, including the Bank of Canada, the Bank of England, the New Zealand Reserve Bank and the Swiss National Bank, kept their policy rates unchanged.

A. Significant Developments

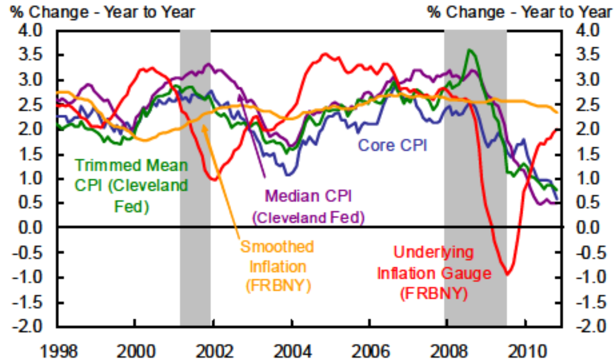
Exhibit A-1:
Measures of Trend Inflation

Core CPI Inflation over Various Horizons



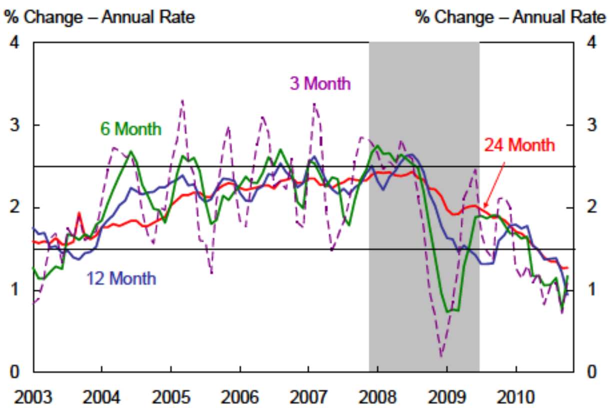
Source: Bureau of Labor Statistics

Alternative Measures of CPI Inflation



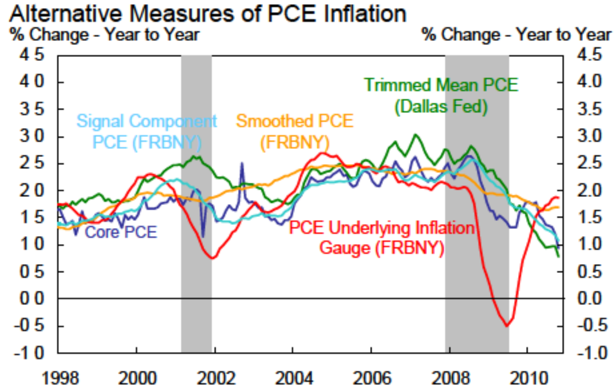
Source: Bureau of Labor Statistics, Cleveland Fed, MMS Function (FRBNY), and Swiss National Bank

Core PCE over Various Horizons



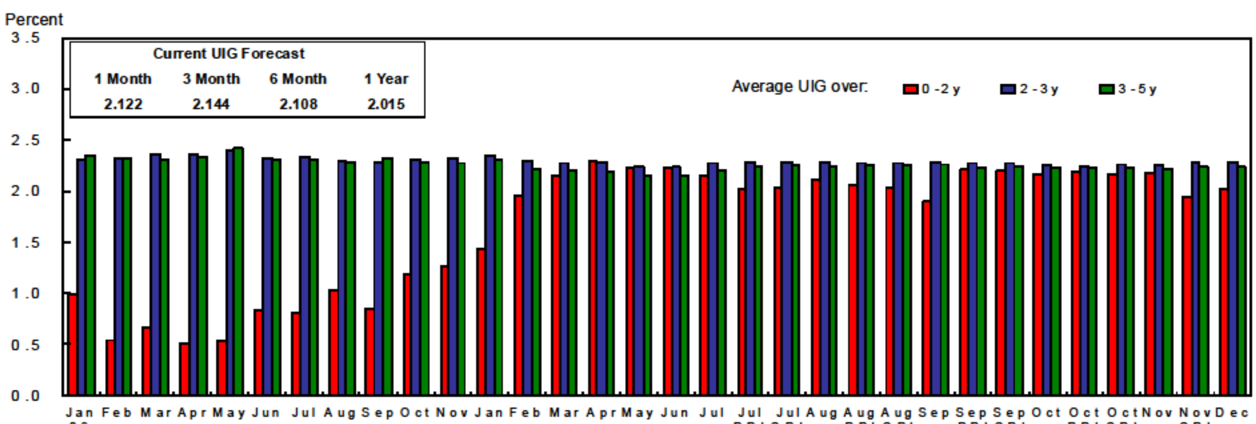
Source: Bureau of Economic Analysis

Alternative Measures of PCE Inflation



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

Exhibit A-2:
Underlying Inflation Gauge (UIG)

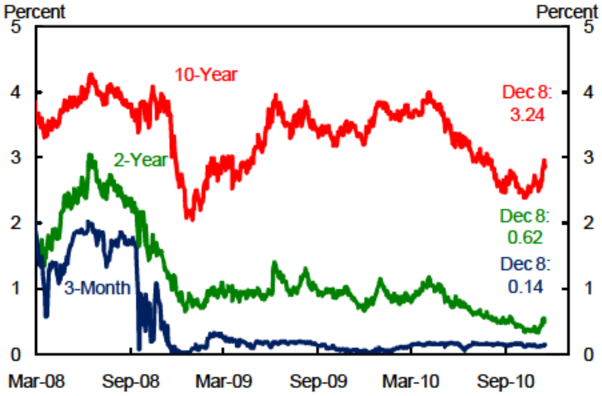


Source: MMS Function (FRBNY) and Swiss National Bank

A. Significant Developments

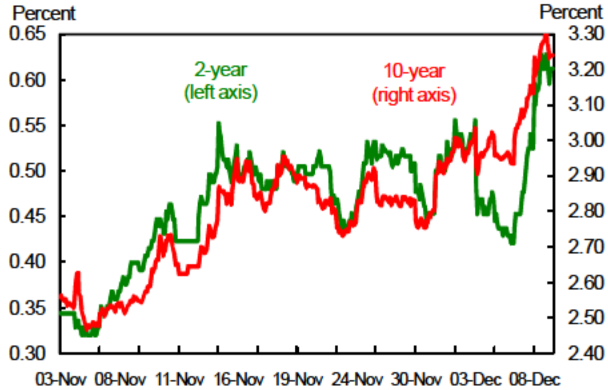
Exhibit A-3:
Treasury Yields

Short- and Long-Term Rates



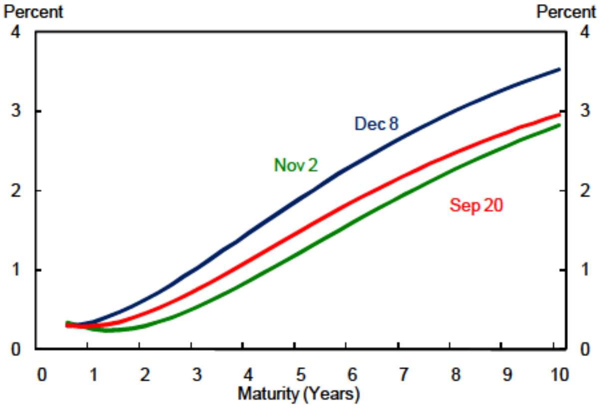
Source: Bloomberg Note: Yields of on-the-run securities.

Short- and Long-Term Rates (Intraday)



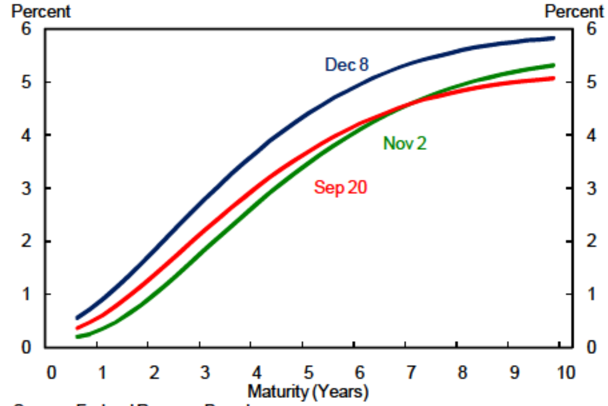
Source: Bloomberg Note: On-the-run securities, 8:00 am to 4:00 pm.

Zero Coupon Yield Curves



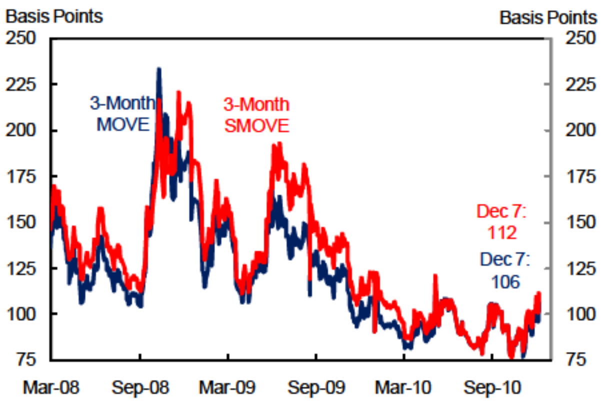
Source: Federal Reserve Board

Zero Coupon Yield Curves: One-Year Forward Rates



Source: Federal Reserve Board

Option and Swaption Volatility Expectations

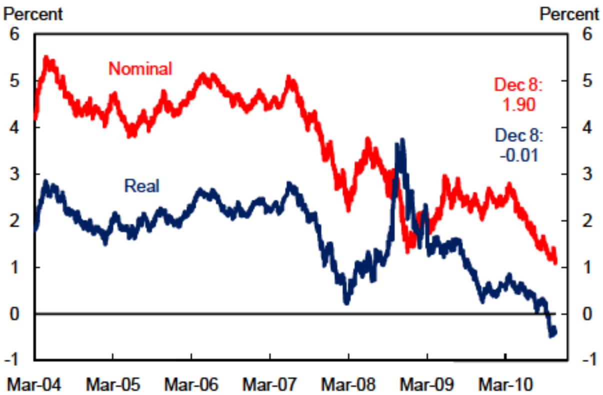


Source: Federal Reserve Board, Barclays, and FRBNY

A. Significant Developments

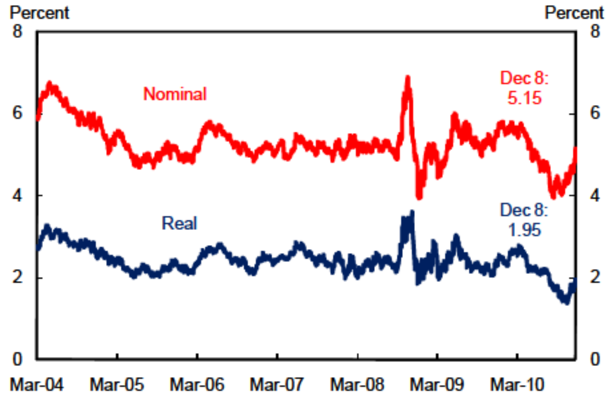
Exhibit A-4:
Real Yields and Implied Inflation

5 Year Spot Rate



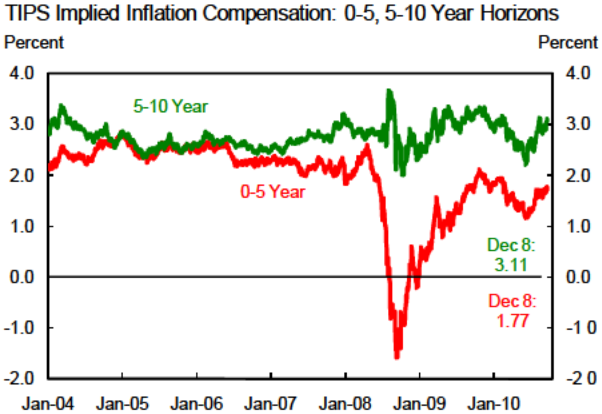
Source: Federal Reserve Board

5-10 Year Forward Rates



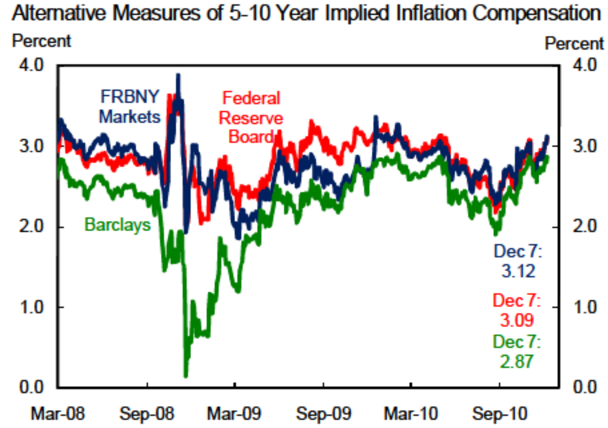
Source: Federal Reserve Board

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



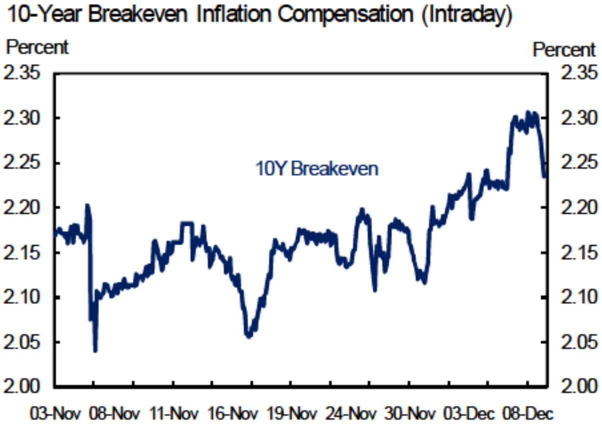
Source: Federal Reserve Board Note: Carry-adjusted.

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.

