FRBNY Blackbook

RESEARCH AND STATISTICS GROUP

FOMC Background Material

December 2007

CONFIDENTIAL(FR) Class II FOMC

FRBNY BLACKBOOK

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EXHIBITS

EXHIBIT OVERVIEW

1. Policy Recommendation and Rationale

Our policy recommendation for the upcoming FOMC meeting is to reduce the FFR 25 basis points (bps) to 4.25%. We see this reduction in the FFR as a continuation of the reductions in the previous two meetings, and expect that the FFR will be reduced further over the next year. This path is lower than the path that was associated with our outlook in the October Blackbook. Consequently, we recommend that the policy statement prepare markets for further cuts, and leave open the option for the FOMC to accelerate the pace of reductions if the real economy proves to be as weak as some market participants expect. We also see the level of uncertainty about the outlook as elevated, and thus the committee should give itself considerable flexibility to respond to future developments. Consistent with this uncertainty, we also present two additional options for the rate decision at the upcoming meeting and their rationale: first, cutting the FFR 50bps to 4.00%, and, second, maintaining the FFR at 4.50%.

The economic and financial market developments during the inter-meeting period have led us to reduce modestly our 2008 real GDP growth outlook and raise again the downside risks to real activity. Of particular note have been the financial market developments, which pointed to a new wave of the financial market turbulence that began in mid-summer. Arguably, this new wave of turbulence has tightened credit conditions more than they were in mid-August: many credit spreads are wider than at that time, nominal Treasury rates were below the FFR for all maturities through 30 years, inter-bank spreads widened again, and asset-backed commercial paper outstanding declined further during the period. One response of ours to these developments was to replace the *Over-Tightening* alternative scenario with a *Credit Crunch* scenario.[1] Another response was to lower our estimate for the range of the neutral policy rate to 3.50-4.00% over the short term from our previous range of 3.75-4.75% and to widen the estimated range over the remainder of the forecast horizon to 3.50-4.75% (we assume that the range of the neutral rate slowly evolves back toward our previous estimated range). The combination

[1] See the end of this section for the details about this scenario.

of a lower neutral policy rate range and the change in our outlook and risk assessment justify the reduction in the FFR we recommend.

The economic data over the inter-meeting period have been less dramatic than the financial market developments. The inflation data indicate little change of underlying inflation pressures, with core PCE inflation remaining within the mandate-consistent inflation rate range of 1.5-2%; moreover, inflation expectations appear to be contained, suggesting that reductions in the FFR may not unduly raise inflation pressures. On the real side, despite the ongoing weakness in the housing market and some softer data on some fronts (e.g. real PCE and industrial production), the real economy has yet to show any significant recessionary signals and employment growth has remained fairly solid. For now, the economic data would argue for a more cautious pace of easing rather than the more aggressive pace taken in 2001.

Because of the uncertainty around the outlook as well as the significantly lower market-implied FFR path, the FOMC faces some difficult communications issues over the coming cycles. In regard to our recommendation, the FOMC probably should emphasize its view that even though the problems in housing and financial markets may reduce near-term real growth, these problems probably are not sufficient to lead to an economic downturn over the medium term, and thus a more aggressive pace of easing is not foreseen. However, it should also emphasize that the uncertainty and downside risks about the outlook have increased, and if problems in housing and financial markets do become more widespread, the FOMC stands ready to ease policy more aggressively.

Because of the concerns embedded in many financial market prices, an alternative to our recommendation is to reduce the FFR 50bps at the December FOMC meeting. According to our baseline policy rule an aggressive easing of policy similar to that priced into markets would be justified if a high probability is placed on the *Credit Crunch* scenario. If the FOMC sees the financial market developments and the decline in credit growth as signaling that this scenario has been more likely (and given that there are no strong inflationary pressures as of yet), a 50bps reduction in the FFR would send a strong signal to the market that could help preempt a recession. Communication of such a change in policy, especially given the statement following the October FOMC meeting, may be somewhat delicate, but the FOMC should state that such an action was taken to forestall some greater-than-previously-expected risks from a possible credit crunch and that it stands ready to act further to do so. Although we think the logic behind this alternative policy is reasonable, the lack of strong signals from the aggregate economic data suggests a more cautionary easing is appropriate at this time.

A less likely alternative to our primary policy recommendation is for the FOMC to leave the FFR unchanged at the December FOMC meeting. As already discussed, the economic data do not provide much firm evidence of a significant slowdown in the medium term (even if there is one in the near term) and the previous reductions in the FFR may be sufficient to offset any potential aggregate weakness from the housing and financial market problems. At the same time, inflation expectations appear to remain elevated and underlying inflation measures have stopped moderating and remain above some assessments of the mandate-consistent inflation rate. In addition, the depreciation of the dollar and high oil prices indicate upside inflation risks that further easing may exacerbate. In this case, the communications issues would be difficult: financial markets probably would respond negatively to such a decision. As such, the FOMC would have to communicate that the risks from housing and financial markets are not as large as priced into markets as well as that the inflation risks are more significant. In the end, because we see the upside inflation risks balanced by downside risks from slowing economic activity, while the downside real risks are not similarly offset by upside real risks, a policy path that is too cautious could lead to more serious problems for the real economy without much benefit for the inflation outlook.

Conditional on the interest rate path associated with our outlook, our projection for output growth has been revised downwards and stands now at 2.3% in 2008 (Q4/Q4) relative to 2.6% in the October Blackbook. The 2009 forecast is up slightly from 2.7% to 2.8%. Our projection for core inflation is 1.7% in 2008 and 2009, unchanged from that of the October Blackbook.

In the October Blackbook, we stated that the developments over that inter-meeting period were generally consistent with a reduction in the downside risks stemming from the financial market turmoil of the late summer. However, the financial market and economic developments during this inter-meeting period reversed much of the earlier improvements in credit conditions and indicate greater downside risks to economic activity. As was the case in the September Blackbook, these risks are substantial and we suspect that they will not persist: developments in the coming period should lead us to either reduce our central outlook (if the downside risks start to become realized) or the downside risks (if the data are consistent with our central outlook). In contrast, the risks to the inflation outlook have remained basically balanced.

In order to better capture these developments in the balance of risks, we have replaced the *Over-Tightening* scenario with a new one, called *Credit Crunch* that is cited in the discussion above. The new scenario features inflation below the central scenario – as *Over-Tightening* did – and output substantially below the central scenario (*Over-Tightening* also had output below the central scenario but to a lesser extent). The weight on the *Credit Crunch* scenario is currently higher than that formerly placed on *Over-Tightening* because of some additional weight shifted from the central scenario, which has contributed to the greater downside real risks in our current risk assessment.

2. Significant Development

2.1 Economic Developments

The economic indicators released during the inter-meeting period had some impact on the near- and medium-term real activity outlook as well as our risk assessment. For the outlook, they have prompted a reduction to our 2007Q4 real GDP growth projection and to our 2008 real GDP growth forecast, and a slight increase to the 2009 growth forecast. For our risk assessment, the data were a factor behind the increase in downside risks to real activity relative to the October Blackbook, which are now even more skewed to the downside. The data had less impact on our inflation outlook and risk assessment: we continue to see a very slight moderation of inflation with the risks roughly balanced.

The behavior of core inflation measures suggest that underlying inflation has flattened in the last couple of months after moderating fairly significantly earlier in the year. Nevertheless, changes in both core CPI and core PCE measures at most horizons between three and 24 months remained within their respective “comfort zones”; in particular, the 12-month changes were within those zones. Consequently, these data suggest a very slow further moderation of underlying inflation over the forecast horizon that is roughly consistent with our outlook.

Consumer energy prices continued to rise in October, reflecting the recent rises in spot petroleum prices (see Section 2.2) and the return of more normal levels of the “crack spread.” Food prices also continued to show relatively large increases. These factors pressured overall inflation measures in October: the 12-month changes in overall CPI and the total PCE deflator were well above their corresponding core measures, after being close to them during the summer.

Our alternative inflation measures, many of which take into account energy and food prices, also indicate that underlying inflation has flattened recently. After declining moderately from early 2007 to mid-summer, these measures, including our underlying inflation gauge (UIG) and signal components (SiCo) measure, have stopped declining in recent months. While the previous declines confirm that much of the decline in core inflation during that period was not the result of transitory factors, the recent flattening of these measures suggest that little further moderation of underlying inflation pressures is likely over the coming months.

Inflation expectations measures appeared to remain well contained during the inter-meeting period [Exhibits A-2 and A-3]. Shorter-term financial market inflation compensation was modestly higher over the period, probably reflecting the impact of higher oil prices and dollar depreciation. Nevertheless, it remains within its recent ranges. Longer-term inflation compensation approached its September highs early in the period, probably reflecting concerns about the FOMC inflation objective in light of recent policy as well as the effects of dollar depreciation. They declined in the second half of the period, possibly because market participants believed that a weaker real activity outlook would contain inflation pressures. Longer-term (9-10 year) inflation compensation was lower on net, while medium-term (4-5 year) compensation was somewhat higher on net. Both of these measures remained in the upper portion of the range that has prevailed over the past two years. Consequently, it may indicate some continued concern about the inflation outlook and FOMC credibility, but these concerns were not exacerbated during the period. In addition, some FRBNY analysis suggests that much of the rise in inflation compensation since mid-summer reflected liquidity adjustments rather than changing inflation expectations; this analysis further suggests that inflation expectations remained contained. Long-term (five-year) household expectations, as measured by the Michigan survey, remained near recent levels.

Another concern for the inflation outlook is the effect of import prices. The continued depreciation of the dollar (see Section 2.2) may have begun to push up import prices. In particular, import prices from some countries that previously had mitigated inflation pressures (most prominently, China) continued to rise and could portend some greater inflationary pressures from the external sector. Thus far, however, import price inflation of autos, capital goods, and consumer goods remain subdued. Overall, the inflation data have been roughly consistent with our outlook and continue to suggest that the risks around that outlook are fairly balanced.

Real GDP growth in 2007Q3 was 4.9% (annual rate), which was above our projection in the October Blackbook. Much of the difference was in inventory investment, which we do not expect to persist into 2007Q4. Furthermore, the monthly data so far suggest that real growth has slowed considerably in the current quarter. These factors have contributed to the reduction in our 2007Q4 real GDP growth projection, as well as an increase in the downside risks to real activity.

With solid output growth and a decline in hours, nonfarm business labor productivity growth was robust in 2007Q3, as the four-quarter change at 2.7% was its highest in over three years. The recent data have lowered the probability of a low-trend-productivity growth regime, as measured in the Kahn-Rich model, and reduced concern that trend productivity growth may be lower than our current estimate (1.8% on a nonfarm business basis).

The October monthly indicators of real activity generally painted a picture that was somewhat softer than our expectations in the October Blackbook, although no particular release was drastically weaker than expected. As has been the case over the past year, the housing market displayed considerable weakness. Single-family housing starts and building permits fell substantially in October in another sign that the housing downturn re-intensified since mid-summer, which is probably a reflection of the tighter credit conditions in the market. Both starts and permits are now at their lowest levels since 1991. In addition, the homebuilders index remained at a historic low, indicating continued pessimism from homebuilders. Sales of new and existing homes remained weak in October and are at levels not seen since the mid-1990s. The combination of continued weak sales and high inventories-sales ratios of new and existing homes suggest that there will be continued weakness in the market. Consequently, we see the slump in housing activity as even more protracted than in our pessimistic outlook in the October Blackbook, with the decline in residential investment continuing through most of 2008 (see Section 3.1).

With sales activity weakening further, nominal home price appreciation became more negative over recent months by many measures. The four-quarter change in the Case-Shiller national index was -4.5% in 2007Q3, which is its historic (since 1987) low; the composite metro indices displayed similar changes. The year-over-year change in the Radar Logic composite index (which is available at a high frequency) is closer to -2½%, but this is still considerably lower than it was a couple of months ago. The OFHEO index declined in 2007Q3, although its four-quarter change remained modestly positive at 1.8%. The differences between the OFHEO and the other price measures primarily reflect that OFHEO does not include homes with nonconforming mortgages, which are the units that have displayed the most weakness during this housing downturn. In any event, real home price appreciation clearly has turned negative by many of these measures. Because of their impact on real household wealth, these declines indicate downside risks from potential spillovers from the housing market into consumption.

After improving somewhat in the previous inter-meeting period, mortgage market conditions deteriorated in this period, displaying renewed stresses [Exhibit A-11]. Delinquency and foreclosure rates continued to rise. Although this development remained most evident in subprime mortgages, increases in delinquencies and foreclosures for prime mortgages have become more apparent. In addition, with downgrades in ratings of mortgage-backed securities (MBS), reported mortgage-related losses and write-downs at financial institutions were larger than expected, leading market participants to fear even more substantial future losses. Consequently, market participants continued to be reluctant to hold mortgage-related assets; in part, this reluctance was reflected by sharp drops in the AAA-rated ABX indices to well below their August lows, even after a moderate recovery in the past week. The late recovery reflected expectations of a policy response to the downside economic risks as well as the prospects of addressing mortgage-reset issues; in regard to the latter, the proposed relief appeared to be limited, which limited the recovery. Lower-rated ABX indices did not fall as much during the period, but they also remain well below their August levels. Therefore, there appears to have been little securitization and origination of subprime mortgages. For prime jumbo mortgages, the spread between these rates and conforming mortgages widened again to unusual levels. Moreover, with losses at Fannie Mae and Freddie Mac, the spread between conforming mortgages and Treasuries (as measured by the OAS spread) also has widened to unusual levels. These developments raise the possibility of further negative impacts from tighter credit conditions on home sales, construction, and prices, increasing the potential of spillovers and thus greater downside risks to the real activity outlook.