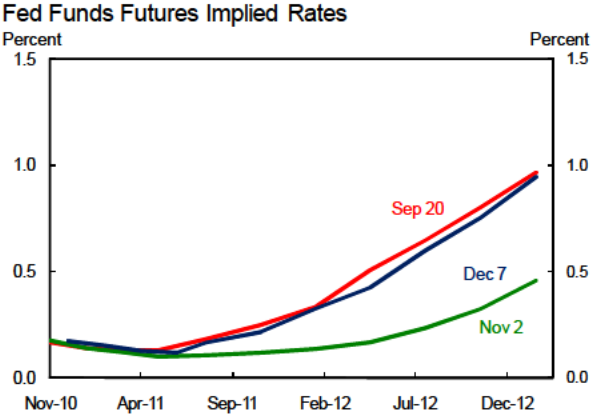
Implied Inflation from Inflation Swaps: 0-5, 5-10 Year Horizon

Source: Barclays

A. Significant Developments

Exhibit A-5:
Policy Expectations

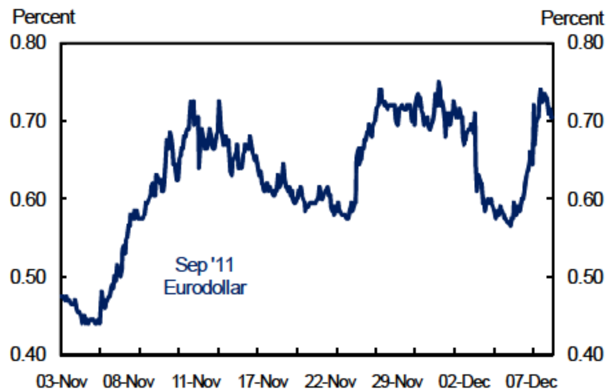
Fed Funds Futures Implied Rates



Source: Federal Reserve Board

Note: Estimated using fed funds and Eurodollar futures.

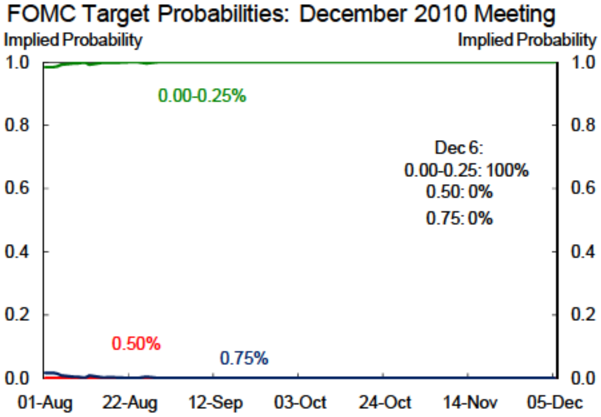
Implied Eurodollar Rates (Intraday)



Source: Bloomberg

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

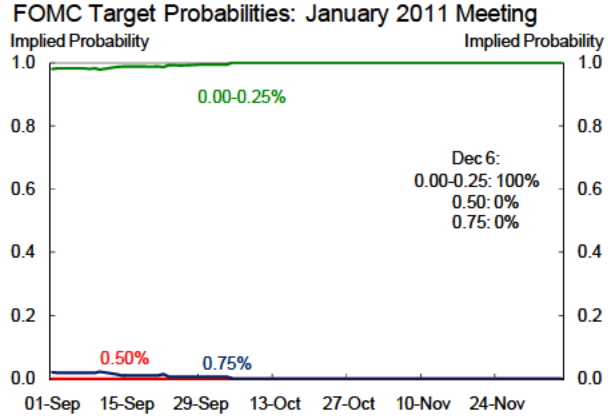
FOMC Target Probabilities: December 2010 Meeting



Source: Cleveland FRB

Note: Estimated using options on fed funds futures.

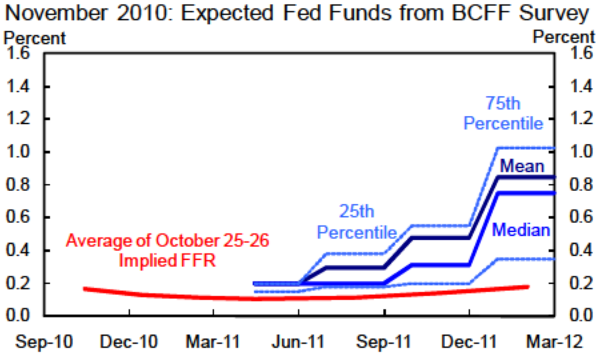
FOMC Target Probabilities: January 2011 Meeting



Source: Cleveland FRB

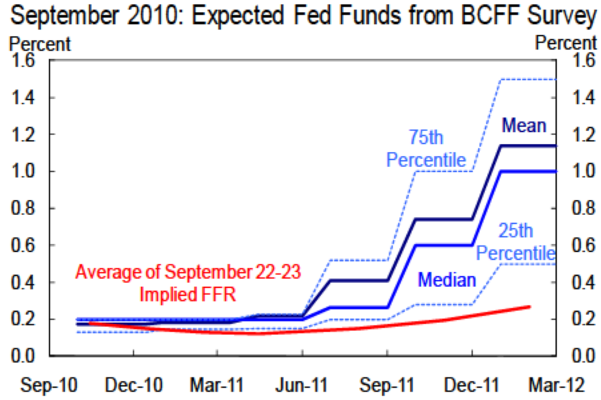
Note: Estimated using options on fed funds futures.

November 2010: Expected Fed Funds from BCFF Survey



Note: Implied FFR are from fed funds and Eurodollar futures. The BCFF survey was conducted on October 25-26.

September 2010: Expected Fed Funds from BCFF Survey

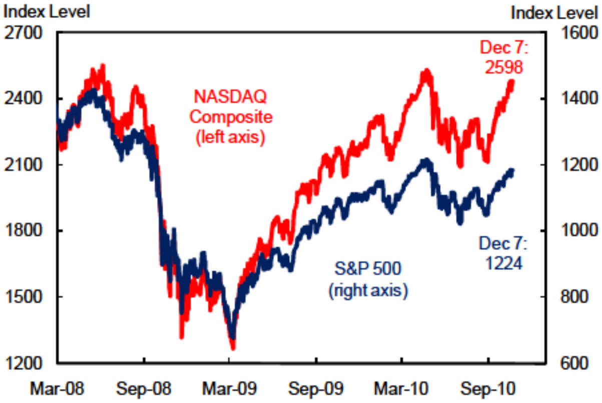


Note: Implied FFR are from fed funds and Eurodollar futures. The BCFF survey was conducted on September 22-23.

A. Significant Developments

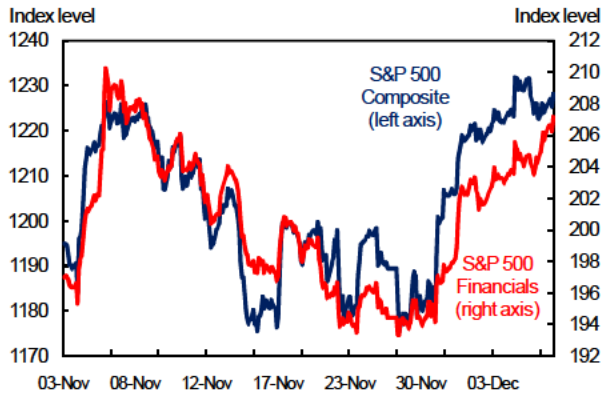
Exhibit A-6:
Equity

Equity Index Levels



Source: Datastream

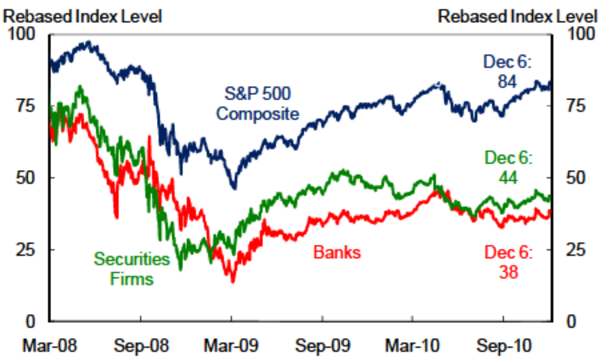
S&P 500 Indices (Intraday)



Source: Bloomberg

Note: 9:30 am to 4:00 pm.

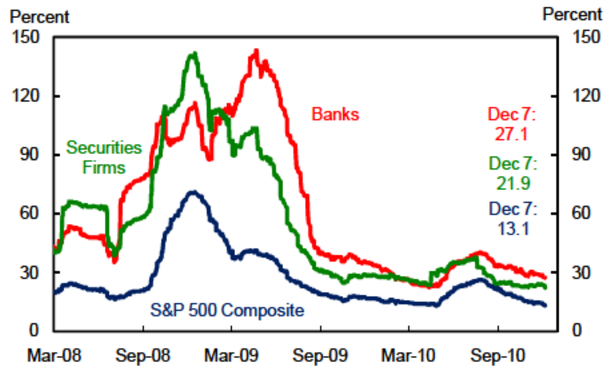
Equity Performance



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.

Source: Datastream

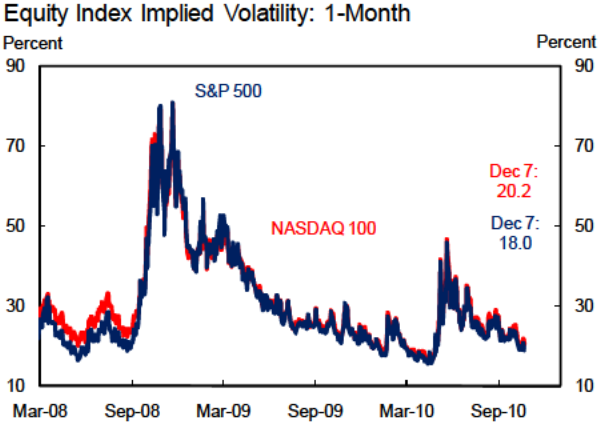
Historical Equity Volatility



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.

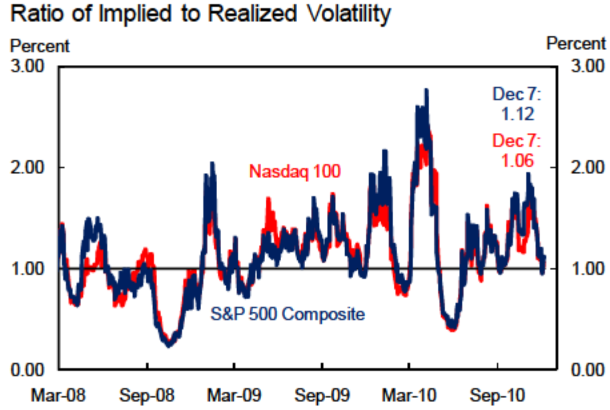
Source: Datastream

Equity Index Implied Volatility: 1-Month



Source: Datastream

Ratio of Implied to Realized Volatility



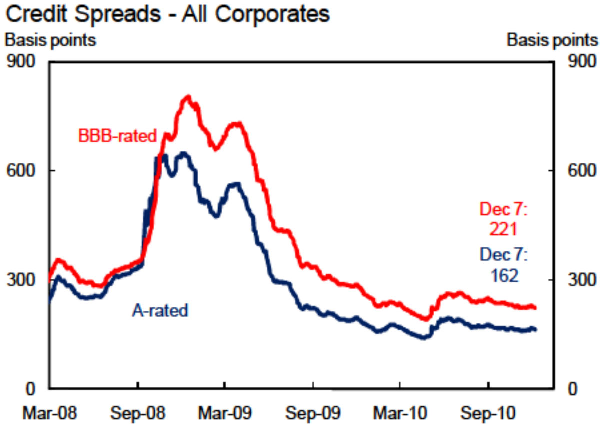
Source: Datastream

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

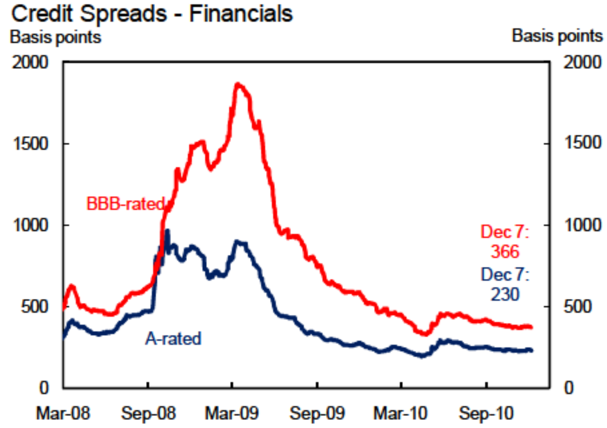
Credit Spreads - All Corporates



Source: Merrill Lynch

Note: Option-adjusted spreads.

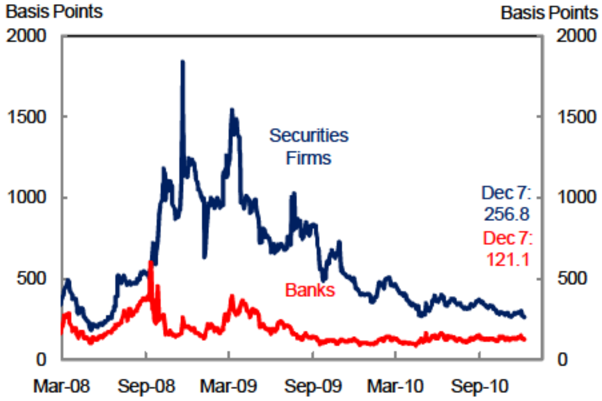
Credit Spreads - Financials



Source: Merrill Lynch

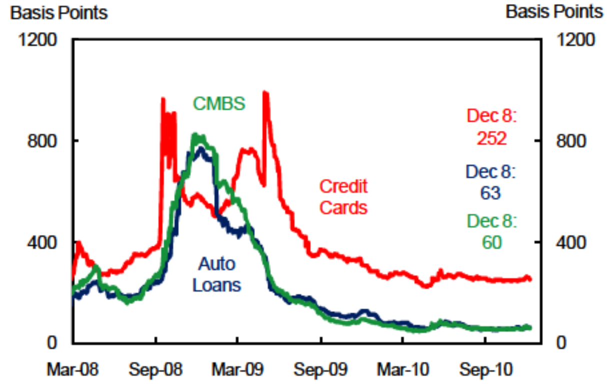
Note: Op ion-adjusted spreads.

Sector CDS Spreads



Source: CMA

AAA-Rated ABS/CMBS Spreads



Source: Merrill Lynch

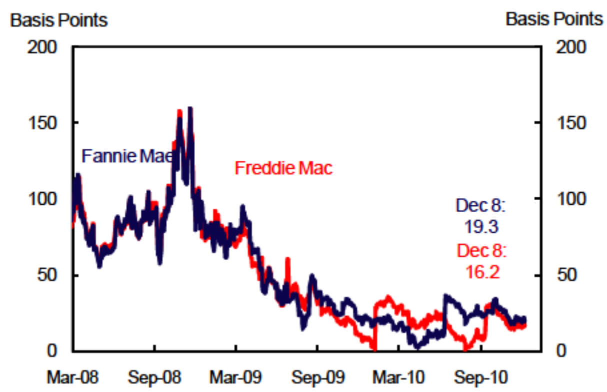
Note: Option-adjusted spreads.

Mortgage Market Rates

Source: Bloomberg

Note: 30-Year Fixed Mortgage rate and Fannie Mae current coupon yield.

5-Year Agency Debt Spreads

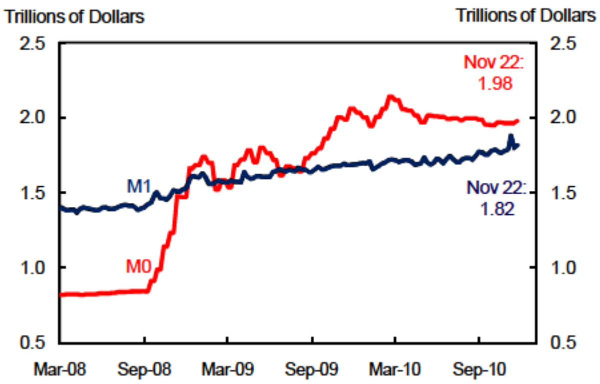


Source: Bloomberg

A. Significant Developments

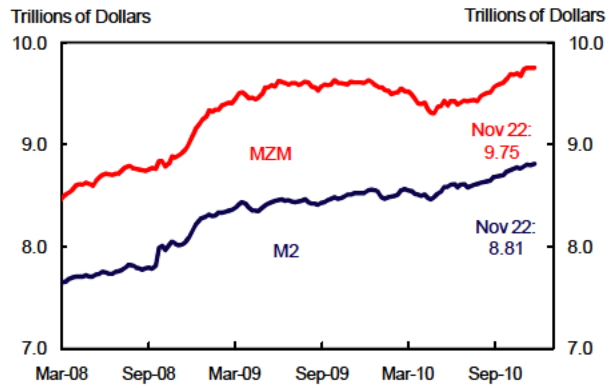
Exhibit A-8:
Money and Banking

Measures of Money Supply: M0, M1



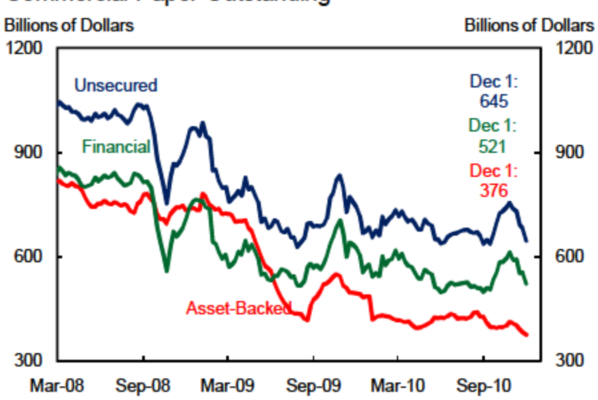
Source: Federal Reserve Board, Haver

Measures of Money Supply: M2, MZM



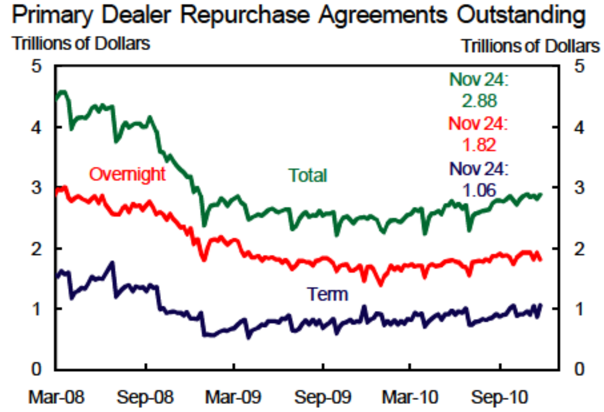
Source: Federal Reserve Board, Haver

Commercial Paper Outstanding



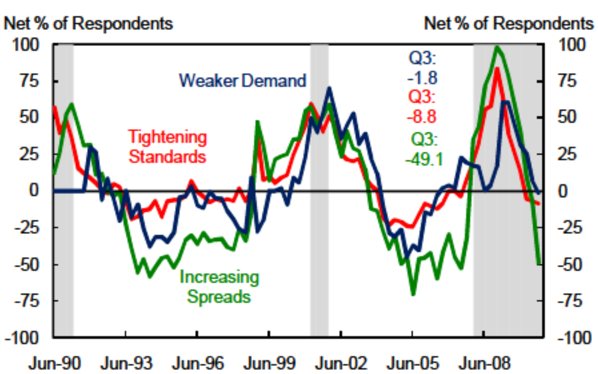
Source: Federal Reserve Board

Primary Dealer Repurchase Agreements Outstanding



Source: Federal Reserve Board

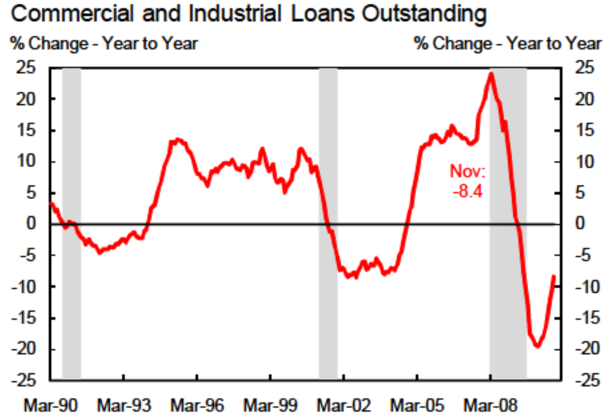
Bank Lending Practices



Source: Federal Reserve Board

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

Commercial and Industrial Loans Outstanding

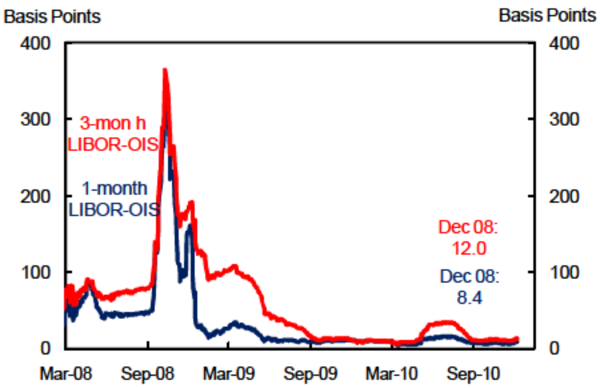


Source: Federal Reserve Board

A. Significant Developments

Exhibit A-9:
Money Markets

Libor to OIS

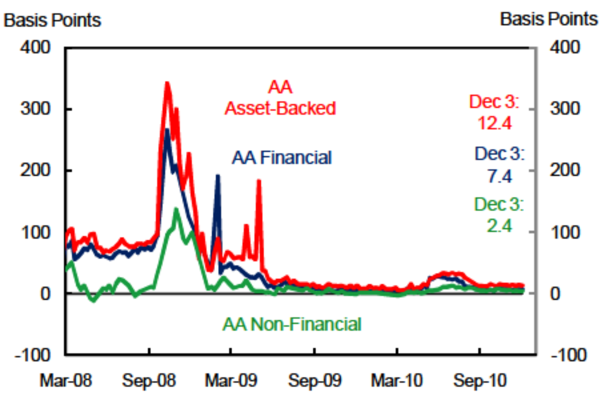


Source: Federal Reserve Board, Bloomberg

Euro-Dollar Swap Implied Basis Spreads

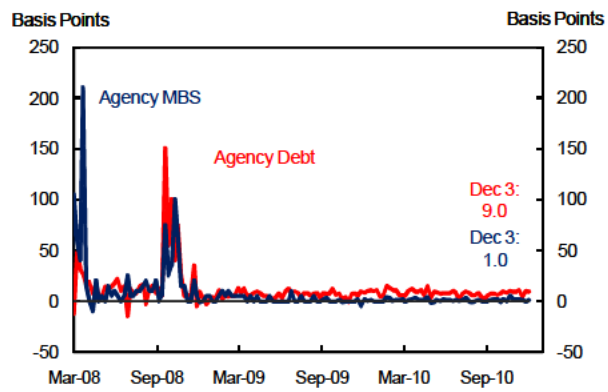
Source: Reuters, Tullett

3-Month CP Rates over OIS



Source: Federal Reserve Board, Haver, Bloomberg

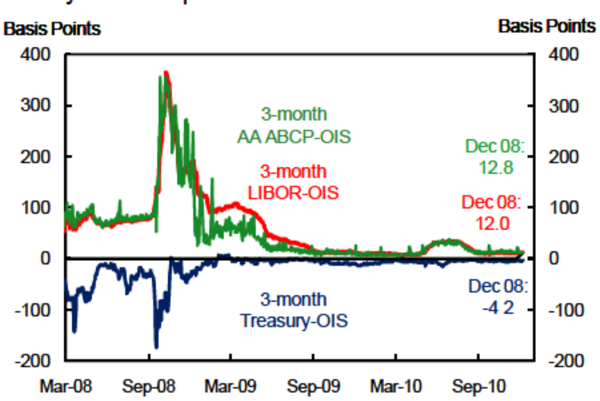
Overnight Financing Spreads



Source: Bloomberg

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

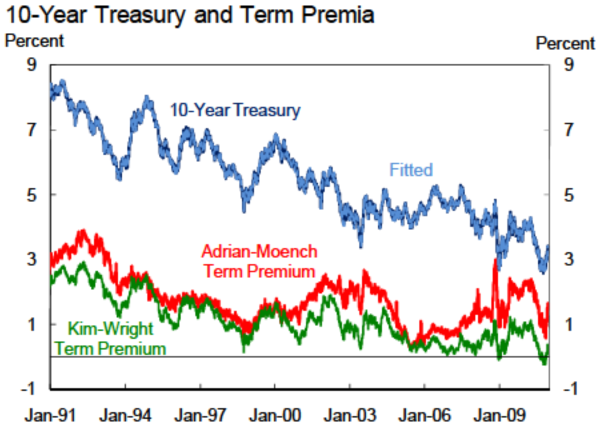
Money Market Spreads



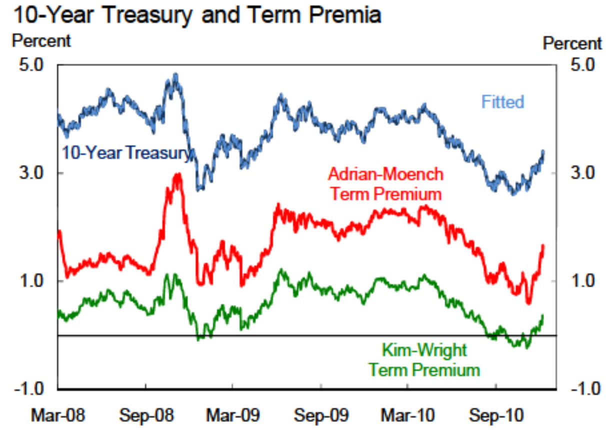
Source: Federal Reserve Board, Bloomberg

A. Significant Developments

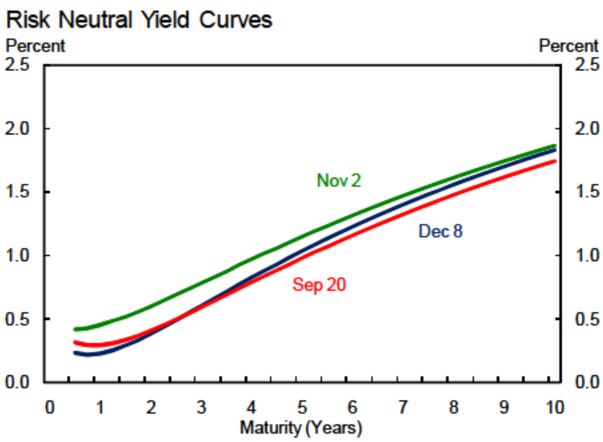
Exhibit A-10:
Estimates of Term Premia in Treasury Yields



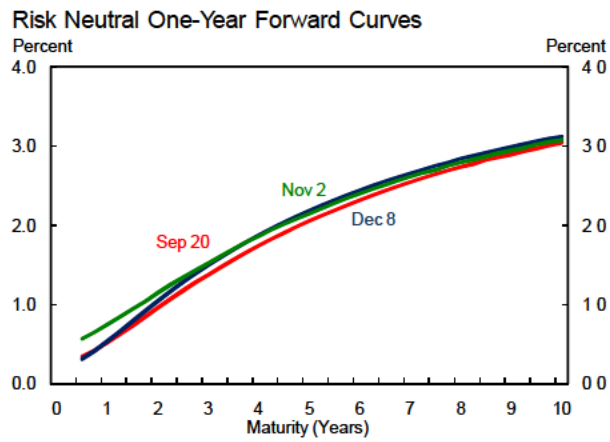
Source: FRBNY calculations, Federal Reserve Board