Despite the concerns, consumer spending displayed little evidence of spillovers from the housing market through 2007Q3, as real PCE growth remained solid in that quarter. However, the consumer spending indicators for October were soft, raising the possibility that some spillovers may be beginning to become apparent. Real PCE declined slightly in October, with declines in real goods expenditures and rather modest increases in discretionary services expenditures. The softness in October consumer spending was one factor in the reduction in our near-term consumer outlook. Although motor vehicle sales rose slightly in November, their level was consistent with our outlook and had little further effect on our consumer spending outlook. In addition, declines in consumer confidence indices to their two-year lows suggest greater concern about the consumer outlook. Because of the importance of consumption and possible spillovers into it from housing, it will be important to monitor consumer spending indicators in the coming months to assess whether the downside risks in our outlook are being realized.

A number of business activity measures released during the inter-meeting period indicated that conditions were rather soft, possibly reflecting the impact of greater uncertainty and tighter financial conditions over the past few months. Manufacturing production experienced a broad-based decline in October while durable goods orders also fell, continuing a lull that began in August. Although total factory orders rose modestly in October, they also suggest sluggish conditions in the sector. The lull in production also may signify that firms have begun to cut back on inventory investment after it contributed considerably to real GDP growth in 2007Q3. The modest growth in October of manufacturing inventories would be consistent with such a cutback. The extent of any cutback is unclear at this time, although the relatively low levels of inventories-sales ratios would suggest that it will be limited, and thus they are a somewhat less pessimistic sign for future production. Business survey measures generally remained at levels that are typically consistent with modest to moderate growth (our Empire State measure remained even stronger), which suggest that the lull could be transitory, but sharp declines in the expectations indices of the Empire State and Philadelphia Fed surveys are of some concern.

Monthly capital spending indicators suggest that equipment spending, which posted a solid gain in 2007Q3, may moderate in the current quarter. Capital goods shipments and orders fell in October, suggesting a slow start for equipment spending in 2007Q4. In addition, high-tech production growth slowed further in October and growth in the

FRBNY Tech Pulse index has slowed in recent months, suggesting upcoming slower high-tech equipment spending growth. Expenditures on nonresidential construction, which has been robust over the past year, fell in October; however, upward revisions to previous months and the volatility of the monthly data mean that it is not yet clear whether a significant slowdown in this sector has begun.

Despite the somewhat softer tone of the aggregate demand data, the labor market indicators generally have remained fairly solid, which are a factor that has limited the downgrade in the real activity outlook. Private employment as measured by the ADP survey was robust in November, with increases at all sizes of firms. Payroll employment increased solidly in October and November, and the recent pace of employment growth was roughly near its trend; however, it was somewhat below that of 2006 and the first half of 2007. Employment growth continued to be weak in housing- and mortgage-related sectors, and employment continued to fall in goods-producing industries; however, payroll growth at private service-producing industries has been fairly well maintained. Of note is a rebound in employment in temporary help services, reducing some of the concerns engendered by previous declines in this sector.

The household survey displayed some improvement in November after being quite soft in October. The unemployment rate was unchanged at 4.7% in October, which is only slightly above the lows from early in the year. The labor force participation rate rebounded in November after a decline in October; abstracting from the monthly fluctuations, the participation rate appear to be roughly flat at 66%, which is somewhat below its levels from late 2006. The employment-population ratio also rebounded in November, and its also appears to have stabilized around 63%; again, this level is modestly below that of late 2006. Employment growth in the household survey (on a basis comparable to that of payroll employment) was robust in November after a soft October. Nevertheless, the growth of household employment over the past year has slowed and it is below that of payroll employment growth, suggesting that the labor market is softer than suggested by the payroll numbers.

There also have been some other signs of possible concern about the labor market outlook. Unemployment insurance claims have trended upward during the inter-meeting period and are now near the top of the range that has prevailed over this year; therefore, further increases beyond this level would suggest greater concern about the outlook. Even though payroll employment growth remained solid, the diffusion index of one-month employment changes across industries declined to slightly below 50 in November, indicating that employment growth may be becoming more concentrated among industries. Although these data can be noisy, such a decline is of some concern; for example, this index fell to below 50 in early 2001 before the onset of the 2001 recession. Given the importance of continued a firm labor market to support consumer spending, the state of the labor market will remain even more important than usual in assessing the real activity outlook and the risks to it.

The labor costs data (i.e. average hourly earnings and the ECI) generally were little changed and indicate that labor cost pressures remained near recent fairly contained levels. An exception was compensation per hour, whose four-quarter change in 2007Q3 was the highest since 2000, despite significant downward revisions in 2007Q2 and 2007Q3. In part the difference may reflect options realizations and other past performance bonus income that would have less impact on future labor pressures. In addition, with productivity growth stronger, the four-quarter change in unit labor costs has declined from the more elevated levels in 2006Q4-2007Q2, although it remains above the levels that prevailed over 2001-2005.

Net exports was another strongly positive contributor to real GDP growth in 2007Q3, which may be consistent with a shift in U.S. production from nontradable goods (e.g., housing) to tradable goods. In part, the narrowing of the trade deficit reflects lower oil imports, as the U.S. consumer appears to have responded somewhat to higher oil prices (although, there appears to have been some unusual activity that may not persist). Nevertheless, the real nonpetroleum trade balance is down 10% over the year, due to strong exports coupled with flat imports. As of September, real exports were up 10% over the year, with particular strength in exports to Europe and China. Export growth to

NAFTA (North American Free Trade Act) countries continues to recover from its previous slowdown. Non-oil imports have been flat over the year; their most significant declines have been in categories associated with housing. Consistent with the revised outlook for U.S. domestic demand, we anticipate a larger positive contribution from net exports to 2008 real GDP growth than in the previous Blackbook.

Foreign indicators remained relatively stable, showing little sign that the ongoing financial turmoil is having a substantial impact on global economic activity. Euro area indicators have suggested some slowing in activity, but confidence measures were up slightly in November. Exports continue to grow nearly 10% (annual rate) despite the strong euro, supported by demand from Eastern Europe and oil exporters. In Japan, the drag from residential investment caused by new regulations has been offset by strong export growth. Recent retail sales data have been encouraging. Overall and ex-food CPI inflation moved into positive territory, reflecting higher energy prices; however, ex-food and energy, mild deflation continued. In China, all indicators remain robust, with no slowdown in money and credit growth. The trade surplus hit a record level, although export growth eased somewhat. Food prices continue to keep inflation near 6.5%.

2.2 Financial Markets

A new wave of financial turbulence emerged in U.S. and global financial markets during the inter-meeting period, reflecting concerns about the severity of the U.S. mortgage and housing crisis, U.S. and global growth prospects, and mortgage-related balance sheet losses for financial institutions as well as their implications for the real activity outlook and risk assessment. Trading conditions in many markets became more strained, and many spreads approached levels near to or exceeding those of the August financial turmoil.

With market participants apparently lowering their real activity outlook and raising their assessment of the downside risks, the expected FFR curve dropped considerably over the inter-meeting period; the minimum point of the curve is now about 3% in early 2009, about 78 basis points (bp) below its level prior to the last FOMC meeting [Exhibit A-5].

Over the near term, market participants place a high probability of a cut in the FFR at the December FOMC meeting. However, they still display uncertainty about the size of the cut: markets place large probabilities on a 25bp or 50bp cut, and even some positive probability placed on a 75bp cut. In contrast, the implied probability of no cut in the FFR is 0%. The continued shift down in the FFR futures curve appears to reflect greater concern about the potential size and impact of subprime mortgage-related losses and real economic activity, as well as possibly the belief that the FOMC will continue to respond fairly aggressively against such possibilities.

Both implied volatility and negative skewness about the future policy path increased during the inter-meeting period. Near-term implied volatility and skewness remained somewhat under the August peaks, suggesting that they are still somewhat less concerned about an unexpected large cut in the FFR after the 50bp cut in September and the 25bp cut in October (along with the October statement). However, longer-term volatility has risen above its August levels. This development indicates that market participants are very uncertain about the extent of a possible series of cuts in the FFR as well as the level of the neutral policy rate in light of renewed financial market turmoil.

The concerns about the real outlook and greater downside real risks prompted market participants to engage in more risk averse behavior, which contributed to decreases in long-term and short-term nominal Treasury rates over the inter-meeting period [Exhibit A-4]. The ten-year nominal Treasury rate declined from about 4.5% to just over 4%; earlier in the period is was under 4%, which is the lowest it has been since early 2004. Spreads between on-the-run and off-the-run securities widened, as more risk-averse behavior from market participants was reflected in preferences for greater liquidity. Short-term nominal rates fell even more sharply than long-term rates, partly reflecting greater concerns over risk exposures with more reports of mortgage-related losses at financial institutions. Consequently, the nominal yield curve became more positively sloped; however, the continued volatility of short-term rates may mean that the signals from the curve are still very uncertain.

Shorter maturity real Treasury interest rates fell considerably over the inter-meeting period. The five-year real yield declined from 1.9% to 1.3%, while the 4-5 year forward rate fell from 2.1% to 1.8% [Exhibit A-4]. Longer maturity real interest rates increased, from 2.3% to 2.5% for the 5-10 year forward, and 2.4% to 2.7% for the 9-10 year forward. This pattern also suggests that market participants' concern about the real activity outlook and risks is related more to the nearer-term outlook than the longer-term outlook. Nevertheless, these real rates are up somewhat from their recent intermeeting period lows on prospects that policy may mitigate some of the downside risks.

Credit spreads have risen substantially since the last FOMC and investment grade spreads are now at their highest level in a decade [Exhibit A-7]. Option-adjusted investment-grade (A) spreads have risen to 197 basis points, which is slightly higher than in late 2002 (the previous maximum), and substantially higher than during the 2001 recession. At 180 basis points, investment-grade bank spreads are markedly higher than the previous highs preceding the 2001 recession (152) and following the LTCM crisis (149). Longer-maturity swap spreads have risen, but remain below historical highs. The sharp rise (100 basis points or more) in speculative-grade spreads over the inter-meeting period put them at multi-year highs. The substantial rise in spreads reflects market participants' concern that the effects of the housing downturn and mortgage-related problems may become more widespread and protracted than expected. Given that the speculative-grade spread turned up substantially before the 2001 recession, this signal is worrisome for the real activity outlook.

Other credit spreads also rose substantially during the period [Exhibit A-11]. Spreads on all subprime MBS tranches rose considerably and exceeded their August peaks. It is particularly worrisome that spreads on investment-grade tranches of subprime MBS are now trading at more than 400 basis points. In addition, prices for all tranches of the ABX, including AAA-rated, are well below their levels of August, indicating expectations of further increases of losses from subprime delinquencies. The recent remittance data appear to be consistent with these expectations.

Outside of mortgages, spreads on high-grade asset-backed securities (ABS), such as AAA-rated consumer debt ABS tranches, increased during the period and are near the peaks from August. This pattern reflects the increase in expected defaults that is showing some signs of spreading beyond the sub-prime mortgage market, as well as the repricing of default risk.

Inter-bank lending markets deteriorated over the inter-meeting period, particularly for term LIBOR over the year-end [Exhibit A-11]. Spreads of term LIBOR over the FFR and over Treasuries (the TED spread) rose during the period and now exceed those observed in August, while trading conditions were more strained. These developments reflect concerns among financial institutions about the conditions of other financial institutions in the current stressed financial environment, which raised liquidity demand amid the usual year-end pressures.

Asset-backed commercial paper continued its sharp decline, while unsecured commercial paper issuance of both financial and non-financial companies rebounded for the first time since the summer [Exhibit A-7]. The growth of C&I loans slowed during the inter-meeting period; their growth since mid-summer has not fully offset the decline in commercial paper. The decline in total credit to firms is consistent with concerns of a credit crunch that would have a negative impact on real activity. (We have introduced a *Credit Crunch* scenario to our alternative scenarios [see Section 3.2].)

Equity markets declined over the inter-meeting period, with the S&P 500 index down about 1.5% and the NASDAQ down about 3.8%. These declines apparently reflected market participants' increased assessment of downside real risks and an outlook of lower profit growth amid the greater-than-expected mortgage-related losses reported by many financial institutions. These reports suggested the possibility of greater spillovers from the housing downturn, as financial firms pull back on lending in response to these losses and hits to their capital. Expectations that policy will respond to mitigate those risks pared the losses over the past week. Implied volatilities rose during the period; although

S&P500 implied volatility remains somewhat below the peaks of August, it is quite elevated and suggests continued concern about the future performance of equities.

Financing conditions in global markets also deteriorated since the last FOMC meeting. Trading in global money markets grew more strained, with a notable decline in outstanding European asset-backed commercial paper and still-high term spreads, and sock markets registered large losses in mid-period, before recovering near period end.

Investor concern about the ability of the global economy to weather a U.S. slowdown weighed also on bond markets, along with heightened flight to quality. Long sovereign rates fell broadly during the period, in both real and nominal terms, while spreads on lower-rated corporate bonds have risen. The European yield curve now shows greater inversion than at the time of the last FOMC meeting. Inflation break-even rates have risen by 30bp in the euro area since before the summer, reflecting the expected impact of higher energy prices as well as, likely, a higher premium for increased risk. By contrast, inflation break-even rates remain near-zero in Japan, as the country continues to battle stubborn deflationary pressure.

After strengthening through October, emerging financial markets were under mild pressure in recent weeks. Concerns about the outlook for global growth, future commodity prices and their impact on inflation, and global credit conditions were the key factors weighing on these markets' performance. External emerging markets' issuance slowed and external spreads widened, while equity prices also retreated after reaching record highs at end-October. Still, as was the case over the summer, relatively strong emerging market fundamentals have continued to help pace many emerging financial assets ahead of their counterparts in the developed world.

The adverse U.S. economic outlook and expectations of U.S. policy easing weighed on the dollar, which depreciated against major foreign currencies and in effective terms – about 1 – 2% in both nominal and real terms – during the period. During the inter-meeting period, the dollar traded as low as 107 yen/dollar, and 149 dollar/euro before recovering ground at period's end. The strength of the yen in good part reflects investors' move to reduce some of their exposure to global exchange rate risk, which especially supported the yen's strength against high-yield currencies. In mid-period, the euro's strength and related official ECB commentary have prompted speculation of impending ECB intervention; yet, the likelihood of near-term intervention by the ECB remains remote. Option-implied volatility is hovering at multi-year highs for both yen-dollar and dollar-euro rates, while the data from risk reversals indicates that investors are now seeking protection mostly against euro weakness (and yen strength) – an apparent sign that the dollar's slide against the euro may be nearing an end.

Market speculation of faster renminbi appreciation ahead increased during the period, following speculation that China may become more aggressive in diversifying its foreign exchange reserves and official commentary about increasing scope for market forces in the exchange rate regime. Forward contracts now imply a 9% expected renminbi appreciation against the dollar over the next year.

Oil prices were especially volatile, reaching a new high of near $100 per barrel in the third week of November, before retreating to below $90 per barrel at period's end. Elevated oil prices continue to reflect a combination of supply-driven factors, geopolitical tensions in some oil-producing areas, and indications of continued strong global oil demand, all of which contributed to lower reported inventories. The more recent decline in both spot and future prices seems to reflect concern about concern of a possible U.S. slowdown on global oil demand.

2.3 Global Economic Policy

The ECB and the Bank of Japan were on hold during the inter-meeting period. European authorities face the uneasy concurrence of simmering inflation pressure and financial market weakness. The press report after the last ECB policy meeting, however, seems to rule out any loosening in policy in the near future. Currently, markets expect no change in policy by either the ECB or the Bank of Japan before 2008Q4, although uncertainty around this central forecast has increased in recent weeks. After pointing to an impending rate cut in its latest Inflation Report, the Bank of England cut its policy rate on December 6. The Bank of Canada also cut rates on December 4, yielding to concern with the impact of recent financial turmoil, despite evidence that the economy might be operating above capacity. Elsewhere, the central banks of Australia and Sweden responded to heightened inflation concerns by hiking rates by 25bp during the period. In emerging markets, the most notable development was Saudi Arabia's lowering of policy rates in an apparent attempt to fend off speculation of riyal de-linking from the U.S. dollar. Official intervention by other emerging market central banks reportedly continued, though likely at a slower pace than in the previous period.

3. Evolution of Outlook and Risks

3.1 Central Forecast

Conditioning assumptions. The key conditioning assumptions underlying our central forecast for real GDP growth and inflation have changed since the October Blackbook. First, we did not anticipate the 25bp reduction of the FFR decided upon at the October FOMC meeting. Second, the inter-meeting developments in the real economy and financial markets have led us to conclude that the FFR will decline to 3.75% by 2008Q2. We expect it to remain at that level through the end of 2008 and then gradually rise to 4.25% (our central estimate of the neutral rate over the medium term) by the end of the forecast horizon. Relative to the path assumed in the October Blackbook, the FFR is 50bp lower for most of 2008 but returns to the level assumed in October by the end of 2009.

The rationale for this change in the assumed path is twofold. First, the economic indicators released over the past month suggest that the economy has lost more forward momentum in 2007Q4 than previously expected. Also, after calming somewhat during October, financial markets became progressively more unsettled over the past month. The credit market turmoil that originated in the non-agency mortgage market appears to have intensified and spread more visibly into the prime conforming conventional market. In addition, there has been an appreciable widening of corporate credit spreads. Combined, these developments have led us to lower our projection for growth of real GDP for 2008 to around 2¼%, which induces an increase in the unemployment rate to 5% and the opening of an output gap of about ½ percentage point. With an unchanged risk distribution, this reduction of the central forecast increases the probability of a recession in 2008. In addition, our sense is that downside risks to growth have increased significantly over the past month, further boosting that recession probability, which argues for a lower FFR path.

Second, while we continue to believe that over the medium term the neutral funds rate lies somewhere in the 3.75% to 4.75% range, we suspect that the recent tightening of credit conditions has temporarily lowered the neutral rate somewhat. In this circumstance, the current stance of policy is restrictive despite the reductions in the FFR at the last two FOMC meetings. In the current circumstances, we believe it is inappropriate to maintain an FFR that is restrictive, and thus it argues for a lower path.

Our assumed path for the FFR is above the path implied by prices in futures markets. That market-expected path has declined dramatically since over the inter-meeting period. In contrast, our assumed path is below the path behind the Greenbook forecast for 2008; however, by the end of 2009, our assumed FFR is 25bp above that in the Greenbook forecast, a pattern that has not occurred over recent periods.

Another significant change in conditioning assumptions is the assumed path of oil prices. While spot oil prices have eased some in recent days, we expect the spot price of West Texas intermediate crude oil to average about $92/barrel in 2007Q4, up from $83.75 in the October Blackbook. Based on futures quotes, which have eased less in recent days and remain significantly higher than they were in the last inter-meeting period, we assume that oil prices will gradually decline to the mid-$80/barrel range by the second half of 2009; the entire path is, on average, nearly $10/barrel higher than the October Blackbook and about $20/barrel higher than the September Blackbook. The rise in the oil price path results in higher overall inflation in the near term and lowers the level of real income over the entire forecast horizon.

The 2008 foreign growth forecast has been revised down 0.2 percentage points since the October Blackbook. In the industrial world, factors lowering the forecasts for the euro area, the U.K., and Canada include financial market turmoil, a higher oil price assumption, and slower expected growth in the U.S. The outlook for China was revised down 0.3 percentage points in response to new efforts by authorities to limit loan growth, with the expected spillovers also lowering the outlook for rest of emerging Asia. The key risk to the foreign GDP outlook is the substantial downside risk to the US outlook as well as from the ongoing disruptions in financial markets.

The remaining conditioning assumptions underlying our central forecast are similar to those of the October Blackbook. We maintain our estimate of potential GDP growth at 2.7%: 1.2% trend hours growth (although we assume it will begin to decline in 2009-2010) and 1.5% trend productivity growth (GDP basis, which is equivalent to 1.8% on a nonfarm business sector basis). We also believe that the economy is currently operating near potential. Combined with the downward revision to projected growth for 2008, these two conditioning assumptions suggest that a modest output gap opens up over the course of next year.

As always, there is substantial uncertainty around our estimate of potential GDP growth. The future trend growth of hours worked remains the subject of debate. However, over the past few years the participation rates for men and women aged 55 and over have edged up rather down as expected by those who argue that labor force growth is on the verge of a significant slowing. There is also significant uncertainty regarding trend productivity growth. Successive downward revisions of real GDP along with the increase in the probability of the low-trend-productivity-growth state according to the Kahn-Rich model in the last inter-meeting period raised the possibility that our assumed trend is too high. However, it does appear that the steep plunge in residential investment resulted in a pronounced cyclical slowing of productivity growth from 2004 through 2006. Over the past year productivity growth has actually improved somewhat, and the probability of the low-trend-productivity-growth state has subsided somewhat.

We expect the lower inflation persistence evident since the early 1990s to continue; this assumption is in contrast to the greater inflation persistence assumed in recent Board staff forecasts. The moderation of the year-over-year change of the core CPI and core PCE deflator this year is consistent with our assumption.

We also assume that long-run inflation expectations remain contained at or below current levels. This assumption is supported by the relative stability of longer-dated inflation expectations despite the sharp run-up of oil prices and the aggressive easing of monetary policy expected by financial markets. Within the context of our forecast for growth, these contained expectations result in the gradual moderation of inflation toward the midpoint of the FOMC's objective for core PCE inflation of 1.5% to 2%.

We expect that term premia will remain relatively low although slightly higher than assumed in the September Blackbook. As measured by the Board staff's three-factor model, term premia changed little over the inter-meeting period. As is our usual practice, our assumptions for equity prices, home prices, and the real exchange value of the dollar are similar to those of the Greenbook. For nominal home prices, this means a cumulative decline of about 6% from their peak by the end of 2009. The real exchange value of the dollar is assumed to depreciate gradually. Fiscal policy provides a small impetus to real GDP growth in 2008-09, again similar to the last Blackbook and to the Greenbook.

Inflation. On a 12-month change basis, core CPI inflation has moderated substantially over the past year, from around 2.8% in 2006Q3 to around 2.1% in 2007Q3. About 60% of the 0.7 percentage point slowing is due to the fact that core good price inflation declined from about 0.6% (annual rate) in 2006Q3 to about -0.7% (annual rate) in 2007Q3, a 1.3 percentage point swing. The remaining 40% is due to the slowing of core services inflation over that period, from 3.7% to 3.3%.

However, on a higher frequency basis such as six-month or three-month percent changes at annual rates, core CPI inflation increased modestly in 2007Q3 and it now looks like it will increase a bit more in 2007Q4. Over the past two cycles we have increased our projection of core inflation for 2007 by 0.2 percentage points, which returns that projection to the level we had as of mid-year. The primary source of this firming is that the rate of decline of core goods prices has eased appreciably in recent months, from 1% (annual rate) in 2007Q1 to just 0.2% (annual rate) in October. Two forces likely were at work to produce this path for core goods prices. One is that the total business inventory/sales ratio rose significantly over 2006 and into early 2007, but has now returned to about the level that prevailed in late 2005; this pattern suggests that downward price pressures from excess inventories have subsided. Second, prices of imported consumer goods have been rising more rapidly over the past year than was the case in the preceding year.

Despite this recent firming, we continue to expect core inflation to gradually moderate over the forecast horizon [Exhibit B-4]. From a modeling standpoint, the main drivers of this moderation are the opening of a modest output gap combined with contained inflation expectations. Considering individual components, with consumer spending expected to slow and the exchange value of the dollar decline at a more moderate rate than was the case this past year, core goods prices are likely to decline gradually. In addition, core services prices are expected to slow as a historically high level of vacant homes continues to exert downward pressure on rents.

Real activity. The growth of real GDP is now projected to be 2.3% (Q4/Q4) in 2008, down from 2.6% in the October Blackbook. As mentioned above, this opens up an output gap of about ½ percentage point by the end of 2008, with the unemployment rate rising to 5%. For 2009, we expect growth of 2.8%, modestly higher than the last forecast, reflecting the lower path for the FFR in this forecast. However, the unemployment rate is now expected to average 4.9% by the end of 2009, up from 4.6% in the October forecast. [Exhibits B-1, B-2, and B-3].

Available data on real expenditures suggests that the economy entered 2007Q4 with less forward momentum than previously thought. In particular, growth of personal income and consumption expenditures has slowed quite abruptly. We now expect growth of real

PCE of just 1¼% to 1½% (annual rate) in 2007Q4 following the 2007Q3 pace to 2.7%. While certainly the sharp increase of energy prices in recent months contributed to the weakening of real PCE, other fundamental forces appear to be at work. Despite the somewhat stronger-than-expected labor market report for November, employment growth at 12- and 6-month frequencies continued to slow, as does a proxy for labor compensation derived from the employment data. Consumer confidence is also quite weak, reflecting higher energy prices, an increase in the percent of respondents indicating that jobs are harder to get, and concerns about future financial prospects given widespread reports of a decline in home values. Given these more fundamental causes, we have reduced somewhat the pace of real PCE growth in 2008.

Another factor in our decision to lower projected real PCE growth in 2008 is the fact that the level of nominal labor compensation in 2007Q2 was revised downward by a substantial amount, lowering the level of the personal saving rate in both 2007Q2 and 2007Q3 by about 0.3 percentage points. Even with this somewhat lower path for real PCE, the path of the personal saving rate in the December Blackbook is lower than in the October Blackbook.

In addition to lower growth of real PCE, we have once again lowered the path of housing starts over the forecast horizon, this time by 100,000 units (annual rate). We now expect single-family starts to decline to 775,000 units (annual rate) in 2008Q4, the lowest level since the recession of 1990-91. Thereafter single-family starts edge up very slightly, remaining below 1 million over the entire forecast horizon. This change in the outlook for residential investment was prompted by significant downward revisions to the pace of new home sales in the third quarter resulting in an upward adjustment in the inventory/sales ratio for unsold new homes. In addition, events in financial markets over the past month strongly suggest that mortgage credit in the prime conforming conventional market will be both more expensive and tighter than previously thought.

Some other key indicators have been weaker than expected as well. In particular, manufacturing output fell in October and is on track for a decline for the fourth quarter overall. Although the decline was heavily concentrated in motor vehicles (as expected) a wide array of industries/product categories experienced declines or significant slow downs. Of particular note, growth of production of IT equipment slowed sharply in October following robust gains in the second and third quarters. This could be nothing, but is consistent with the fear of a pulling back on investment with short lead times, particularly by financial services firms.

Despite the marking down of our central projection, there remain significant downside risks to that forecast. As has been the case for some time, those risks are centered in the housing market and the potential spillovers to consumer spending in general. While policy has eased and markets have driven down long-term Treasury yields, mortgage spreads relative to Treasuries have widened. Moreover, the GSEs are raising guarantee fees while private mortgage insurers raise their prices and tighten their underwriting. In addition, household expectations of future home price appreciation probably have deteriorated. Thus, it is quite possible that real mortgage interest rates are rising despite the efforts of policymakers to lower them. Despite the fact that we have marked down our outlook for housing to what look like incredibly low levels, we may not have gone far enough.

Upside risks to growth are less apparent, but have not completely disappeared. If foreign growth remains strong in the aftermath of the financial market events, US export performance may continue to surprise on the upside. If that process proves to be strong enough, it could be that the current stance of policy is too accommodative and growth could surpass potential for an extended period.

3.2 Alternative Scenarios and Risks

The most significant changes we made to our risk analysis were to transfer the weight from the *Over-Tightening* scenario to a new *Credit Crunch* scenario, increase the weight on that new scenario, and decrease the weight on the *Productivity Slump* scenario. In addition to these changes, we also increased the scale of the downside shocks in the scenarios that produce deviations below our central scenario.

As *Over-Tightening* did, the *Credit Crunch* scenario implies inflation below the central forecast and real activity significantly below the central forecast; however, *Credit Crunch* contains slightly more downside risk to real activity. A complete description of the *Credit Crunch* scenario can be found in the Alternative Scenario Descriptions section. The changes in the scenario's label and consequences were intended to reflect the large change in both our own policy path and the market-implied expected path over the inter-meeting period. Both policy paths now indicate that policy is expected to be at or below our central estimate of the neutral rate soon.