Source: FRBNY calculations, Federal Reserve Board



Source: FRBNY calculations

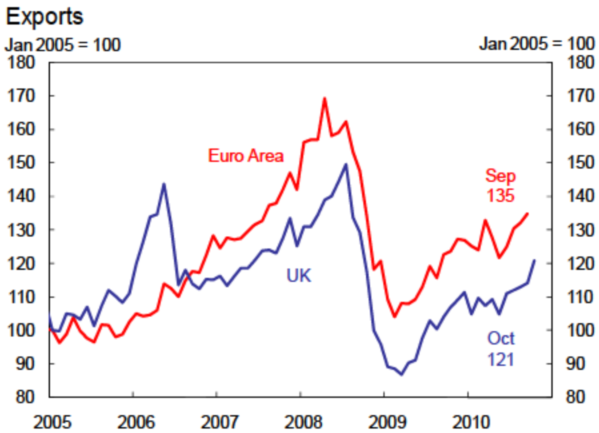


Source: FRBNY calculations

Source: FRBNY calculations, Haver, Merrill Lynch

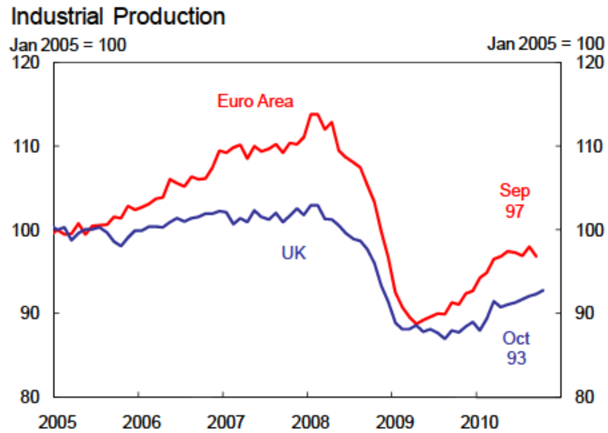
A. Significant Developments

Exhibit A-11: Exports and Industrial Production

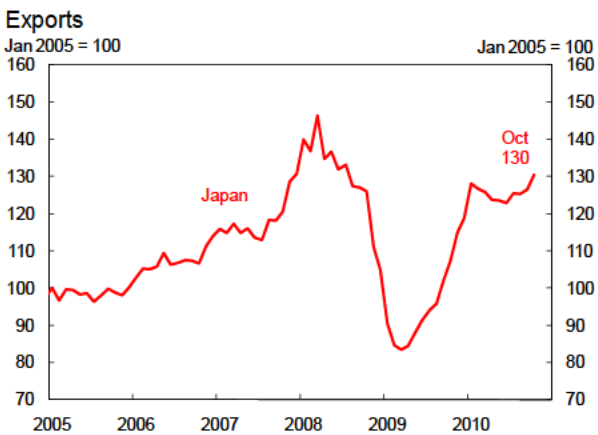


Source: Haver

Note: In Dollar Terms

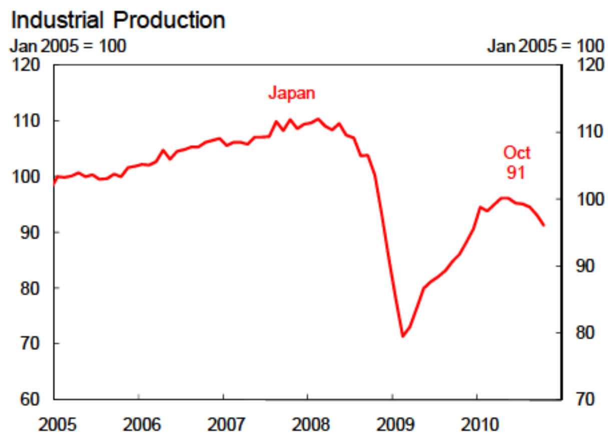


Source: Haver

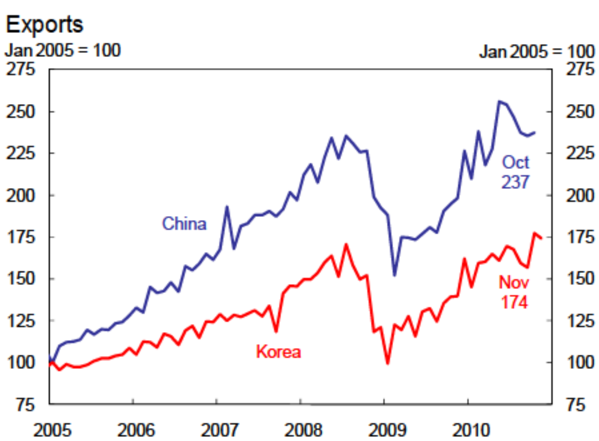


Source: Haver

Note: In Dollar Terms

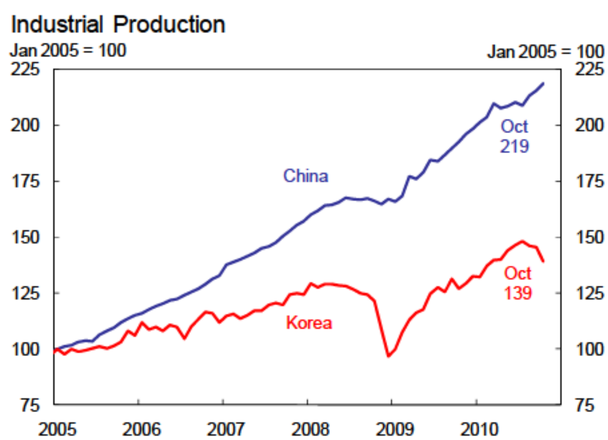


Source: Haver



Source: Haver

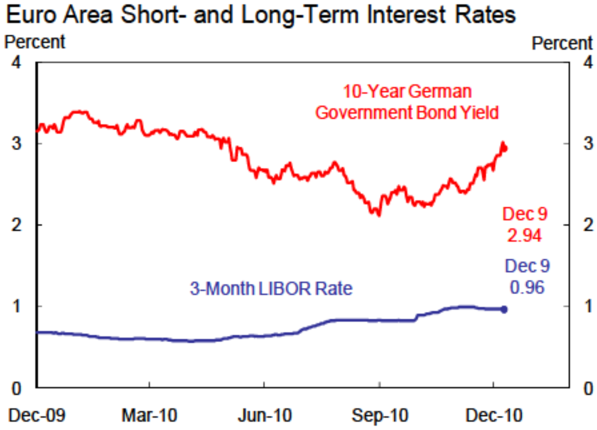
Note: In Dollar Terms



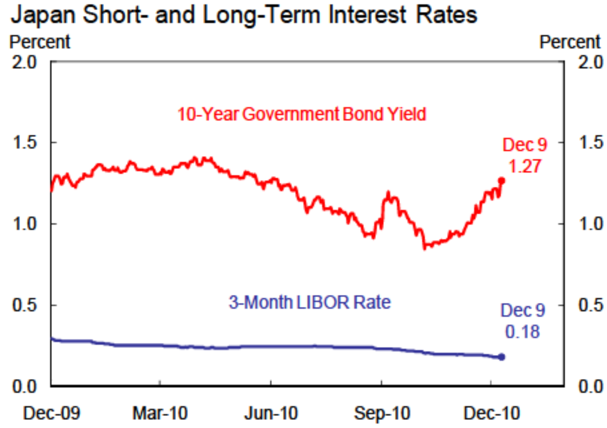
Source: Haver

A. Significant Developments

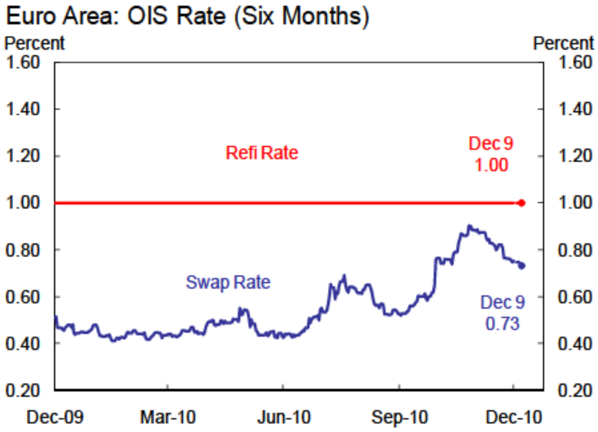
Exhibit A-12:
Global Interest Rates and Equity Markets



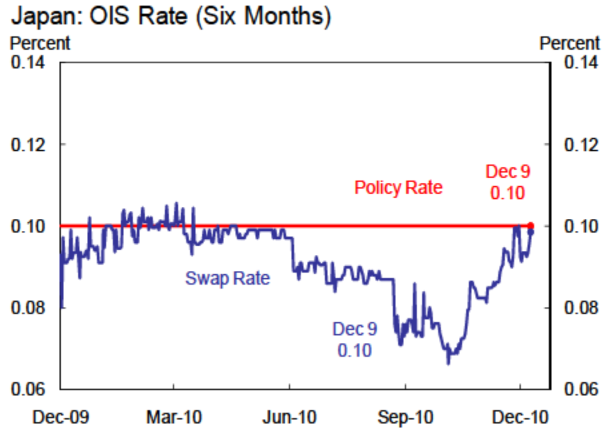
Source: Bloomberg



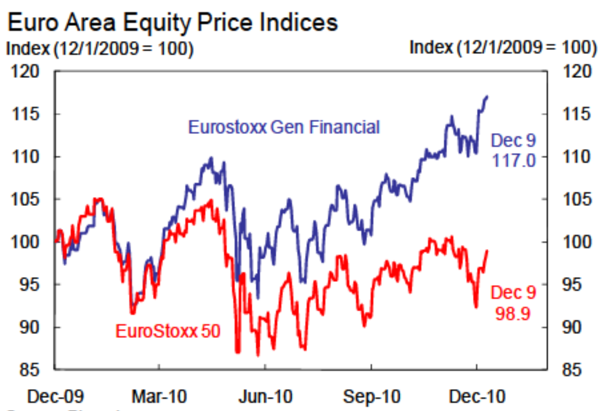
Source: Bloomberg



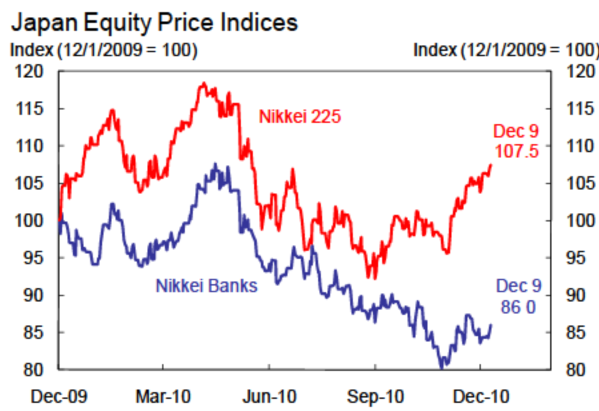
Source: Bloomberg



Source: Bloomberg



Source: Bloomberg

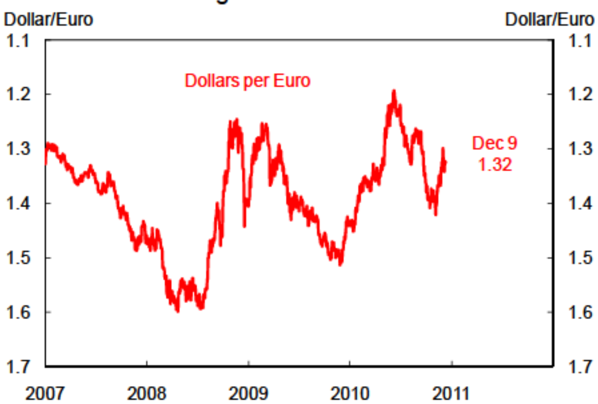


Source: Bloomberg

A. Significant Developments

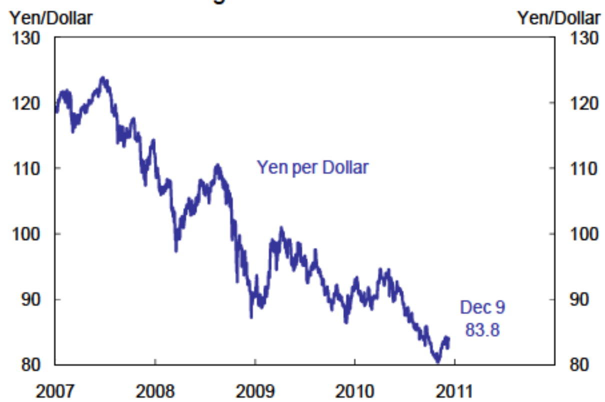
Exhibit A-13:
Exchange Rates

Dollar-Euro Exchange Rate



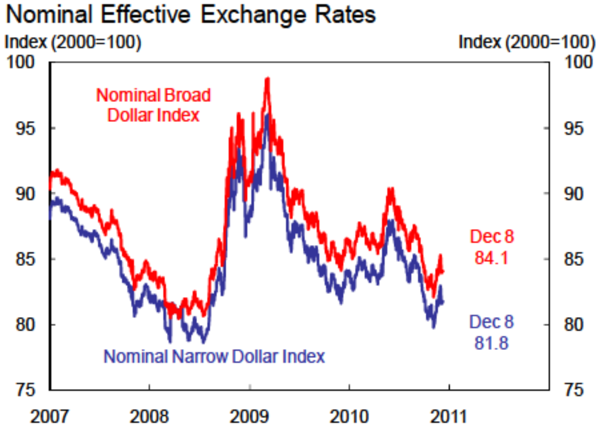
Source: Bloomberg
Note: Exchange rate scale is inverted.