We increased the probability of the *Credit Crunch* scenario to reflect the fact that incoming expenditure data for 2007Q4 has been softer than implied by our central scenario and that many financial market indicators, such as equity prices and credit spreads, suggest a higher risk of recession [Exhibit C-1]. Market functioning has significantly deteriorated again after its October improvement, the mortgage market is going through a major restructuring, and the residential housing outlook is even weaker than our bleak October forecast. In addition, as discussed in the October special topic, *Are We There Yet?,* the next few months present the highest risk for a recession based on the previous behavior of several economic variables following episodes of inverted yield curves. Nonetheless, although high-frequency indicators of real activity (e.g. new claims for unemployment insurance and business and consumer surveys) have been soft, they do not yet display patterns typical of the start of a recession. Even so, we assess a greater risk of recession relative to the October Blackbook and believe it is possible that if a recession occurs, it will be more severe than the 1990-91 and 2001 recessions.

We decreased the probability of the *Productivity Slump* scenario to reflect the surge in productivity in 2007Q3 [Exhibit C-1]. This new data led to a substantial reduction of the probability of a productivity slowdown according to the Kahn-Rich productivity model.

The changes in the weights attached to other scenarios were minor. We slightly increased the weight on the *Productivity Boom* based on the robust productivity growth in 2007Q3.

The further decline in new home sales in 2007Q3, the relative weakness of consumption and signs of overheating in China all support maintaining the weight on the *Effects of Overheating* scenario. Finally, the continued high energy prices and strength in emerging market economies, along with the favorable performance of U.S. exports, suggest placing a similar weight as in October on the *High Global Demand* scenario.

Together, all of the above changes imply a slightly lower probability of remaining in the central scenario over the forecast horizon [Exhibit C-1]. Together with the increase in the scale of negative shocks, this lower probability raises the overall uncertainty around our inflation and output projections, particularly in 2008 [Exhibit C-3]. These changes are evident in the shifts in the 5^{th} and 95^{th} percentiles from the previous to the current Blackbook. The increased scale of downside risks and the changes in the alternative scenario probabilities have substantially increased the downside risks to output, as indicated by the 5^{th} percentile of the real GDP growth distribution reaching -2% in mid-2008; in October, the minimum of the 5^{th} percentile was only -0.8%. This shift is partly due to the lower 2008 growth forecast, but, for an inter-meeting move in risks, this one is particularly large. As in the October Blackbook, the risks to inflation are roughly balanced on average over the forecast horizon; we still perceive a slight downside risk at shorter horizons and a very slight upside risk at longer horizons.

The effects of the changes in our risk assessment and central scenario forecasts can also be seen in the probability of core PCE inflation below 2% and the probability of a continuing expansion [Exhibit C-3]. In particular, the probability of two consecutive negative quarters of growth in 2008 has increased and is now very high. Most of this change in the “recession” probabilities is attributable to the increased weight on the *Credit Crunch* scenario. In contrast, the change in the probability of inflation below 2% is smaller and is mainly driven by the upward revision of our central scenario projection for 2007Q4 core PCE inflation and the slightly higher-than-expected reading for 2007Q3.

Our assessment of the risks to the outlook and their relative importance is similar to the risk assessment given by the primary dealer economists in the Desk’s Primary Dealer survey. For real GDP growth, dealer economists marked down their forecasts for 2008 by a similar magnitude as in our central forecast. Their average thus remains below ours, although the difference is not that large in terms of our forecast distribution. They see greater uncertainty around their GDP forecasts than in the previous inter-meeting period, and generally see risks to the downside. They also have a sizable near-term probability of a recession: the median probability of the economy being in a recession in six months is 35%. In contrast, there were only small changes in the core PCE inflation forecasts and in the uncertainty around those forecasts.

4. Forecast Comparison

4.1 Greenbook Comparison

The Greenbook forecast and our projections still differ substantially on real GDP growth. The inflation numbers, on the other hand, appear to be much more aligned, although some differences remain, especially for core PCE inflation. For 2007, the Greenbook projects GDP to grow at a slightly slower pace than we do (2.3% compared to 2.5%). Going forward, the Greenbook expects GDP growth to be 1.3% in 2008 and 2.1% in 2009, 1.0 and 0.7 percentage points less than we project, respectively. As far as prices are concerned, the Greenbook projects core PCE inflation to be 2.0% in 2007 and 2008, moderating only to 1.9% in 2009. This forecast is slightly above our expected path for core PCE inflation, which is 1.9% in 2007 and 1.7% in 2008 and 2009.

Conditioning assumptions. The Board staff assumes that the FFR will be reduced by 25bps to 4.25% at the December FOMC meeting and then held constant through mid-2009, when it will be lowered again to 4.00%. For 2008, this path is well above the market expectations as well as above the path assumed in this Blackbook. We also assume that the FOMC will cut rates by 25bps at the upcoming meeting, however, we expect the FFR to fall steadily to 3.75% by the second half of 2008 and then gradually rise back to 4.25% by the end of the forecast horizon. While our path is also above market expectations over the entire forecast horizon, it is more accommodative than the one assumed in the Greenbook.

The Board staff now expects the labor force participation rate to decline gradually to 65.5% through 2009 (down from 65.6% in October), while we still assume a stable participation rate of 66.0%; this difference is longstanding. The Greenbook assumption for the potential real GDP growth rate (2.2% for 2007 and 2008 and 2.1% for 2009) is unchanged since October. Our assumption remains higher at 2.7% through 2009.

The Board staff projects somewhat faster foreign growth in 2007Q4 than we do but slower growth in 2008. We anticipate foreign growth to slow in 2008 to 2.8 % (previously 3.0 % in October), while the Board staff forecasts slightly better performance at 3.0 % (previously 3.2% in October) using our weights. The differences with the Greenbook are largely limited to our respective outlooks for Japan, Canada and Mexico. The Board staff has a higher estimate of Japan's potential growth, while its slower U.S. growth projection explains the differences in outlooks for the NAFTA countries.

Finally, the December Greenbook projects a higher price for crude oil in 2007 than it did in October ($90 per barrel, up from $85 in October). The price of oil is projected to decline steadily to $85 by the end of 2009. Our assumption about oil prices is slightly higher for 2007 ($92.25 per barrel), but we project a similar downward path, although towards a slightly lower endpoint ($84.25 per barrel by the end of 2009).

Inflation. Relative to the October Greenbook, the Board staff upwardly revised their projection for core PCE inflation in 2007 (Q4/Q4) from 1.8% to 2.0%. The Greenbook now expects core PCE inflation to remain at 2.0% through 2008 (up from 1.9% in October) and then to move back to 1.9% in 2009. The upward revision to the 2007 forecast was mainly driven by the recent revisions of previous releases. For 2008, the persistence of core PCE inflation at 2007 levels largely reflects expected indirect effects of energy price increases, only in part offset by the projected moderation in resource utilization and the price of non-oil imports.

Our 2007 total PCE inflation forecast now coincides with the Board staff projection of 3.2%. Going forward, our 2008 total PCE inflation forecast is now 0.1 percentage point lower than the Board staff at 1.9%, while the two forecasts, as in October, again converge to 1.7% in 2009. The difference between these forecasts largely reflects different assumptions about the future moderation in food and energy prices.

Real activity. The Board staff now forecasts a 2007 (Q4/Q4) real GDP growth rate of 2.3%, 0.2 percentage points below our projection. However, there are substantial differences for the next two years; the Board staff forecasts are 1.3% and 2.1% for 2008 (Q4/Q4) and 2009 (Q4/Q4), respectively. Our projections are 2.3% and 2.8% for 2008 and 2009, respectively. The bulk of the discrepancies are explained by the different estimated growth contributions from consumer spending over the forecast horizon, as the Board staff assumes stronger wealth effects from declining real home prices and tighter credit conditions.

The Board staff's estimate of the 2007Q4 unemployment rate (4.7%) is unchanged since the last Greenbook and coincides with our projection. Going forward, the Board staff upwardly revised its projection for 2008 and 2009 from 4.8% to 4.9% and from 4.8% to 5.0%, respectively. Our forecast is 5.0% for 2008 and 4.9% for 2009.

Our projection of the 2007Q4 real growth contribution from net exports differs from that of the Board by a few tenths of a percentage point; we are a bit more bullish on exports and more cautious on imports than the Greenbook forecast. For 2008, we both expect positive growth contributions from net exports; the our forecast is +0.3 percentage points, while the Greenbook forecast is +0.5 percentage points. These estimates have the same export growth projections. The differences in import growth are apparent in 2008Q2 and 2008Q3; the Board staff forecasts total imports will decline in 2008Q2, while we anticipate tepid but positive growth. In particular, these discrepancies lie in the forecasts for oil imports; since the last Greenbook, the Board staff has introduced new seasonal factors that amplify quarterly variation in oil imports. The annual forecasts, however, are roughly the same.

Uncertainty around forecasts. The degree of uncertainty around the Board forecast decreased slightly for output, while our uncertainty increased. However, the degree of uncertainty around both inflation forecasts was essentially unchanged.

The 70% probability intervals around both forecasts for 2007, 2008, and 2009 are shown in Table 1, with the October value in parentheses. For core PCE inflation, the width of FRBNY interval is slightly smaller than the Board's in 2007 and the same as the Board's in 2008. In 2009, the FRBNY forecast has substantially less uncertainty; the width of the FRBNY interval is 1.4 percentage points, whereas the Board's is 1.9 percentage points. In part, this discrepancy reflects the greater persistence in the inflation processes underlying the Greenbook forecast.

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

	Core PCE Inflation		Real GDP Growth	
	FRBNY	*Board*	*FRBNY*	*Board*
2007	1.7-2.1 (1.5-2.0)	1.7-2.2 (1.6-2.1)	1.8-3.1 (1.7-3.0)	1.9-2.8 (1.8-2.8)
2008	1.0-2.4 (1.0-2.4)	1.3-2.7 (1.2-2.6)	0.0-3.4 (0.5-3.7)	-0.2-2.8 (0.2-3.3)
2009	1.0-2.4 (1.0-2.4)	1.0-2.9 (1.0-2.9)	0.6-4.0 (0.6-3.8)	0.7-3.4 (0.8-3.6)

For output, the width of the FRBNY probability intervals increased slightly in 2008 and 2009 from 3.2 percentage points to 3.4 percentage points, primarily reflecting increased downside risks since October. In contrast, the width of the Board's intervals narrowed by 0.1 percentage point in all three years. In 2008 and 2009, this is because they reduced the upside risk to their forecast more than they increased the downside risk. Because the widths of the FRBNY and Board intervals moved in opposite directions since October, the FRBNY intervals are now notably wider than the Board's in all three years.

To gauge the importance of the differences between our outlook and the Greenbook forecasts, we calculate the percentile of the Greenbook forecasts for inflation and output in our forecast distributions. The results are shown in Table 2, with October values in parentheses. The gap between the inflation forecasts is notably wider than in October for 2007 and 2008. For 2009, the gap is the same, while for 2010, the gap narrowed significantly.

Table 2: Percentile of Greenbook Forecast in FRBNY Forecast Distribution

	Core PCE Inflation	Real GDP Growth
2007	70 (52)	40 (47)
2008	64 (55)	39 (42)
2009	58 (58)	44 (49)
2010	60 (72)	50 (45)

The discrepancy between our forecasts for output growth has increased for all years except for 2010. The discrepancy in 2008 reflects the considerable difference between the Q4/Q4 point forecasts (2.3% and 1.3% for the FRBNY and Board, respectively). In fact, the gap would be wider were it not for the greater amount of downside risk to the FRBNY forecast. As in October, our forecasts for 2009 and 2010 are relatively close (0.7 and 0.3 percentage point differences in 2009 and 2010, respectively); combined with the downside risk to the FRBNY forecast, this makes the discrepancy fairly small.

Alternative Greenbook forecasting scenarios. The first alternative scenario (*Greater housing correction*) assumes that home prices fall 15% over next two years instead of the 6% decline assumed in the baseline Greenbook forecast. Furthermore, it is assumed that consumption is twice as responsive to housing wealth as in the baseline. The effect of this decline is relatively modest, real GDP growth in 2008 is 0.35 percentage points lower relative to the baseline and 0.4 percentage points lower in 2009. There is no effect on inflation. It is worth keeping in mind, however, that this scenario does not take into account any disruption in financial markets following this correction (e.g. this has no effect on the liquidity or collateral constraints of households or firms).

The second alternative scenario, *Credit crunch*, considers the effect of a credit crunch, which is modeled as a decline in real private spending by $200 billion (annual rate) (this is calibrated based on the effects of the financial "headwinds" in the early 1990s), which the Greenbook claims has the effect in the FRBUS of increasing spreads. This scenario leads to a contraction in output of -0.35 percentage points in 2008, which then results in stronger-than-baseline growth in 2009. Despite these output movements, inflation remains relatively unchanged, a result that is rather odd in this context, and reflects the extreme price rigidities and backward-looking behavior assumed in FRBUS. This scenario is hard to interpret, since the source of the credit crunch and its propagation is not being modeled. Instead the collapse in real spending appears to be an exogenously assumed shock, and it is difficult to asses the extent to which the size of the shock is reasonable.

The third alternative scenario, *Stronger domestic demand*, removes the effect of the financial turmoil on business investment and household spending built into the baseline forecast, while maintaining the spillovers from the disruptions in mortgage markets onto the housing sector. The main effect is a 0.4 percentage point increase in real GDP growth relative to the baseline forecast in 2008. In response to higher growth, monetary policy becomes tighter: the FFR is about 40bps higher in 2008. As a consequence, inflation is basically unchanged. The unemployment rate is unchanged in 2008 and increases slightly in 2009.

The fourth alternative scenario, *Stronger domestic demand with better export performance*, builds on the previous one by assuming that in the next two years, exports rise 2% faster than in the baseline forecast, which is consistent with export growth in 2007. The effect on real GDP is a faster growth rate of about 0.6 percentage points. The FFR increases to 4.9% in the second half of 2008, before reverting back to 4.7% in 2009. Again, inflation is unchanged relative to the baseline scenario as well as unemployment.