Yen-Dollar Exchange Rate



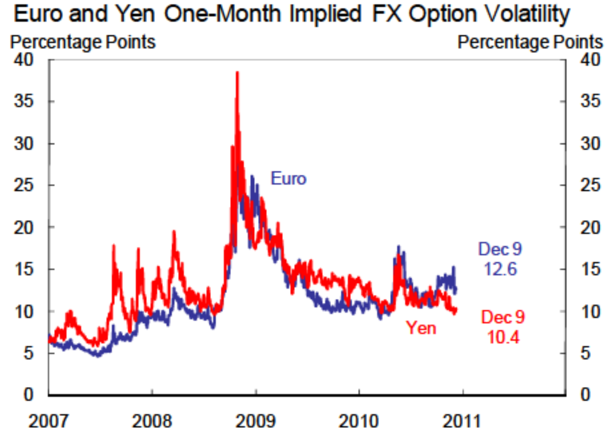
Source: Bloomberg

Nominal Effective Exchange Rates



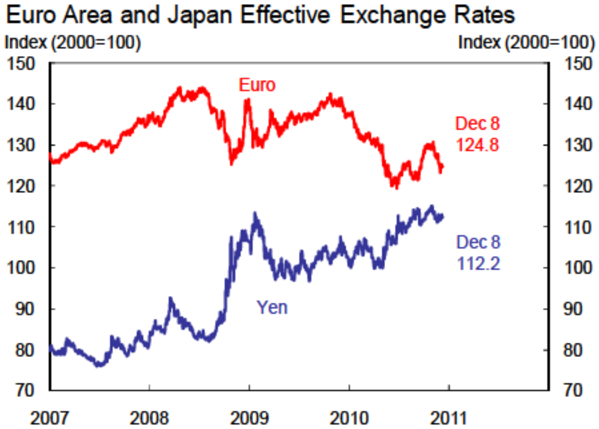
Source: Bloomberg and JPMorgan

Euro and Yen One-Month Implied FX Option Volatility



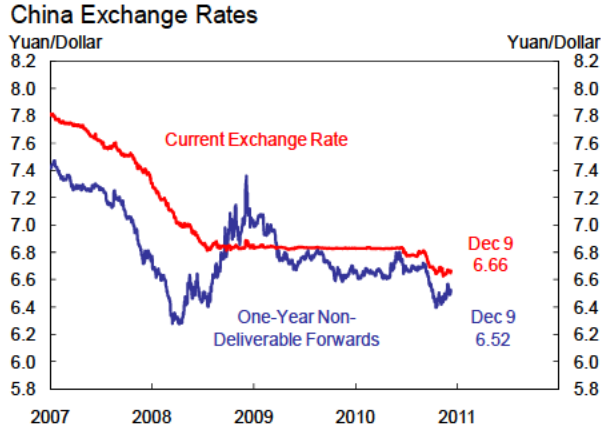
Source: Bloomberg

Euro Area and Japan Effective Exchange Rates



Source: Bloomberg and JPMorgan

China Exchange Rates



Source: Bloomberg

B. FRBNY Forecast Details

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

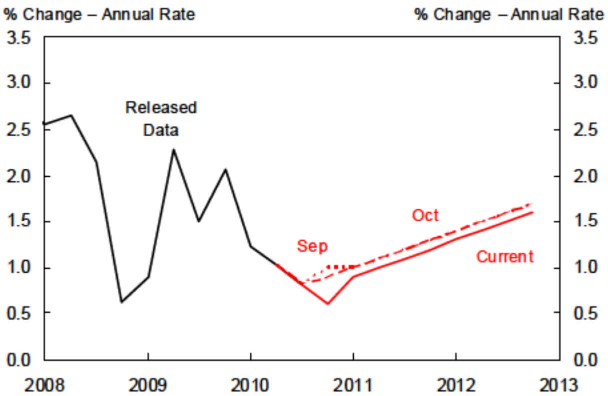
	Core PCE Inflation			Real GDP Growth			Unemployment Rate*			Fed Funds Rate**		
	Sep	Oct	Dec	Sep	Oct	Dec	Sep	Oct	Dec	Sep	Oct	Dec
2010												
Q1	*1.2*	*1.2*	*1.2*	*3.7*	*3.7*	*3.7*	*9.7*	*9.7*	*9.7*	*0-0.25*	*0-0.25*	*0-0.25*
Q2	1.0	*1.0*	*1.0*	1.6	*1.7*	*1.7*	9.7	*9.7*	*9.7*	0-0.25	*0-0.25*	*0-0.25*
Q3	1.1	0.8	*0.8*	1.6	2.0	*2.5*	9.7	9.6	*9.6*	0-0.25	0-0.25	*0-0.25*
Q4	1.0	0.9	0.6	2.5	1.8	3.2	9.8	9.9	9.7	0-0.25	0-0.25	0-0.25
2011												
Q1	1.0	1.0	0.9	3.4	3.6	3.1	9.4	9.4	9.4	0-0.25	0-0.25	0-0.25
Q2	1.1	1.1	1.0	3.5	3.6	3.7	9.0	9.0	9.1	0-0.25	0-0.25	0-0.25
Q3	1.2	1.2	1.1	3.1	3.3	3.2	8.8	8.6	9.0	0-0.25	0-0.25	0-0.25
Q4	1.3	1.3	1.2	5.2	5.5	6.0	8.1	8.3	8.3	0-0.25	0-0.25	0-0.25
2012												
Q1	1.4	1.4	1.3	4.7	4.9	4.4	7.3	7.6	7.7	0.5-1.0	0-0.25	0-0.25
Q2	1.5	1.5	1.4	3.9	3.8	3.6	6.9	7.4	7.4	0.5-1.0	0-0.25	0-0.25
Q3	1.6	1.6	1.5	3.4	3.6	3.2	6.7	7.2	7.3	0.5-1.0	0.3	0.25
Q4	1.7	1.7	1.6	5.5	5.8	5.3	6.0	7.0	6.8	0.5-1.0	0.5	0.5
Q4/Q4												
2009	*1.7*	*1.7*	*1.7*	*0.2*	*0.2*	*0.2*	*3.1*	*3.1*	*3.1*	*0.0*	*0.0*	*0.0*
2010	1.1	1.0	0.9	2.4	2.3	2.8	-0.2	-0.1	-0.3	0.0	0.0	0.0
2011	1.2	1.2	1.0	3.8	4.0	4.0	-1.7	-1.6	-1.4	0.00	0.0	0.0
2012	1.5	1.5	1.5	4.4	4.5	4.1	-2.1	-1.3	-1.5	0.8	0.50	0.5

Note: Columns reflect the forecast dates. Numbers in gray are from previous Blackbooks, and numbers in italics are released data.
*Quarterly values are the average rate for the quarter. Yearly values are the difference between Q4 of the previous year and Q4 of the listed year.
**Quarterly values are the end-of-quarter value. Yearly values are the difference between the end-of-year value in the previous year and the end-of-year value in the listed year.

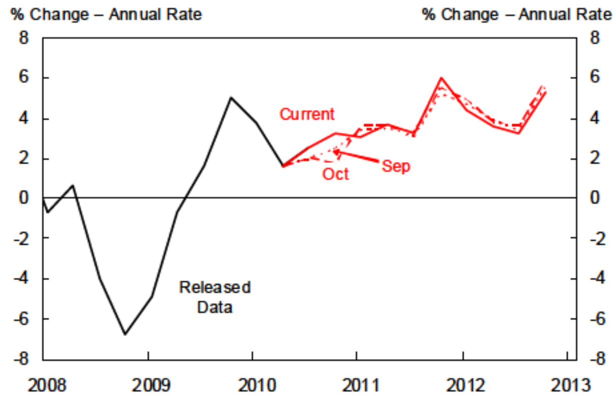
B. FRBNY Forecast Details

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

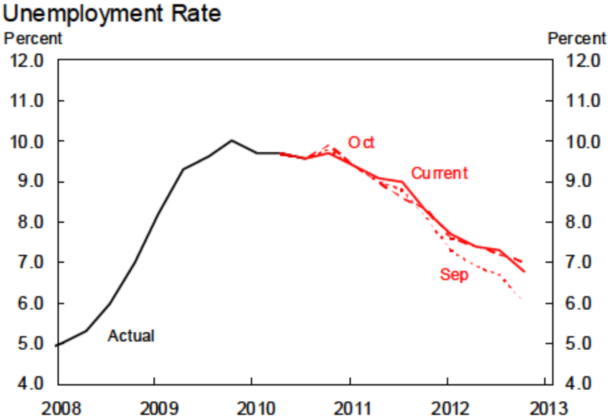
Core PCE Inflation



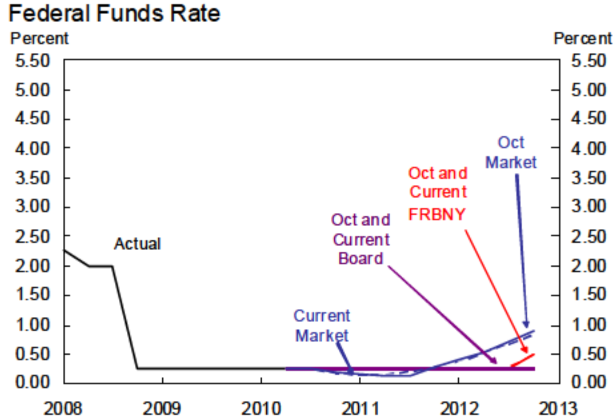
Real GDP Growth



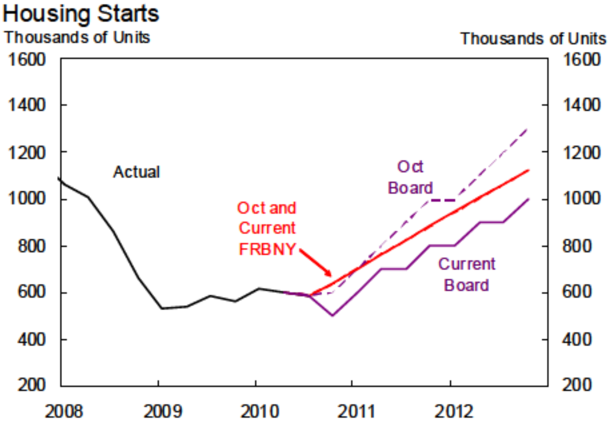
Unemployment Rate



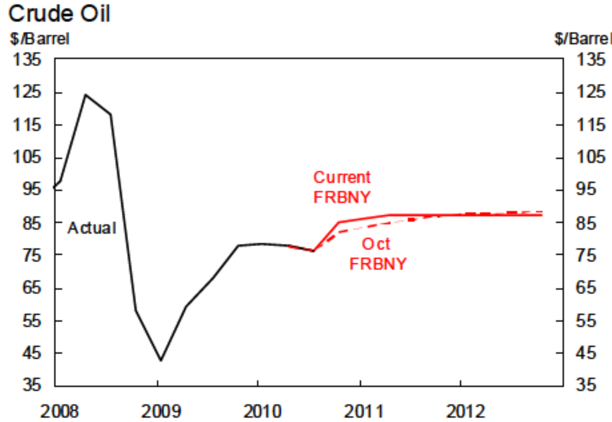
Federal Funds Rate



Housing Starts



Crude Oil



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

B. FRBNY Forecast Details

Exhibit B-3: Near-Term Projections

	Quarterly Growth Rates (AR)		Quarterly Growth Contributions (AR)	
	2010Q4	2011Q1	2010Q4	2011Q1
OUTPUT				
Real GDP	3.2	3.1	3.2	3.1
	(1.8)	(3.6)	(1.8)	(3.6)
Final Sales to Domestic Purchasers	2.0	2.8	2.1	2.9
	(2.2)	(2.7)	(2.2)	(2.8)
Consumption	2.5	2.6	1.7	1.9
	(2.2)	(2.2)	(1.6)	(1.5)
BFI: Equipment and Software	8.0	10.0	0.6	0.7
	(8.0)	(8.0)	(0.6)	(0.6)
BFI: Nonresidential Structures	-3.0	2.0	-0.1	0.1
	(0.0)	(4.0)	(0.0)	(0.1)
Residential Investment	-5.0	2.5	-0.1	0.1
	(-9.0)	(15.0)	(-0.2)	(0.3)
Government: Federal	1.0	0.6	0.1	0.1
	(1.7)	(1.5)	(0.1)	(0.1)
Government: State and Local	-0.9	0.6	-0.1	0.1
	(1.3)	(1.2)	(0.2)	(0.1)
Inventory Investment	--	--	-0.9	-0.9
	--	--	(-1.8)	(-0.3)
Net Exports	--	--	2.0	1.1
	--	--	(1.4)	(1.1)
INFLATION				
Total PCE Deflator	1.7	1.3		
	(1.2)	(1.3)		
Core PCE Deflator	0.6	0.9		
	(0.9)	(1.0)		
PRODUCTIVITY AND LABOR COSTS*				
Output per Hour	2.0	1.8		
	(1.8)	(1.8)		
Compensation per Hour	1.0	1.3		
	(0.8)	(1.0)		
Unit Labor Costs	-1.0	-0.5		
	(-1.0)	(-0.8)		

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

B. FRBNY Forecast Details

Exhibit B-4: Real GDP and Inflation Projections

	Q4/Q4 Growth Rates			Q4/Q4 Growth Contributions		
	2010	2011	2012	2010	2011	2012
OUTPUT						
Real GDP	2.8	4.0	4.1	2.8	4.0	4.1
	(2.3)	(4.0)	(4.5)	(2.3)	(4.0)	(4.5)
Final Sales to Domestic Purchasers	2.6	3.5	3.6	2.7	3.6	3.7
	(2.6)	(3.2)	(4.1)	(2.7)	(3.3)	(3.9)
Consumption	2.3	3.0	3.0	1.7	2.1	2.1
	(2.2)	(2.6)	(3.4)	(1.6)	(1.8)	(2.4)
BFI: Equipment and Software	17.3	12.0	8.0	1.1	0.9	0.8
	(16.1)	(8.0)	(10.0)	(1.0)	(0.6)	(0.6)
BFI: Nonresidential Structures	-7.0	5.0	8.0	-0.2	0.1	0.2
	(-4.0)	(6.5)	(8.0)	(-0.1)	(0.2)	(0.2)
Residential Investment	-6.6	16.0	20.0	-0.2	0.4	0.4
	(-8.2)	(21.2)	(20.0)	(-0.2)	(0.5)	(0.5)
Government: Federal	5.1	1.5	1.6	0.4	0.1	0.1
	(5.3)	(1.5)	(1.6)	(0.4)	(0.1)	(0.1)
Government: State and Local	-0.8	0.6	1.3	-0.1	0.1	0.1
	(-0.5)	(1.1)	(1.9)	(-0.1)	(0.1)	(0.1)
Inventory Investment	--	--	--	0.9	0.0	0.3
	--	--	--	(0.8)	(0.2)	(0.3)
Net Exports	--	--	--	-0.9	0.4	0.2
	--	--	--	(-1.1)	(0.5)	(0.4)
INFLATION						
Total PCE Deflator	1.2	1.4	1.8			
	(1.1)	(1.4)	(1.8)			
Core PCE Deflator	0.9	1.0	1.5			
	(1.0)	(1.2)	(1.5)			
Total CPI Inflation	1.1	1.5	1.9			
	(0.9)	(1.6)	(1.8)			
Core CPI Inflation	0.6	1.3	1.7			
	(0.8)	(1.4)	(1.7)			
GDP Deflator	1.4	1.3	1.7			
	(1.3)	(1.2)	(1.7)			

Note: Numbers in parentheses are from the previous Blackbook.

B. FRBNY Forecast Details

Exhibit B-5: Projections of Other Key Economic Variables

	Q4/Q4 Growth Rates		
	2010	2011	2012
INTEREST RATE ASSUMPTIONS			
Federal Funds Rate (End-of-Year)	0-0.25	0-0.25	0.5
	0-0.25	0-0.25	(0.5)
10-Year Treasury Yield (Avg. Q4 Level)	2.8	3.8	4.4
	(2.7)	(3.7)	--
PRODUCTIVITY AND LABOR COSTS*			
Output	3.6	5.2	5.4
	(3.1)	(5.5)	(6.2)
Hours	2.0	3.5	3.6
	(1.7)	(3.8)	(4.4)
Output per Hour	1.6	1.7	1.7
	(1.4)	(1.7)	(1.7)
Compensation per Hour	1.3	1.4	2.3
	(-0.1)	(1.4)	(2.3)
Unit Labor Costs	-0.3	-0.3	0.6
	(-1.5)	(-0.4)	(0.6)
LABOR MARKET			
Unemployment Rate (Avg. Q4 Level)	9.7	8.3	6.8
	(9.9)	(8.3)	(7.0)
Participation Rate (Avg. Q4 Level)	64.5	64.9	65.3
	(64.8)	(65.0)	(66.0)
Avg. Monthly Nonfarm Payroll Growth (Thous.)	80	344	376
	(56)	(345)	(445)
INCOME			
Personal Income	4.1	5.1	5.7
	(2.8)	(5.0)	(6.2)
Real Disposable Personal Income	2.5	4.0	2.9
	(1.5)	(3.3)	(4.1)
Personal Saving Rate	5.8	6.8	6.6
	(5.0)	(5.7)	(6.4)
Corporate Profits Before Taxes	15.8	4.6	5.3
	(7.0)	(4.8)	(4.8)

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

B. FRBNY Forecast Details

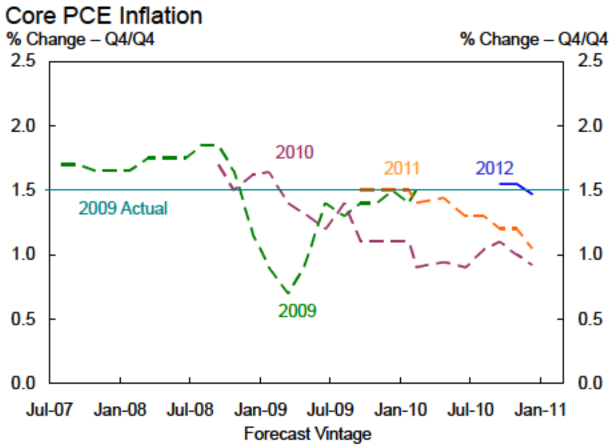
Exhibit B-6: FRBNY and Tealbook Forecast Comparison

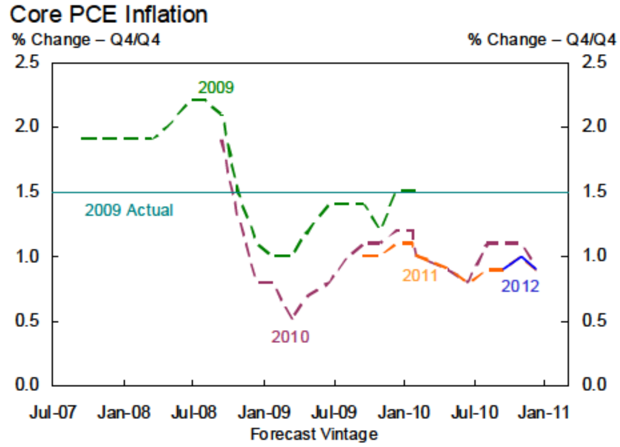
	FRBNY (Q4/Q4)			Board (Q4/Q4)		
	2010	2011	2012	2010	2011	2012
OUTPUT						
Real GDP	2.8	4.0	4.1	2.7	3.7	4.4
	(2.3)	(4.0)	(4.5)	(2.4)	(3.6)	(4.7)
GDP Growth Contributions						
Final Sales to Domestic Purchasers	2.7	3.6	3.7	2.7	2.7	3.7
	(2.7)	(3.3)	(3.9)	(2.4)	(3.4)	(4.6)
Consumption	1.7	2.1	2.1	1.7	2.5	2.8
	(1.6)	(1.8)	(2.4)	(1.6)	(2.2)	(3.1)
BFI	0.9	1.0	1.0	0.8	-0.1	0.4
	(0.9)	(0.7)	(0.8)	(0.8)	(0.6)	(0.9)
Residential Investment	-0.2	0.4	0.4	-0.2	0.2	0.3
	(-0.2)	(0.5)	(0.5)	(-0.2)	(0.5)	(0.4)
Government	0.3	0.2	0.2	0.4	0.1	0.2
	(0.4)	(0.3)	(0.3)	(0.2)	(0.1)	(0.2)
Inventory Investment	0.9	0.0	0.3	0.8	-0.1	0.4
	(0.8)	(0.2)	(0.3)	(0.9)	(-0.1)	(0.2)
Net Exports	-0.9	0.4	0.2	-1.0	0.2	0.0
	(-1.1)	(0.5)	(0.4)	(-0.9)	(0.3)	(0.0)
INFLATION						
Total PCE Deflator	1.2	1.4	1.8	1.2	1.1	0.9
	(1.1)	(1.4)	(1.8)	(1.3)	(1.1)	(1.1)
Core PCE Deflator	0.9	1.0	1.5	0.9	0.9	0.9
	(1.0)	(1.2)	(1.5)	(1.1)	(1.0)	(1.0)
INTREST RATE ASSUMPTION						
Fed Funds Rate (End-of-Year)	0-0.25	0-0.25	0.5	0-0.25	0-0.25	0-0.25
	0-0.25	0-0.25	(0.5)	0-0.25	0-0.25	0-0.25
PRODUCTIVITY AND LABOR COSTS*						
Output per Hour	1.6	1.7	1.7	1.3	1.7	2.1
	(1.4)	(1.7)	(1.7)	(1.5)	(1.5)	(2.0)
Compensation per Hour	1.3	1.4	2.3	1.6	1.9	2.1
	(-0.1)	(1.4)	(2.3)	(0.6)	(1.9)	(2.1)
Unit Labor Costs	-0.3	-0.3	0.6	0.2	0.2	0.0
	(-1.5)	(-0.4)	(0.6)	(-0.9)	(0.4)	(0.1)
LABOR MARKET						
Unemployment Rate (Avg. Q4 Level)	9.7	8.3	6.8	9.7	9.0	7.9
	(9.9)	(8.3)	(7.0)	(9.7)	(9.0)	(7.9)
Participation Rate (Avg. Q4 Level)	64.5	64.9	65.3	64.5	64.6	64.6
	(64.8)	(65.0)	(66.0)	(64.7)	(64.7)	(64.8)
Avg. Monthly Nonfarm Payroll Growth (Thous.)	80	344	376	75	225	292
	(56)	(345)	(445)	(58)	(217)	(308.3)
SAVING						
Personal Saving Rate (Avg. Q4 Level)	5.8	6.8	6.6	5.6	6.2	5.3
	(5.0)	(5.7)	(6.4)	(5.4)	(5.3)	(5.0)
HOUSING						
Housing Starts (Avg. Q4 Level, Thous.)	635	885	1125	500	800	1000
	(635)	(885)	(1125)	(600)	(1000)	(1300)

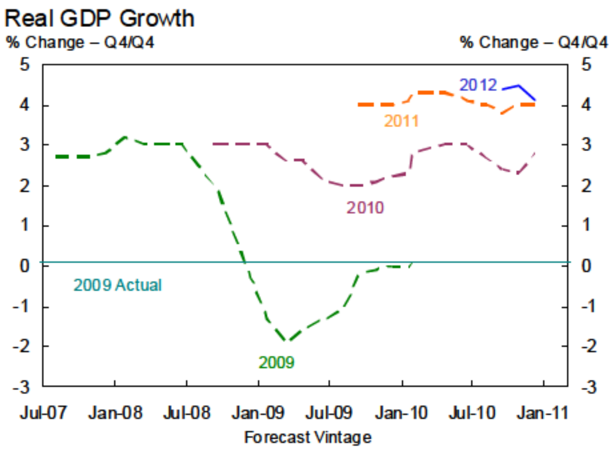
B. FRBNY Forecast Details

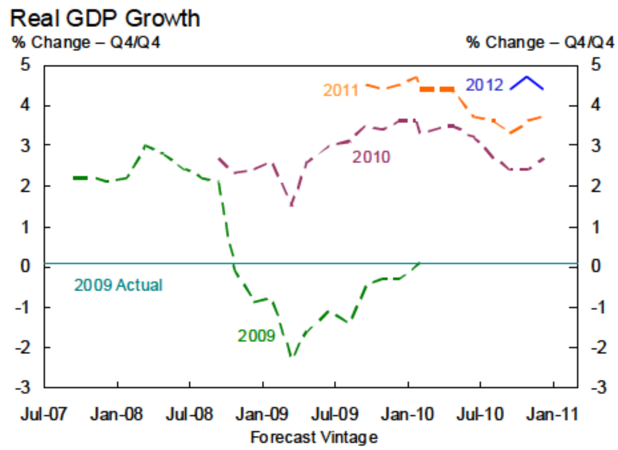
Exhibit B-7: Evolution of FRBNY and Board Forecasts since Mid-2007

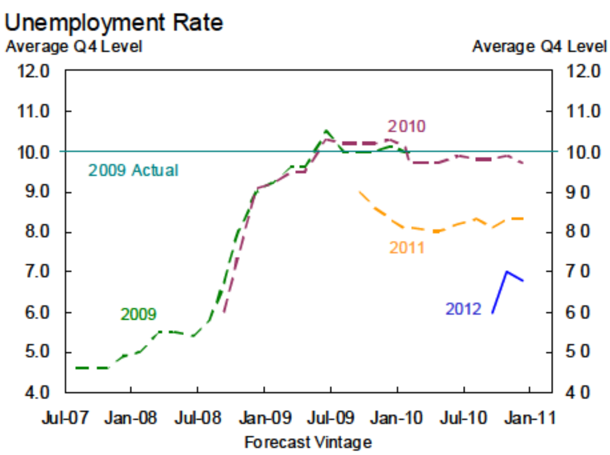
FRBNY | **Board**

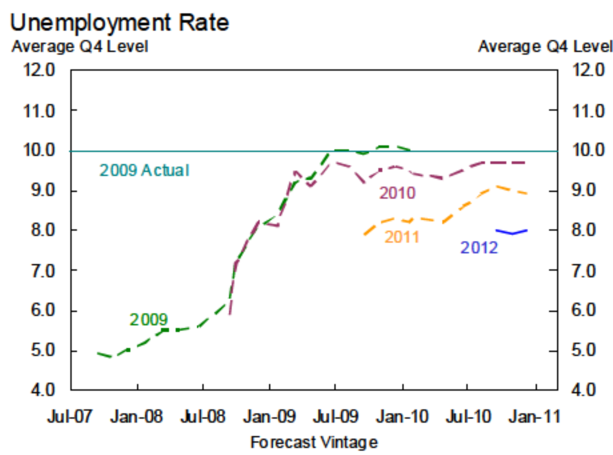












Note: Forecast vintage is the date the forecast was produced.

B. FRBNY Forecast Details

Exhibit B-8: Alternative GDP and Inflation Forecasts

Real GDP Growth

	Release Date	2010Q4	2011Q1	2010 Q4/Q4	2011 Q4/Q4
FRBNY	12/10/2010	3.2	3.1	2.8	4 0
		(1.8)	(3.6)	(2.3)	(4 0)
Blue Chip	12/10/2010	2.5	2.5	2.6	2 9
		(2.3)	(2.5)	(2.4)	(2 9)
Median SPF	11/15/2010	2.2	2.4	2.4	2.8
		(2.8)	(2.3)	(2.8)	--
Macro Advisers	12/6/2010	2.0	2.4	2.5	3.7
		(1.8)	(2.6)	(2.2)	(3.6)

Core PCE Inflation

	Release Date	2010Q4	2011Q1	2010 Q4/Q4	2011 Q4/Q4
FRBNY	12/10/2010	0.6	0.9	0.9	1 0
		(0.9)	(1.0)	(1.0)	(1 2)
Median SPF	11/15/2010	1.0	1.1	1.0	1 2
		(1.1)	(1.4)	(1.1)	(1.5)
Macro Advisers	12/6/2010	0.6	0.7	0.9	0.7
		(1.1)	(1.0)	(1.1)	(0 9)

CPI Inflation

	Release Date	2010Q4	2011Q1	2010 Q4/Q4	2011 Q4/Q4
FRBNY	12/10/2010	2.3	1.6	1.1	1.5
		(1.5)	(1.5)	(0.9)	(1.6)
Blue Chip	12/10/2010	2.1	1.7	1.1	1.6
		(1.6)	(1.7)	(1.0)	(1.7)
Median SPF	11/15/2010	1.9	1.6	1.0	1.6
		(1.6)	(1.8)	(0.9)	(1.8)
Macro Advisers	12/6/2010	2.2	1.4	1.1	0.7
		(2.0)	(1.2)	(1.1)	(1.1)

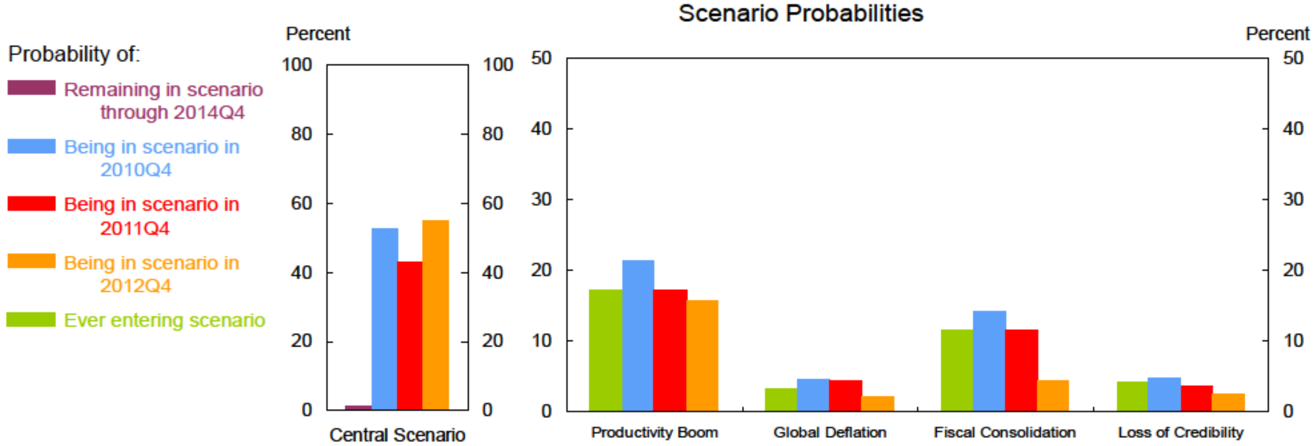
Core CPI Inflation

	Release Date	2010Q4	2011Q1	2010 Q4/Q4	2011 Q4/Q4
FRBNY	12/10/2010	0.4	1.1	0.6	1.3
		(1.1)	(1.3)	(0.8)	(1.4)
Median SPF	11/15/2010	1.0	1.1	0.8	1.3
		(1.2)	(1.2)	(0.9)	(1.5)
Macro Advisers	12/6/2010	0.4	0.7	0.6	0.7
		(1.1)	(0.9)	(0.8)	(0.8)