The fifth alternative scenario, *More room to grow*, considers a growth rate for potential GDP of 2.75%, about 0.5 percentage points higher than in the Greenbook baseline.

Higher labor force participation contributes one third of the additional growth, while the rest comes from faster trend productivity growth. Financial markets are assumed to fully incorporate this alternative view, hence asset prices are unchanged. Real GDP growth is 0.6 percentage points and 0.8 percentage points higher in 2008 and 2009, respectively. Because nominal wages respond slowly to faster productivity growth, unit labor costs are held down for an extended period. As a consequence, core inflation and the FFR are both below the baseline scenario by 0.15 percentage points in 2008 and by 0.2 percentage points in 2009, while the unemployment rate remains unchanged.

The sixth scenario, *Greater cost pressure*, explores the consequence of greater pass-through of energy prices and labor cost on inflation. It is assumed that firms will not squeeze their profit margins as a result of cost increases to the same extent as in the baseline, and instead they pass them on. The result of this is a modest reduction in growth (with respect to baseline) in 2008 of 0.1 percentage point and 0.2 percentage points in 2009. Inflation, on the other hand, increases by 0.3 and 0.5 percentage points in 2008 and 2009, respectively.

The seventh and final alternative scenario, *Market-based federal funds rate*, assumes the path for the FFR derived from futures, which declines sharply over the next few quarters and is below the baseline assumed path over the entire forecasting horizon. Given that the view of fundamentals is unchanged relative to the baseline projections, monetary policy becomes expansionary. The GDP growth rate is 0.25 percentage points higher in 2008 relative to the baseline scenario and reaches 2.9% in 2009, 0.8 percentage points higher than the baseline. Core PCE is 0.1 and 0.2 percentage points higher in 2008 and 2009, respectively. The unemployment rate is roughly unchanged in 2008 but 0.3 percentage points lower in 2009 relative to the baseline.

4.2 Comparison with Private Forecasters[2]

Relative to the October Blackbook, we have lowered our forecast for GDP growth, especially in the short term, due to the general softness in recent data releases. We have increased our short-term forecast for inflation, following the recent data releases (i.e. core CPI and PCE inflation) and the surge in energy prices (i.e. headline CPI inflation).

In general, our short-term forecast for real GDP growth sits at the low end of the spectrum of the private sector projections [Exhibit B-8]. We also forecast higher CPI inflation than most private forecasters, especially in the short term. These differences in short-term forecasts in part reflect the timing of the forecasts; because our forecast generally was done after the private sector forecasts (whose release dates are given in footnote 1), we are able to incorporate data that were released after the publication of the private sector forecasts. For medium-term forecasts, where the advantage of additional data is less important, the differences between the forecasts are less substantial.

Real GDP Growth. For 2007Q4, our real GDP growth forecast is 0.6% (annual rate), which is in line with the latest projection from Macro Advisers and below the median SPF (1.5%), the Blue Chip (1.7%), and PSI (2.2%) forecasts. The recent releases for industrial production, consumer expenditures, equipment and software expenditures, and non-residential construction are the main driving forces of the reduction in our projections relative to the October Blackbook, when we were anticipating growth at 2.0%, as well as of the differences between our forecast and the private sector estimates.

Our 2008Q1 forecast for real GDP growth is 1.3% (annual rate), again at the low end of the distribution of forecasts. Blue Chip and the PSI model project GDP growth at 1.9%, while both the median SPF and Macro Advisers expect growth to be above 2% (2.2% and 2.4%, respectively). The discrepancy between our estimate and these latter projections

[2] Release dates of the private forecasts discussed in this section are in parentheses: Blue Chip consensus (11/10), SPF (11/13), and Macro Advisors (11/28)

reflects our assumptions of a continued substantial drag from residential investment as well as some spillover into consumer spending.

Despite anticipating a sluggish fourth quarter, our projected 2.5% GDP growth for 2007 (Q4/Q4) is still at the high end of the spectrum of forecasts. The Blue Chip forecast is in line with our assessment, while Macro Advisers and the median SPF forecasts are somewhat below ours at 2.2% and 2.1% respectively. The main reason for the discrepancy is that our forecast incorporates the substantial upward revision to the advance estimate of 2007Q3 real GDP growth.

Our 2008 (Q4/Q4) real GDP growth projection has been revised down to 2.4% from 2.6% since the October Blackbook. Our revised forecast is roughly in line with that of private forecasters. The Blue Chip forecast is equal to ours at 2.4%, while the Median SPF and Macro Advisers are modestly higher at 2.5% and 2.6%, respectively. Our assumption of continued weakness in the housing sector, with some spillover effects into consumer spending, as mentioned above, in addition to our anticipation of high energy prices in the coming quarters and timing differences in the forecast releases, largely explain the discrepancies between our forecast and those of some forecasters.

Core PCE Inflation. Our forecast for 2007Q4 core PCE inflation is now 2.0% (annual rate), just above the median SPF forecast (1.9%). The upward revision from the October Blackbook (1.8%) largely reflects an assumed increase in the price of durable goods. These prices have been declining as the changes at the 24-, 12-, 6-, and 3-month horizons have been negative; however, the October data suggest an increase in 2007Q4.

For 2008Q1, we forecast core PCE inflation at 1.8% (annual rate), while the median SPF projection remains 1.9%.

Overall, our 2007 (Q4/Q4) projection of 1.9% coincides with the median SPF forecast. However, for 2008 (Q4/Q4), we expect core PCE inflation to moderate to 1.7%, while the median SPF forecast does not suggest any moderation and remains at 1.9%.

CPI Inflation. We expect a substantial increase in overall CPI inflation to 4.0% in 2007Q4, mainly due to a sharp rise in energy prices. While all private forecasters expect some increase in overall CPI inflation, their projections differ substantially; the Blue Chip forecasts a moderate 2.8%, the median SPF forecast is slightly higher at 3.0%, while the Macro Advisers projection is closer to our assessment at 3.5%. The main difference lies in our assumptions about the persistence of the sharp rise in energy prices as well as the incorporation of the most recent data on energy price increases into our forecast.

For 2008Q1, we expect CPI inflation to moderate to 3.3% (annual rate). Although higher, our projection of moderation is consistent with the Blue Chip and the median SPF forecasts, which also expect a moderation in CPI inflation to 2.7% and 2.9%, respectively. Macro Advisers, in contrast, project a further increase to 4.0%, due to a slower pass-through in their model of the energy price increase to CPI inflation.

Our 2007 (Q4/Q4) projection for CPI inflation (3.9%) is above the private forecasts. The difference between our forecast and those of private forecasters is 30-40 basis points, with Blue Chip and the median SPF forecasts at 3.6% and the Macro Advisers forecast at 3.5%.

Our 2008 Q4/Q4 forecast of CPI inflation is 2.5%, in line with the median SPF estimate and slightly higher than the Macro Advisers (2.2%) and Blue Chip (2.3%) projections.

Core CPI Inflation. We expect core CPI inflation to be 2.1% (annual rate) in 2007Q4, and then rise to 2.3% in 2008Q1. Our projection is slightly lower than the median SPF (2.2% for both quarters) and Macro Advisers (2.4% for both quarters) forecasts.

We expect core CPI for 2007 (Q4/Q4) to be 2.2%, in line with the median SPF estimate and slightly below the Macro Advisers (2.3%) projection. We forecast a reduction in 2008 (Q4/Q4) to 2.0%; this forecast is below the median SPF and Macro Advisers forecasts of 2.2%.

5. Robustness of Policy Recommendation

5.1 Sensitivity to Alternative Scenarios and Policy Rules

In this Blackbook, we have adjusted our neutral rate range to capture the tightening of financial conditions over the inter-meeting period. For the current and next two quarters, we assume the neutral rate is between 3.5% and 4.00%; we then assume it evolves slowly over the remainder of the forecast horizon to between 3.75% and 4.75% as market functioning returns to normal. This change affects the *Baseline* rule and the two variants – *Dove* and *Opportunistic Disinflation* – but does not affect the *Outcome-based* rule because it does not have an explicit neutral rate.

As a consequence of our changed risk assessment and the temporarily lower neutral rate, our policy recommendation has changed from the October Blackbook and is below the policy prescription of the *Baseline* rule under the central scenario and three of the five alternative scenarios in the medium-term [Exhibit D-1]. Under these three alternative scenarios and our central scenario, the *Baseline* rule prescribes a FFR target of 4.00% by the middle of 2008, compared to our recommendation of 3.75%. Our recommendation is still well above the prescription of the *Baseline* rule under the *Credit Crunch* scenario and below the prescription under the *High Global Demand* scenario.

The real FFR paths using the *Baseline* rule differ more significantly than the nominal paths across the five alternative scenarios, reflecting the differences in inflation outcomes associated with the different scenarios and the resulting policy stances [Exhibit D-1]. Despite the low inflation associated with the *Credit Crunch* scenario, real interest rates decline the most under this scenario because of the degree of downside risks to output under it leads to larger declines in nominal rates.

The FFR distribution using the *Baseline* rule indicates a substantial probability of sharp drops in the FFR (as indicated by the probability of a FFR at 1.00% in 2008Q2) as a consequence of the increased weight on the *Credit Crunch* scenario, the drop in the central scenario GDP growth projection, and the lower neutral rate [Exhibit D-5]. The near-term probability of such sharp drops is now higher than it was in September.

We consider the same alternative policy rules that we considered in recent Blackbooks: the *Dove* rule, the *Opportunistic Disinflation* rule, and the *Outcome-based* rule. The *Outcome-based* rule, combined with our downside risk to output growth and our relatively benign inflation outlook, continues to prescribe further cuts in the FFR over the forecast horizon under all scenarios except *High Global Demand* and *Productivity Boom* [Exhibits D-2 and D-3]. As in past Blackbooks, this rule implies considerably more uncertainty about the FFR going forward [Exhibit D-5].

The prescription of the *Opportunistic Disinflation* rule, which keeps the FFR above 4.00% over the next two years under the central scenario and all of the alternative scenarios except *Credit Crunch*, is above our policy recommendation over the forecast horizon [Exhibit D-3]. Following this rule would better preserve Fed credibility if, ex post, it appeared that either the *Productivity Slump* or the *Effects of Overheating* scenarios explained recent developments well or if evidence mounts in favor of the *High Global Demand* scenario; that is, if our high-inflation alternatives scenarios appeared to be true. However, the behavior of the FFR under this rule depends on the assumption that the financial market turmoil does not spill over into the real economy and lead to sharper declines in real growth and inflation. This rule implies very little uncertainty about the future FFR [Exhibit D-5].

The *Dove* rule is designed to be very sensitive to drops in output below potential. Thus, with the soft near-term real growth forecast and the large downside risk to real activity, it prescribes cuts in the FFR in 2007Q4 and 2008 under all of our scenarios [Exhibits D-2 and D-3]. As can be seen in Exhibit D-5, it places very little probability on a FFR above 4.50% over the next few quarters and considerable probability on a FFR below 4.00%.

The policy prescriptions of our two estimated structural models are slightly higher than in October, as they view the high growth in 2007Q3 as a positive signal of the underlying strength of the economy. In particular, the DSGE-VAR model suggests no short-term change in the FFR, followed by a gradual decline to 4.25%, while the FRBNY-DSGE model gives a prescription closer to the *Opportunistic Disinflation* rule. Since the two structural models do not have information on the financial turmoil we run an experiment of feeding the FRBNY forecast for 2007Q4 into the DSGE-VAR model to capture this additional information. This produced a policy path and forecast for 2008 very similar to our recommendation and central scenario forecast.

5.2 Comparison to Market Expectations

The FFR path priced into financial markets has moved down markedly since the October Blackbook, and the market's uncertainty around that path has increased from its already high levels. The expected FFR for late 2008/early 2009 is just above 3.0%, compared with an expectation of more than 5.0% before the June FOMC meeting. The gap between the target rate and low point of market expectations increased to levels not observed since before the 2001 recession.

The market-implied path is below the paths of *Baseline* rule under both the central scenario and the mean of our forecast distribution [Exhibits D-1 and D-2]. This is the case even though both of these paths have shifted downward substantially because of changes to our real growth outlook, risk assessment, and a lower neutral rate assumption. The change in the *Baseline* rule prescription under the central scenario mainly reflects the large drop in our short-term projection. The prescription for the *Baseline* rule evaluated under the expected value of the forecast distribution (i.e. evaluated using our full risk assessment) moved down in the near-term in response to the large increase in downside risk.

The path prescribed by the *Opportunistic Disinflation* rule under the expected value of the forecast distribution remains well above the market path. In contrast, the path prescribed by the *Dove* rule, while it does not fall as quickly as the market path initially, gives a similar FFR value to the market for the beginning of 2009. Our *Average* rule, which weights the *Baseline* rule and the two variants to match the market path as closely as possible, places 0% of the weight on the *Opportunistic Disinflation* rule, 10% of the weight on the *Baseline* rule, and 90% of the weight on the *Dove* rule [Exhibit D-4]. The weights on the alternative rules are unchanged from the October Blackbook. Even with these weights, the *Average* rule is still unable to closely match the market path.

One explanation for the divergence between the market path and the prescriptions of our *Baseline* rule and the two variants, *Opportunistic Disinflation* and *Dove*, is that markets appear to believe the FOMC has become more sensitive to low-probability events that may lead output to fall well below potential, as it happened in periods of financial turmoil (e.g. 1987 and 1998). This belief has been supported by the recent 75bps of FFR cuts. An alternative interpretation is the market places higher weight on the *Credit Crunch* scenario than we do; this is supported by the fact that our *Baseline* rule under the *Credit Crunch* scenario tracks the market path in 2008.

The market path is, however, consistent with the prescription of the *Outcome-based* rule – the Board's rule that sets the FFR based on a statistical description of the FOMC's behavior from 1988-2006 – evaluated under the expected value of our forecast distribution (i.e. under our risk assessment).

The implied volatility around the market-implied path is above its level in the October Blackbook and is comparable to the uncertainty around the *Dove* rule and the near-term uncertainty around the *Baseline* rule [Exhibit D-5]. Furthermore, the implied distributions of most of the rules capture most of the negative skewness priced into markets in 2008. Notably, the negative skewness implied by our *Baseline* rule at the medium- and long-term horizons appears larger than what is currently priced into markets [Exhibit A-6].