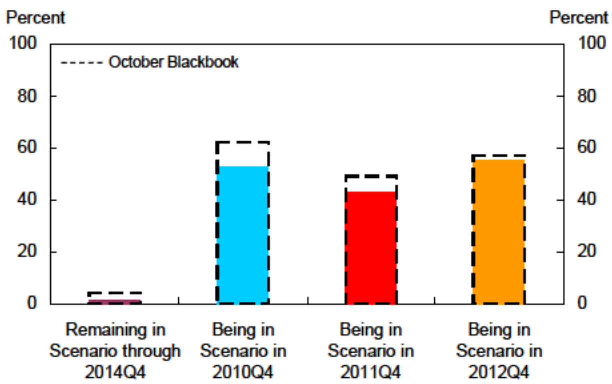
C. FRBNY Forecast Distributions

Exhibit C-1:
Risks

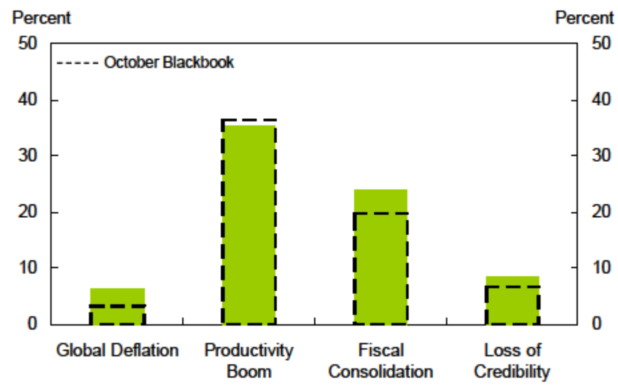
Scenario Probabilities



Change in Central Scenario Probabilities



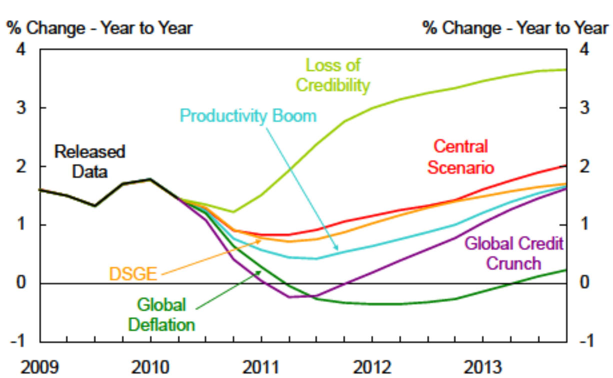
Change in Alternative Scenario Probabilities*



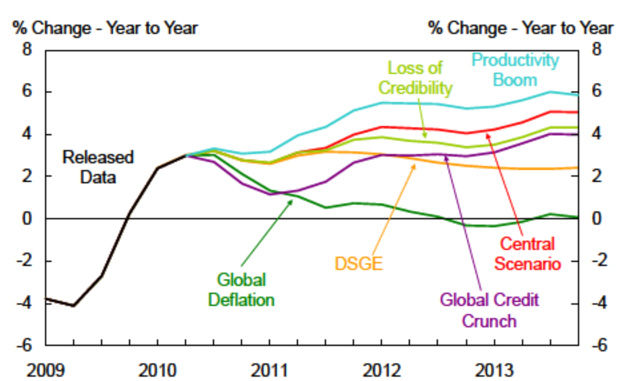
*Probability of ever reaching scenario

Exhibit C-2: Projections under Alternative Scenarios

Core PCE Inflation under Alternative Scenarios



Real GDP Growth under Alternative Scenarios

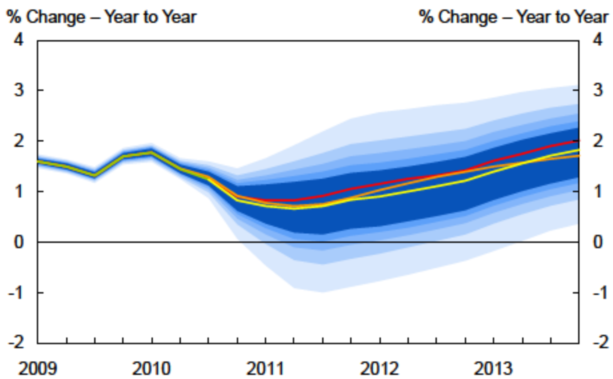


Source: MMS Function (FRBNY)

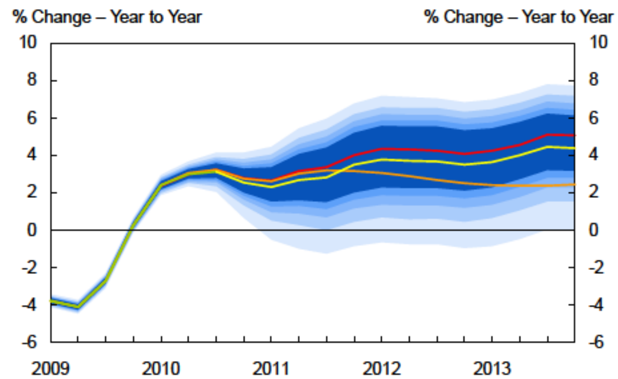
C. FRBNY Forecast Distributions

Exhibit C-3: Inflation and Output Forecast Distributions

Core PCE Inflation Forecast Distribution

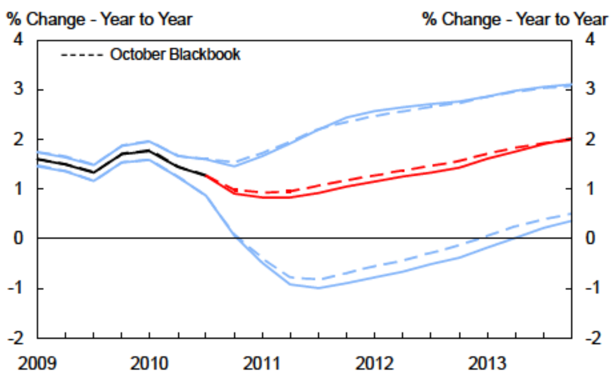


Real GDP Growth Forecast Distribution

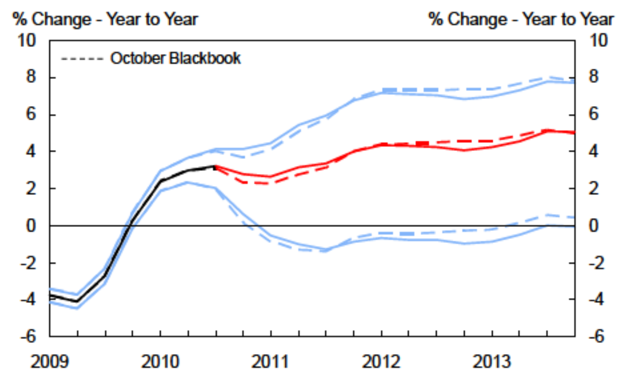


The yellow line represents the expected value of the forecast distribution, the red line represents the FRBNY central projection, the orange line represents the DSGE forecast, and the green line represents released data. The shading represents the 50, 60, 70, 80 and 90 percent probability that the four-quarter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

Change in Core PCE Inflation Forecast Distribution

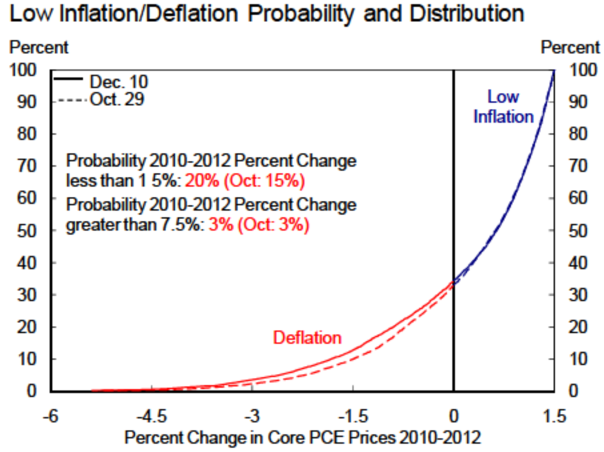


Change in Real GDP Growth Forecast Distribution

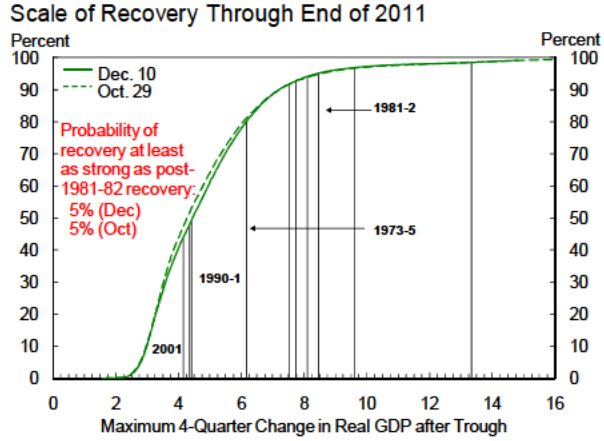


The blue lines are the 90% chance the four-quarter change will be within the lines, the red line is the central scenario projection, and the black line is released data. Dashed lines represent forecasts from the previous Blackbook.

Low Inflation/Deflation Probability and Distribution



Scale of Recovery Through End of 2011

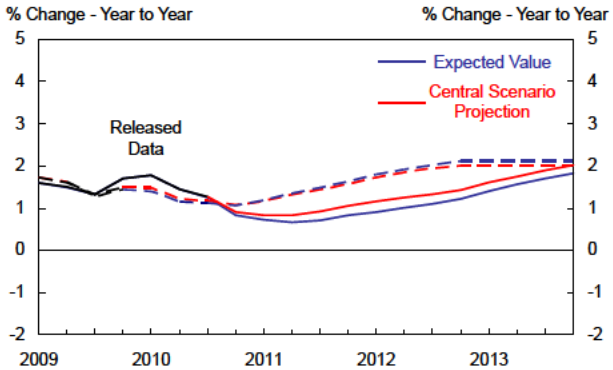


Source: MMS Function (FRBNY)

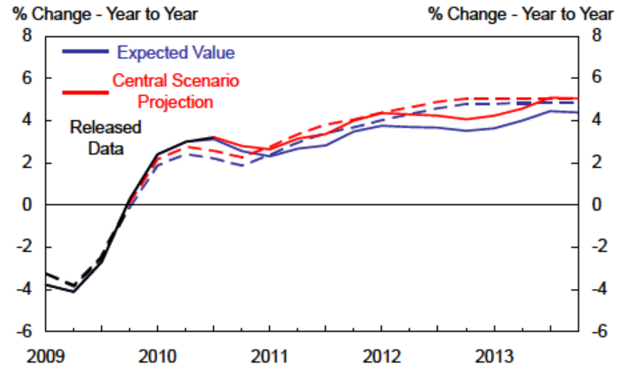
C. FRBNY Forecast Distributions

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

One-Year Comparison of Core PCE Inflation Forecast

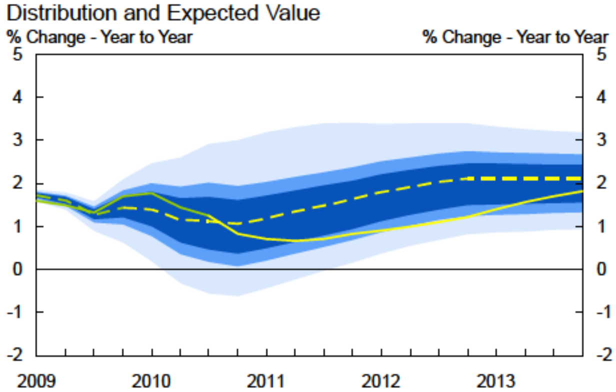


One-Year Comparison of Real GDP Growth Forecast

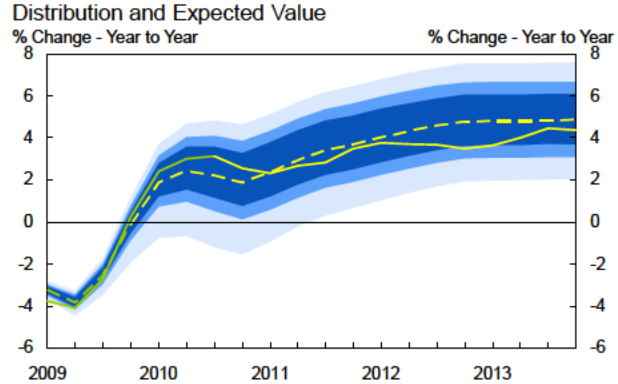


The solid lines represent the current central scenario projection and expected value, while the dashed lines represent those from the year-ago Blackbook.

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



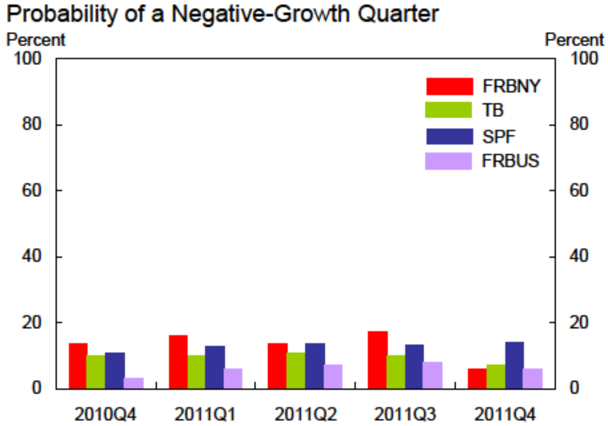
One-Year Comparison of Real GDP Growth Forecast Distribution and Expected Value



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

Exhibit C-5: Probability of a Negative Growth Quarter

Probability of a Negative-Growth Quarter

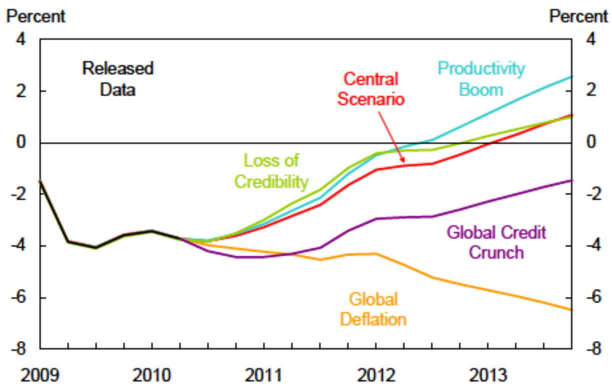


Source: MMS Function (FRBNY)