Overall, our analysis suggests either that the market continues to perceive the FOMC's reaction function to be more sensitive to downside risk in the short run than implied by any combination of our risk assessment and our FFR rules or that they place substantially higher weight on a severe recession than our overall risk assessment does. In contrast, our policy recommendation and the prescriptions from our *Baseline* continue to be very similar to the median predictions from the Desk policy survey.

6. Key Upcoming Issues

In this Blackbook, we have recommended that at the December meeting the FOMC should lower the FFR target 25bps to 4.25% and signal that further future reductions are likely. The policy path associated with our outlook is below that of the October Blackbook, as we foresee the FFR to be 3.75% in 2008H2, compared to 4.25% in the previous Blackbook. Even with the lower policy rate path, the economic and financial market developments have led us to lower our real GDP growth forecast for 2008 as well as raise our assessment of the downside risks to the real activity outlook.

Even though we have lowered our policy path, it remains above the implied expected path priced in futures markets over the entire forecast horizon. Interestingly, the median forecasts for the FFR in the primary dealer survey are relatively close to our policy path, and thus are above the market-implied path. From our analysis, the market-implied path appears to be predicated on market participants placing either a very high probability on the economy evolving along a path similar to the *Credit Crunch* alternative scenario or the FOMC displaying responsiveness to the output gap similar to that of the *Outcome-based rule*, which is greater than that in our *Baseline* rule. It thus appears that market participants expect the financial and credit market problems of the past few months to have larger effects on the real economy that are not incorporated into more standard economic analysis, even though the economic indicators to this point have been relatively benign in this regard.

This divergence of views about economic and policy prospects sets up continued communications issues for the FOMC under our recommendation. In the previous two meetings, the FOMC statement attempted to dissuade market participants from expecting further reductions in the FFR. Nevertheless, markets fairly quickly priced in additional cuts, in part because of inter-meeting developments, but also because they saw such statements as evidence that the FOMC did not fully realize the extent of the problems. Attempting to bridge this gap between the markets view and the FOMC view presents significant, but subtle, communications issues. In our view, the communications will need to present the following points: (1) The real outlook, although softer than it was before the onset of the financial crisis, probably is not nearly as dire as many market participants expect; (2) the uncertainty about the outlook has increased; (3) even so, the outlook has changed sufficiently such that policy probably will have to continue to be recalibrated (mostly likely downward); and (4) the FOMC will respond assertively to signs of further economic weakness resulting from tighter financial and credit conditions.

Of course, it is possible that the recent financial market developments may be a harbinger of a considerably weaker real outlook than in our and most standard economic forecasts rather than some unduly pessimistic scenario. Consequently, it is important to understand how the recent changes in financial market prices and credit conditions could impact economic conditions. One such avenue is through investment banks management of their balance sheet: as discussed in the special topic, *Financial Sector Leverage*, their pro-cyclical management of leverage could amplify significantly subprime-mortgage-related losses and asset price movements. Nevertheless, the models of financial-real economic linkages do not yet provide clear measures of the quantitative impact of such linkages (particularly in more exceptional cases like those of recent months). Looking ahead, the potential impact of such linkages may be evident in consumption and investment.

For consumption, although we do not see a mechanical wealth effect, the depth and persistence of the housing downturn as well as prospective declines in home prices suggest that more significant spillovers from housing to consumption are possible. Consequently, indicators of consumer spending will have even greater than usual importance over the coming months. In addition, even though we do not believe that consumer confidence measures have much independent forecast power for consumption, movements in these measures can foretell changes in consumer spending fundamentals at times such as these. In particular, further declines from their current levels would be a worrisome sign for the outlook. Because a fairly firm labor market has supported consumption so far, a related issue is the evolution of the labor market. Although the November labor market report was fairly positive, future signs that the labor market is softening more than we expect in our outlook also would be worrisome.

For investment, credit market conditions have the potential to influence firms' decisions. The recent increase in credit spreads across the board and the continued drop in asset-backed commercial paper outstanding reinforce the interpretation that a renewed wave of financial turbulence with the potential to lead to a credit crunch occurred during the inter-meeting period. Higher spreads and tighter credit have the potential to lead firms to reduce investment expenditures significantly. The declines in capital goods shipments and orders as well as in nonresidential construction may be consistent with such a scenario, but such conclusions are very tentative at this time. As such, we will have to monitor credit conditions and capital spending indicators to assess the impact on investment expenditures. Evidence of such effects on consumption and investment would signal that policy rates should be reduced more aggressively than in our current policy path.

Despite the concerns about a prospective credit crunch, it is possible that the recent softness in the data could be consistent with other alternative scenarios such as the *Effects of Overheating* and the *Productivity Slump*. First, it is possible that a significant portion of the financial market stresses over recent weeks reflects exaggerated year-end pressures that could soon dissipate after the beginning of the year. Consequently, determining and monitoring the extent of such pressures as well as their implications is important for the outlook. Second, underlying inflation measures have stopped moderating, inflation compensation measures have remained elevated, and the exchange rate of the dollar has continued to depreciate. All these factors indicate continued upside inflation risks. As we have stated in the past few Blackbooks, it is thus important to distinguish the *Credit Crunch* scenario from the *Effects of Overheating* and *Productivity Slump* scenarios. To do so will require examining the joint behavior of output and inflation. Evidence of the unmooring of inflation expectations, rising measures of underlying inflation, and further dollar depreciation would indicate a higher probability of the latter scenarios. In such a circumstance, the FOMC would face a more difficult policy tradeoff that may argue for more caution in reducing the FFR than in our policy path.

Notwithstanding this last possibility, the developments over the inter-meeting period indicate that the FOMC probably will need to continue to reduce the FFR to mitigate the risks engendered by tighter credit conditions amid softer economic growth.

Special Topic

Financial Sector Leverage

Tobias Adria Redacted

Investment banks management of their leverage is procyclical, which could amplify asset price movements and subprime-related losses.

Security brokers and dealers appear to manage balance sheet leverage differently than commercial banks. Aggregate data from the Flow of Funds are consistent with commercial banks attempting to target their leverage ratio; i.e., they attempt to adjust their capital to maintain their leverage ratio as their asset base changes. In contrast, security brokers and dealers increase their leverage as their assets increase so that their leverage is procyclical.

Individual investment bank data show that the positive relationship between total asset changes and leverage changes holds for each of five prominent U.S. investment banks [Figure 1]. It is also worthy of note that for all these banks, the greatest unwinding of balance sheets and reduction of leverage over the sample period occurred in 1998Q4 during the aftermath of the LTCM crisis.

In the current environment, the balance sheets of investment banks show sizable heterogeneity, reflecting differences in the relative performance of these institutions.

Bear Stearns, which incurred subprime-related losses relatively early, unwound both total assets and leverage in a manner similar to 1998Q4. In contrast, Lehman Brothers and Goldman Sachs expanded both their leverage and total assets. For Merrill Lynch and Morgan Stanley, total assets changed little in 2007Q3, but leverage increased, consistent with these institutions expanding their leverage involuntarily in the face of unexpectedly large mortgage-related losses.

Procyclical balance sheet management has the potential to amplify asset price shocks. In adjusting their balance sheets over the near term, it appears that the margin for both total asset growth and leverage growth are repos and other collateralized borrowing transactions [Figure 2]. Therefore, in my research with Hyun Song Shin of Princeton, we use the weekly repo series from the NY Fed's primary dealer statistics to analyze these potential relationships. Our analysis finds that declines in outstanding repos, which are used to adjust dealers' total assets and leverage, forecast increases in future volatility and thus forecasts market risk [Figure 3]. Given the countercyclical nature of market volatility, this also implies that dealers could contract balance sheets as asset prices fall, which conceivably could exacerbate the asset price decline.

The behavior of investment bank balance sheets also appear to be associated with changes in monetary policy. Growth of primary dealers' balance sheets, as proxied by growth in repo borrowing, is negatively related to the residuals from a standard Taylor rule [Figure 4]. This pattern suggests that financial conditions (as proxied by repo growth) may be an additional factor that enter (at least sometimes) into monetary policy decisions.

Figure 1

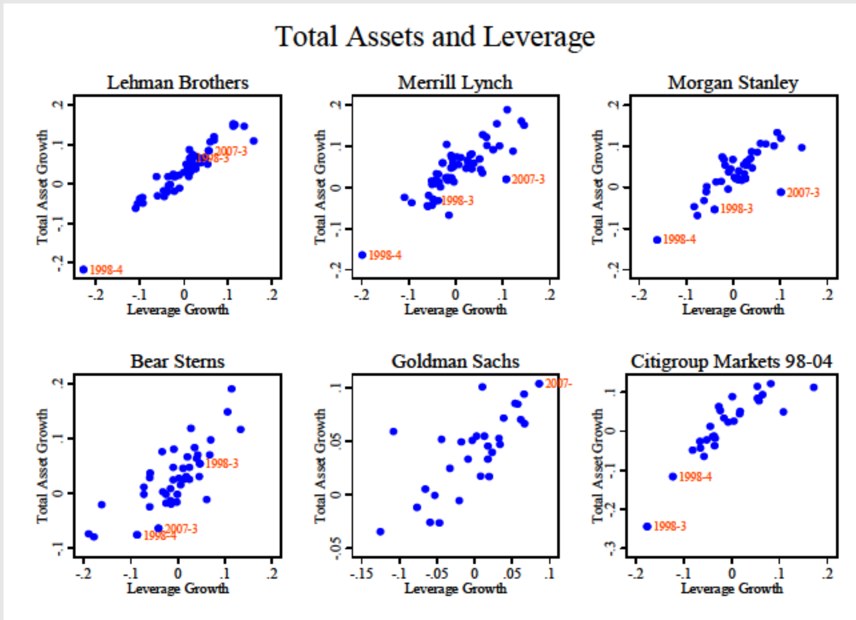


Figure 2

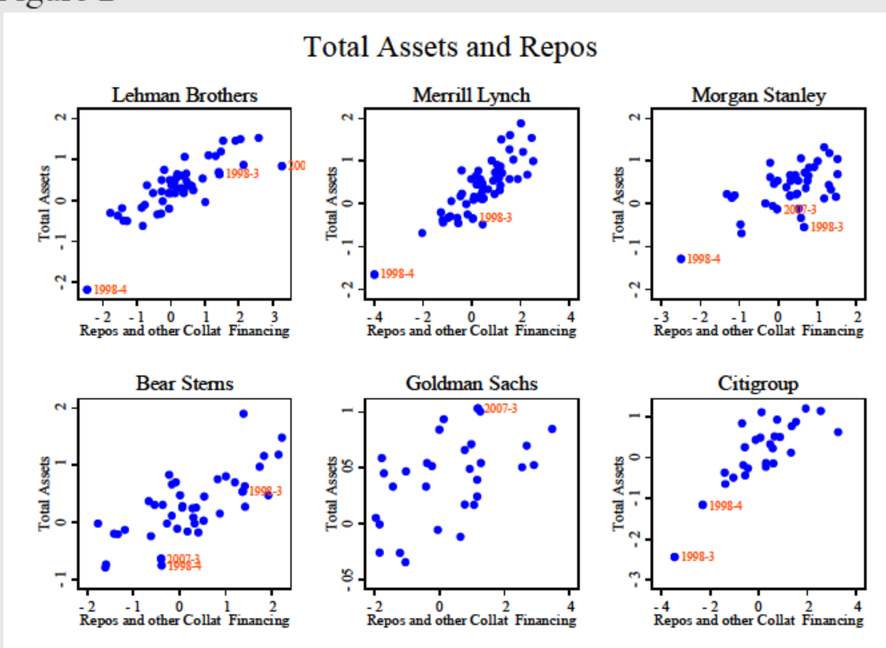


Figure 3

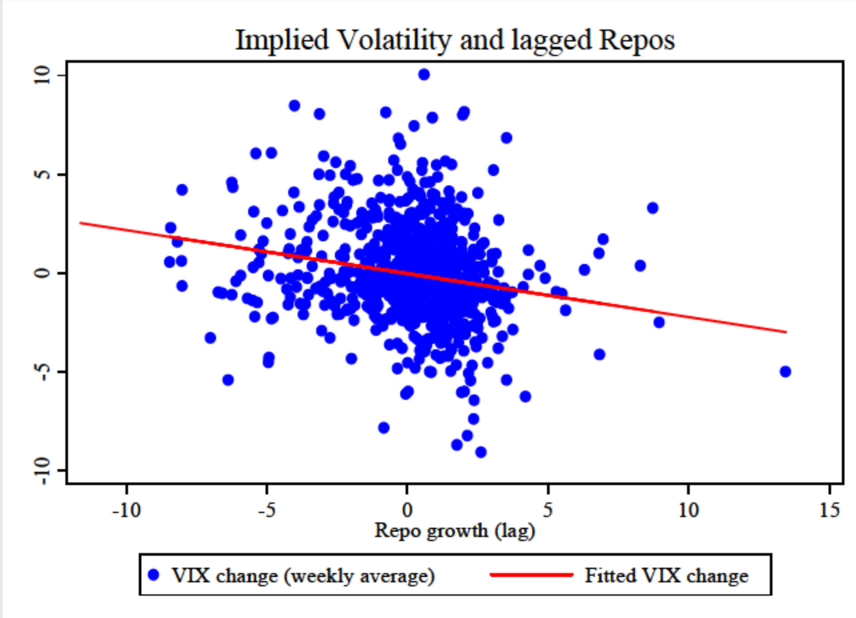
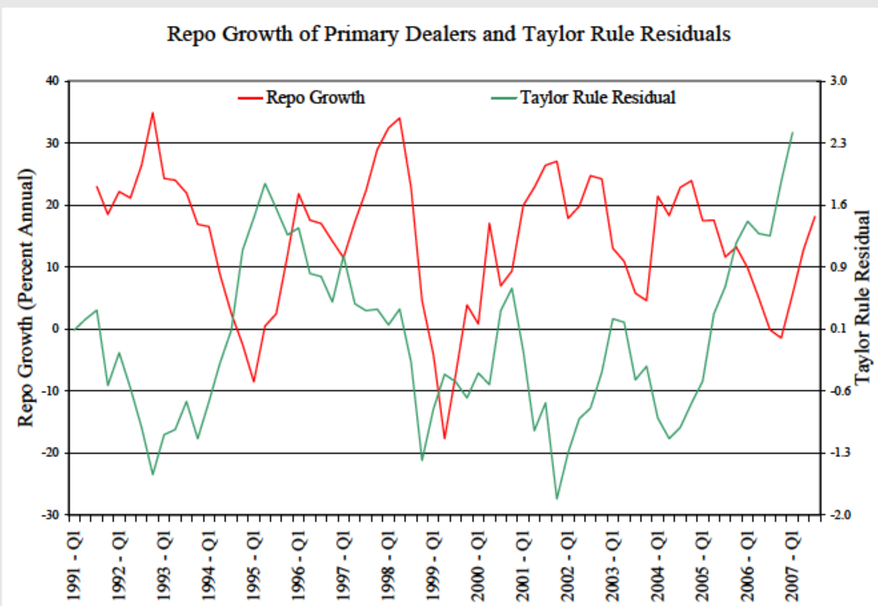