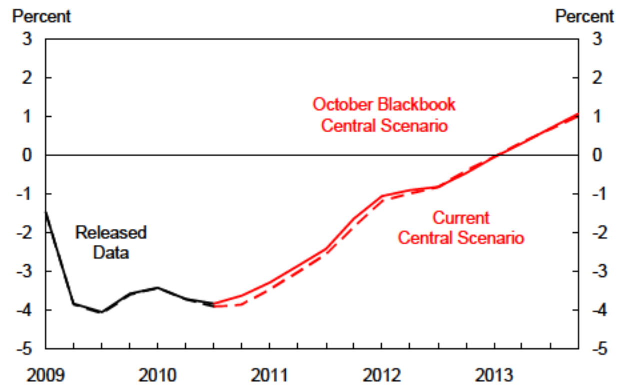
D. FRBNY Fed Funds Rate Projections

Exhibit D-1: *Baseline*
Policy Rule Analysis

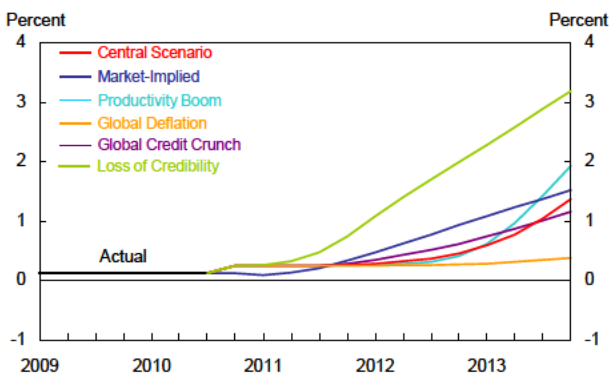
Real FFR under Alternative Scenarios



Change in Central Scenario Real FFR



Nominal FFR under Alternative Scenarios



Change in Central Scenario and Market-Implied Nominal FFR

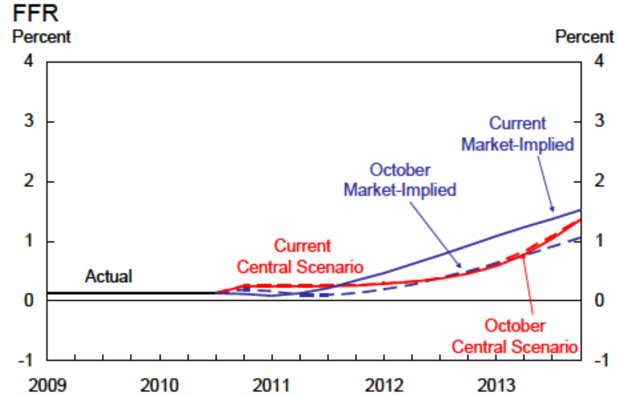
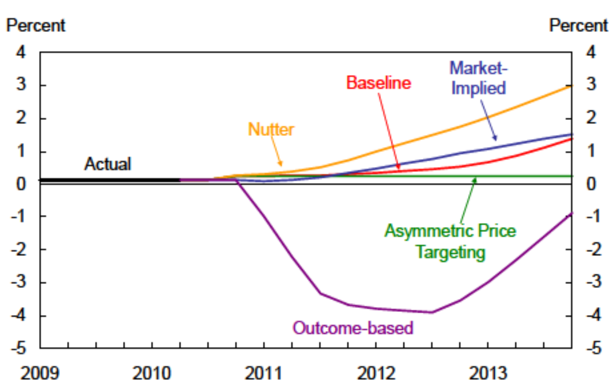


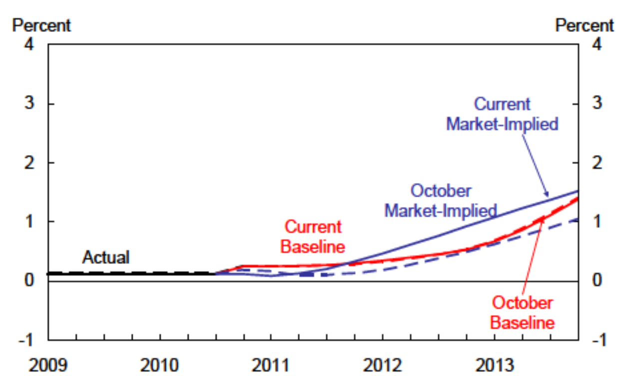
Exhibit D-2: Alternative Policy Rules under
Expected Value of Forecast Distribution

Nominal FFR using Alternative Policy Rules*



*Evaluated using yellow line from C-3

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



*Evaluated using yellow line from C-3

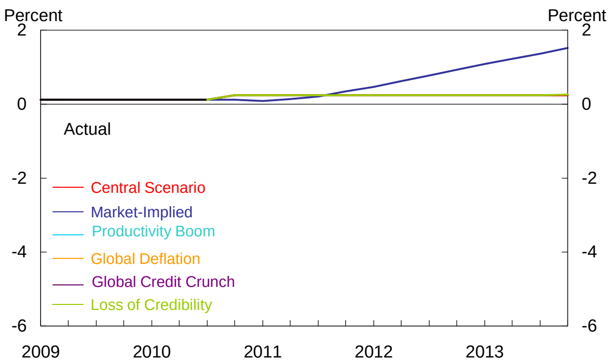
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

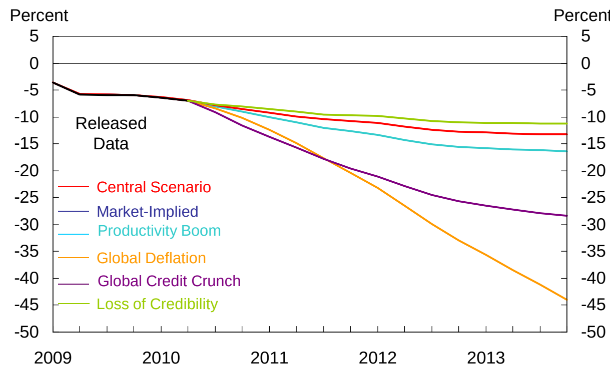
Exhibit D-3: Alternative Policy Rule Analysis

Policy Rule: *Asymmetric Price Targeting*

Nominal FFR under Alternative Scenarios

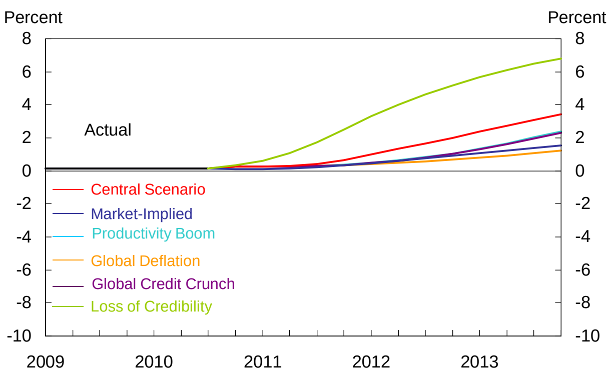


Real FFR under Alternative Scenarios

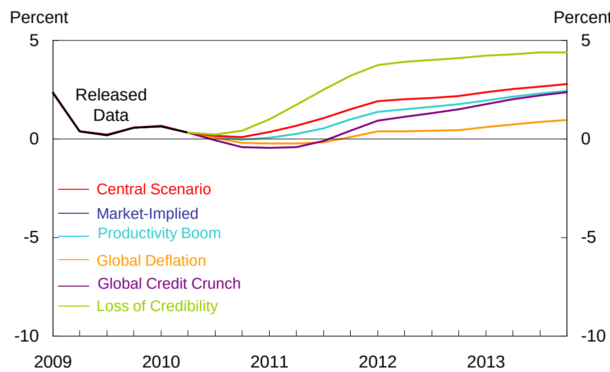


Policy Rule: *Nutter*

Nominal FFR under Alternative Scenarios

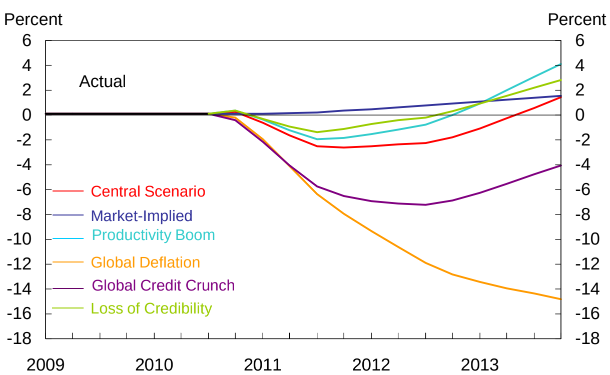


Real FFR under Alternative Scenarios

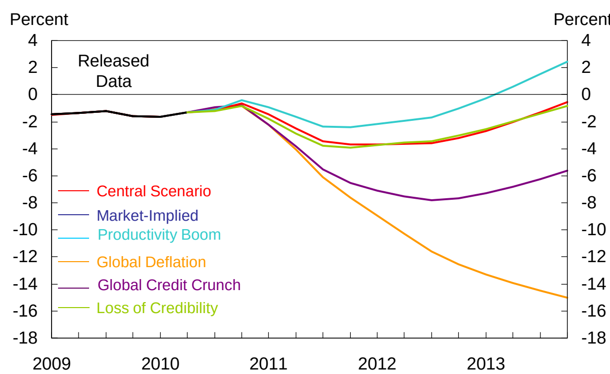


Policy Rule: *Outcome-based*

Nominal FFR under Alternative Scenarios



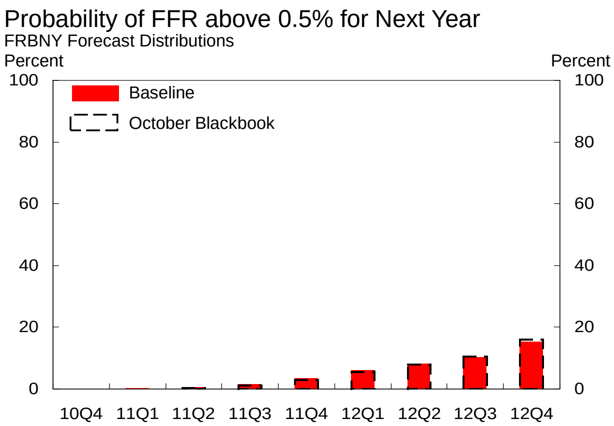
Real FFR under Alternative Scenarios

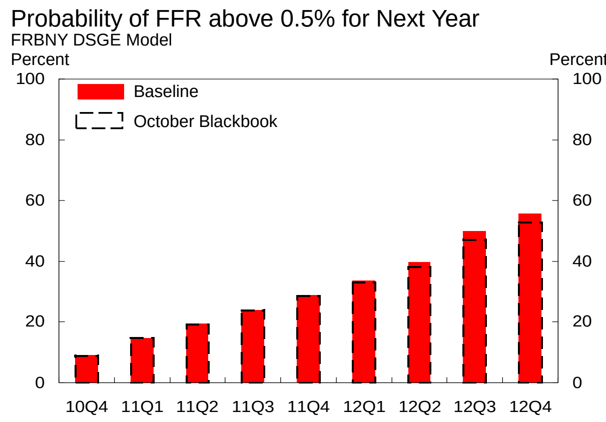


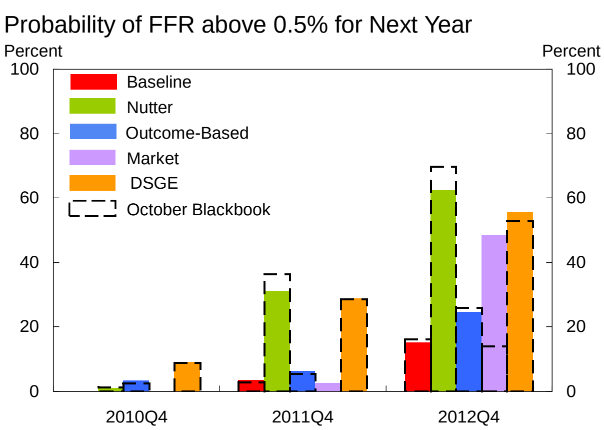
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

Exhibit D-4: FFR Probabilities







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

Source: MMS Function (FRBNY)

Alternative Scenario Descriptions

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

Our first two alternative scenarios consider the impact of above- and below-trend productivity growth, respectively. Our current assumption of trend productivity growth is around 1.75% on a nonfarm business sector basis. Sustained productivity growth above or below this assumption would have important consequences for the economy; consequently these alternative scenarios are expected to be included in almost all periods.

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: *Productivity Slump*

Despite the recent surge in productivity growth, there are a number of reasons that productivity growth could slow substantially in the future. First, the recent rise may reflect a new cyclical pattern whereby firms protective of their profit margins reduce labor input in anticipation of slower profit growth. The massive declines in hours worked that have been associated with recent strong productivity growth lend supporting evidence to this view. Second, it is possible that the IT developments that drove the longer-term upswing in productivity that began in the mid-1990s may have run their course. Third, a renewed increase in the level and volatility of energy and commodity prices could lead to lower productivity growth, as occurred in the 1970s. In any case, if the rapid gains in productivity seen during the recession prove to be only transitory, there could be an extended period of productivity growth below the trend in our central forecast. Below-trend productivity growth would imply a lower estimate of potential output growth (and therefore a smaller output gap) and would also push inflation above the level projected in our central forecast.

We also currently consider four additional scenarios. In two of them (*Fiscal Consolidation* and *Loss of Credibility*), the public and investors lose confidence in the current stances of fiscal or monetary 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 3: *Fiscal Consolidation*

Events in Europe in early and mid-2010 concerning the fiscal position of several euro zone countries raises 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 premiums that contribute to a decline in output growth below that of the central forecast. As the U.S. government responds to those concerns by reducing government spending and/or raising taxes, the consequent decline in aggregate demand would imply that growth of real activity continues to be weak. In this scenario inflation temporarily rises above the central forecast, in part due to a likely depreciation of the dollar and possible increases in inflation expectations[2]. However, after several quarters, with the government embarking on a credible fiscal

[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.

consolidation, inflation declines below the central forecast as a consequence of the drop in aggregate demand and output growth.

Alternative 4: *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 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 5: *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 rises in inflation and inflation expectations above forecast.

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. *Productivity Slump*: inflation above central forecast, output below central forecast.
3. *Fiscal Consolidation*: inflation initially above and then below central forecast, output below central forecast.
4. *Global Credit Crunch*: inflation below central forecast, output significantly below central forecast.

5. *Loss of Credibility*: inflation far above central forecast, output slightly below central forecast.
6. *Global Deflation*: inflation far below central forecast, output far below central forecast.

Policy Rule Descriptions

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

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

Baseline Policy Rule Specification:

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

$\rho = 0.8$ (interest rate smoothing parameter)
$i^* =$ 3.75 in short-term, moving to 4.25 (neutral FFR)
$\pi^* = 1.75$ (core PCE inflation target)
$\varphi_\pi = 1.5$ (weight on inflation deviations)
$\varphi_x = 0.5$ (weight on output gap)
π_t : core PCE, 4-quarter average
x_t : output gap, using 2.7% potential growth rate, moving to 2.6%
i_{t-1} : interest rate in previous quarter

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

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

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

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

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

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

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

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

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.