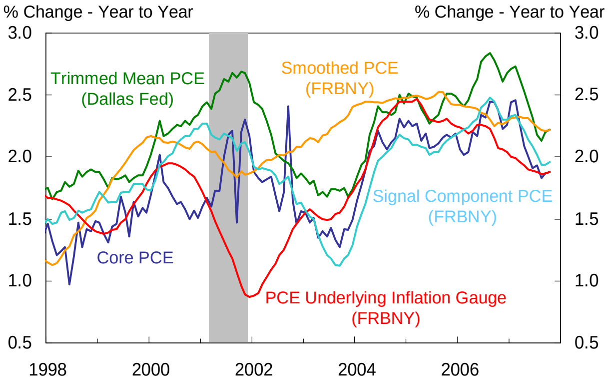
Figure 4



A. Significant Developments

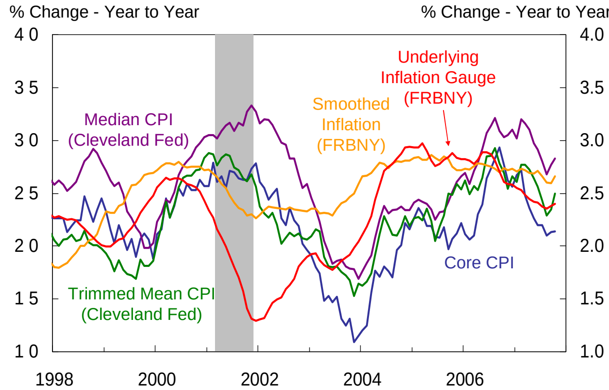
Exhibit A-1:
Measures of Trend Inflation

Alternative Measures of PCE Inflation



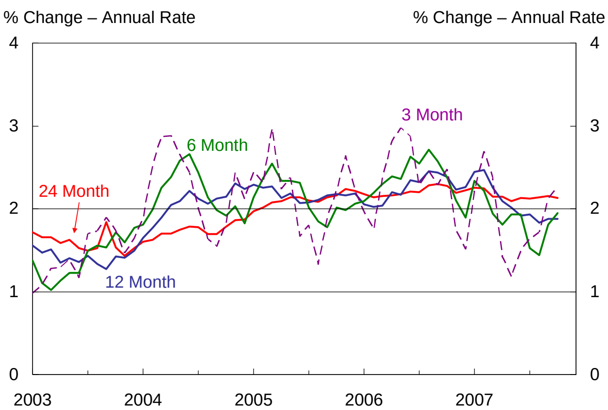
Source: Bureau of Economic Analysis, Cleveland Fed, MMS Function (FRBNY), and Swiss National Bank

Alternative Measures of CPI Inflation



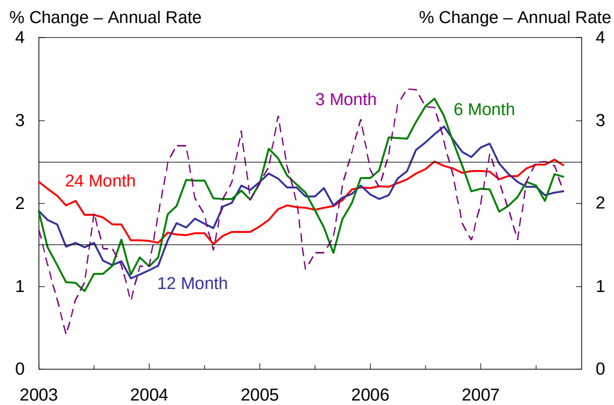
Source: Bureau of Labor Statistics, Cleveland Fed, MMS Function (FRBNY), and Swiss National Bank

Core PCE over Various Horizons



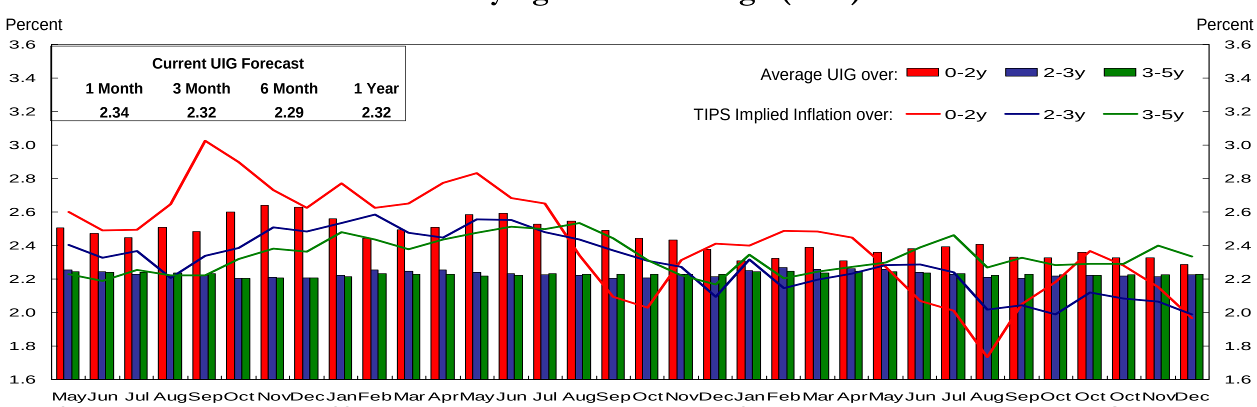
Source: Bureau of Economic Analysis

Core CPI over Various Horizons



Source: Bureau of Labor Statistics

Exhibit A-2:
Underlying Inflation Gauge (UIG)

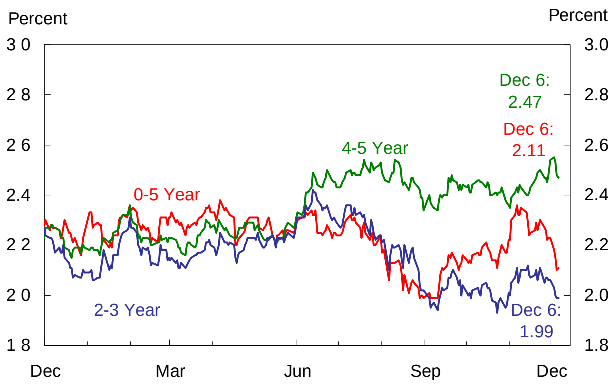


Source: MMS Function (FRBNY), Federal Reserve Board, and Swiss National Bank

A. Significant Developments

Exhibit A-3:
Implied Inflation Compensation

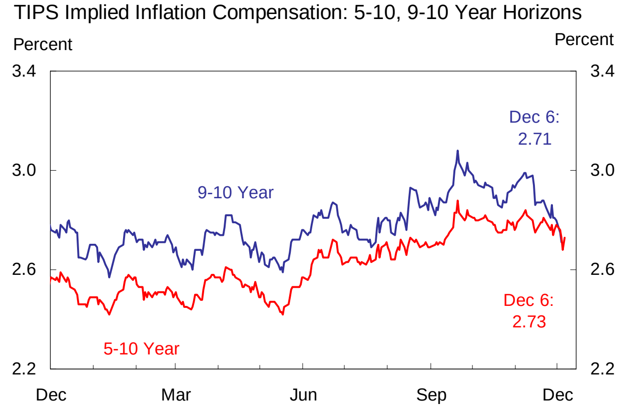
TIPS Implied Inflation Compensation: 0-5, 2-3, 4-5 Year Horizons



Source: Federal Reserve Board

Note: Carry-adjusted

TIPS Implied Inflation Compensation: 5-10, 9-10 Year Horizons

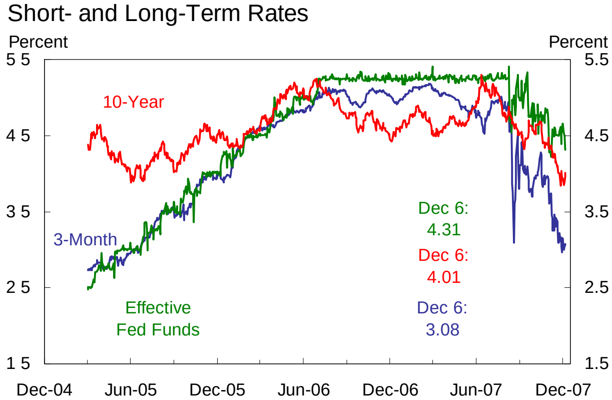


Source: Federal Reserve Board

Note: Carry-adjusted

Exhibit A-4:
Treasury Yields

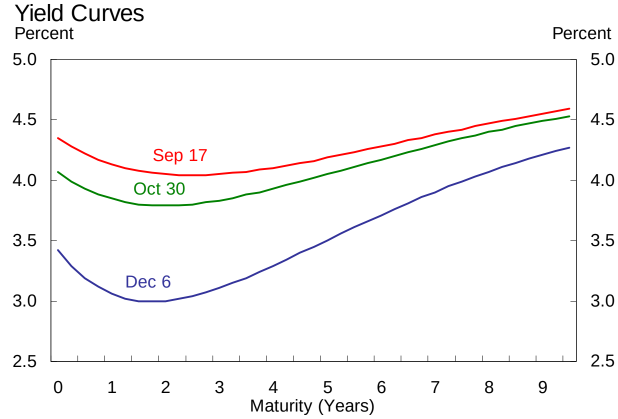
Short- and Long-Term Rates



Source: Bloomberg

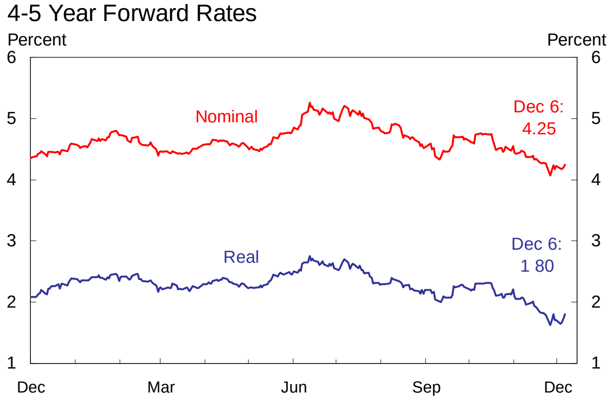
Note: Yields of on-the-run securities

Yield Curves



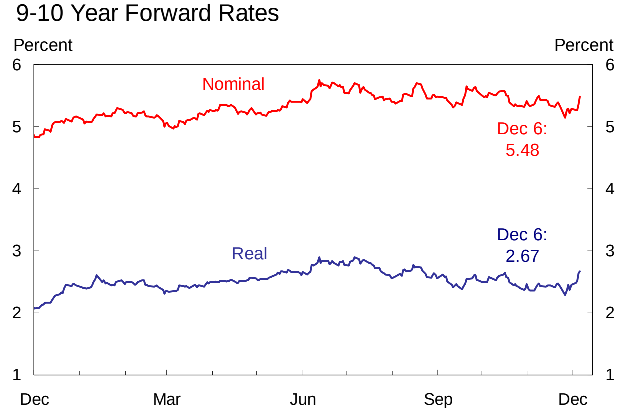
Source: Federal Reserve Board

4-5 Year Forward Rates



Source: Federal Reserve Board

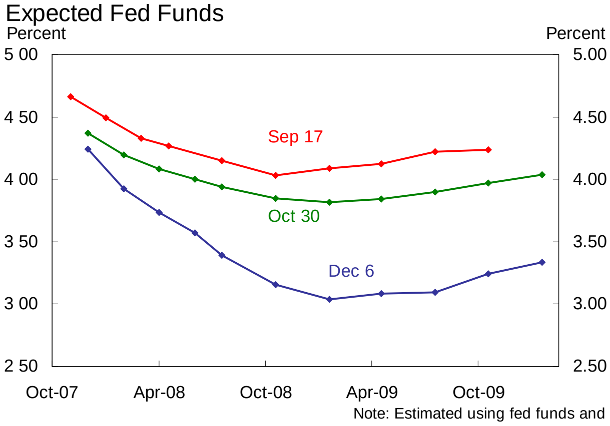
9-10 Year Forward Rates



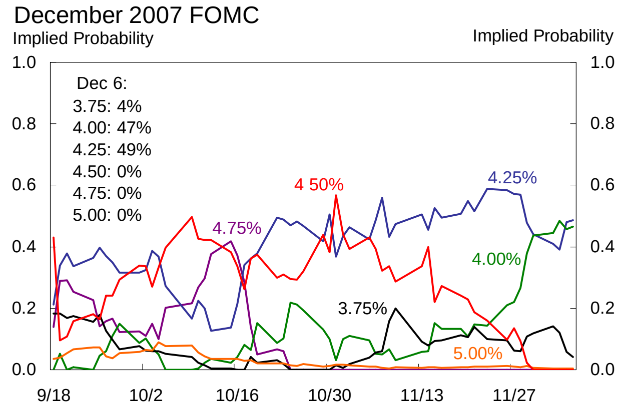
Source: Federal Reserve Board

A. Significant Developments

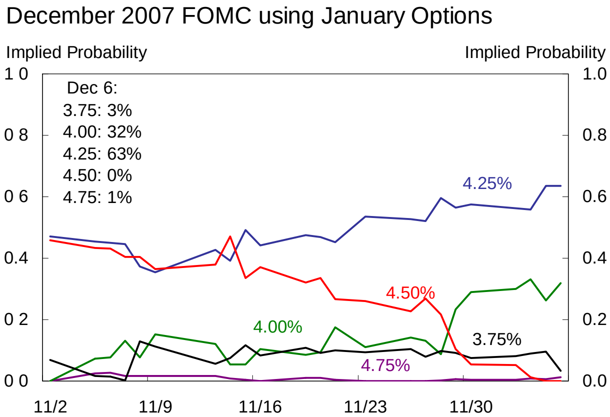
Exhibit A-5:
Policy Expectations



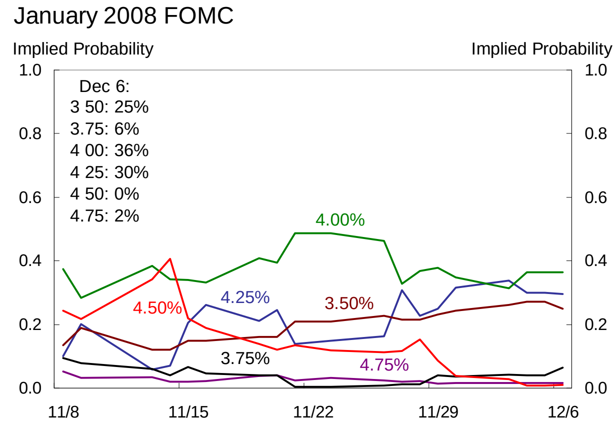
Note: Estimated using fed funds and Eurodollar futures.
Source: Federal Reserve Board



Source: Cleveland FRB Note: Estimated using options on fed funds futures.



Source: Cleveland FRB Note: Estimated using options on fed funds futures.

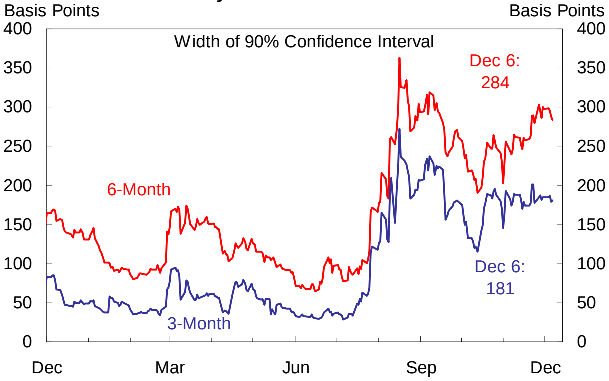


Source: Cleveland FRB Note: Estimated using options on fed funds futures.

A. Significant Developments

Exhibit A-6:
Policy Uncertainty

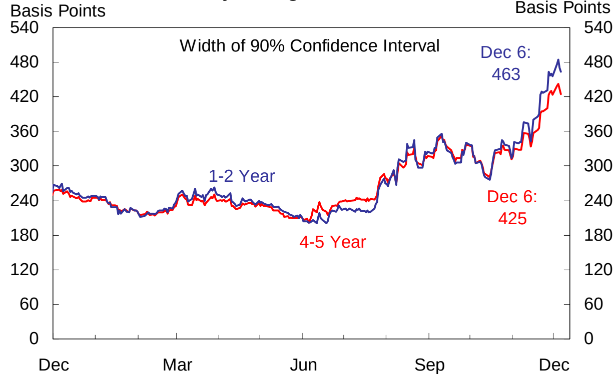
Interest Rate Volatility: Short-Term



Source: Datastream and FRBNY calculations

Note: Implied volatilities estimated from Eurodollar futures options.

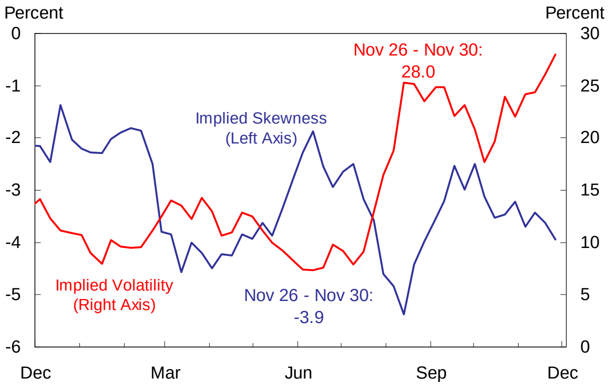
Interest Rate Volatility: Long-Term



Source: FRBNY calculations

Note: Implied volatilities estimated from swaptions.

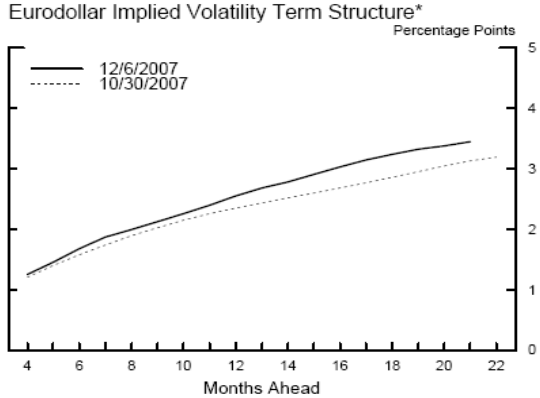
Implied Skewness and Volatility



Source: CME and FRBNY calculations

Note: Weekly averages based on 3-9 month implied volatilities from Eurodollar futures options.

Eurodollar Implied Volatility Term Structure*

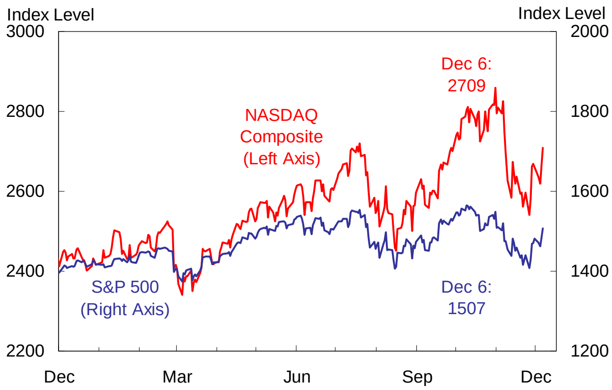


*Width of a 90 percent confidence interval computed from the term structures for the expected federal funds rate and implied volatility.

A. Significant Developments

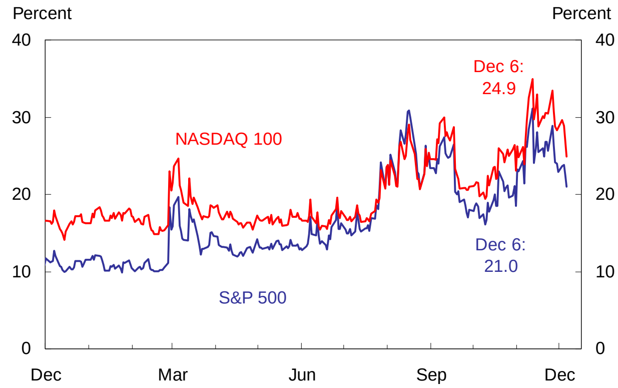
Exhibit A-7: Equity Markets and Corporate Credit Risk

Equity Market Performance



Source: Bloomberg

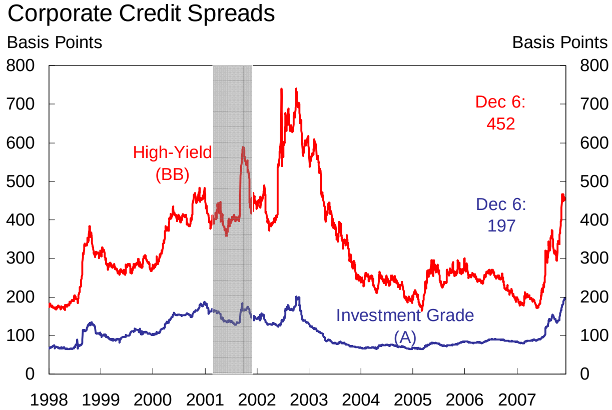
Implied Volatility: 1-Month



Source: CBOE

Note: Annualized

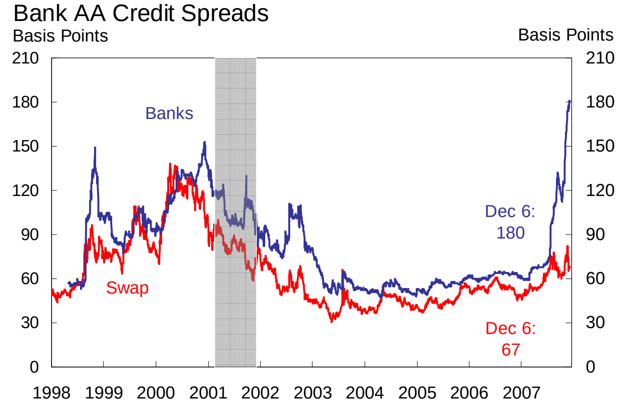
Corporate Credit Spreads



Source: Merrill Lynch

Note: Option-adjusted spreads

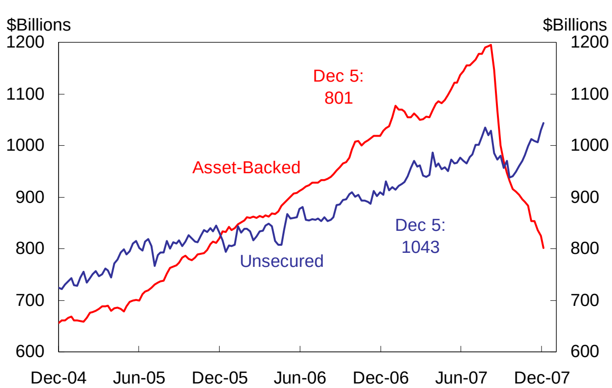
Bank AA Credit Spreads



Source: Bloomberg & Merrill Lynch

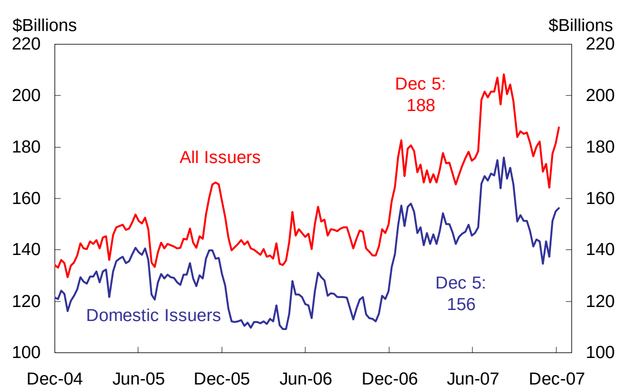
Note: Swap spread is 10-year swap rate minus 10-year Treasury yield and spread for banks is option-adjusted.

Commercial Paper Outstanding



Source: Federal Reserve Board

Commercial Paper Outstanding, Nonfinancial Firms

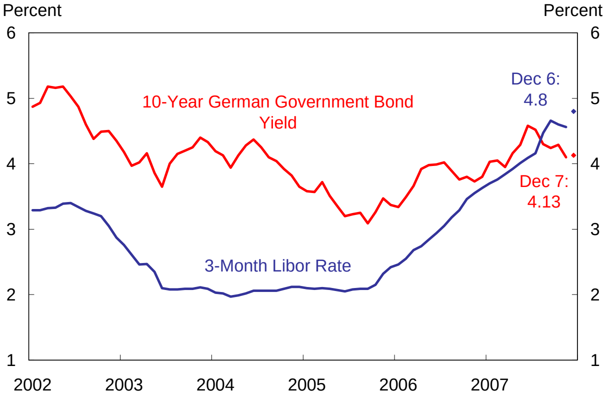


Source: Federal Reserve Board

A. Significant Developments

Exhibit A-8: Global Interest Rates and Equity Markets

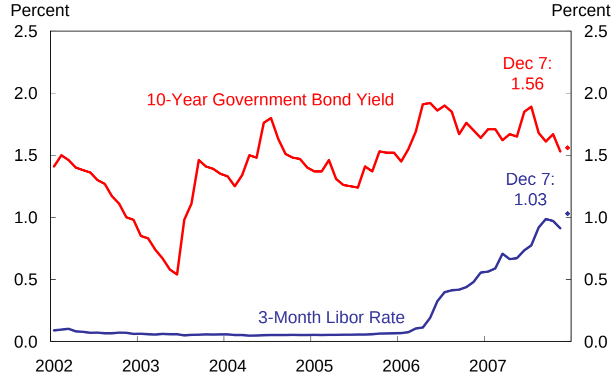
Euro Area Short- and Long-Term Interest Rates



Source: BIS and Federal Reserve Board

Note: Data are monthly averages.

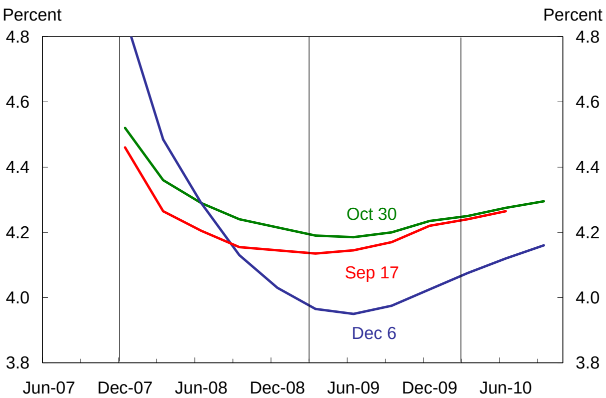
Japan Short- and Long-Term Interest Rates



Source: Bloomberg and Federal Reserve Board

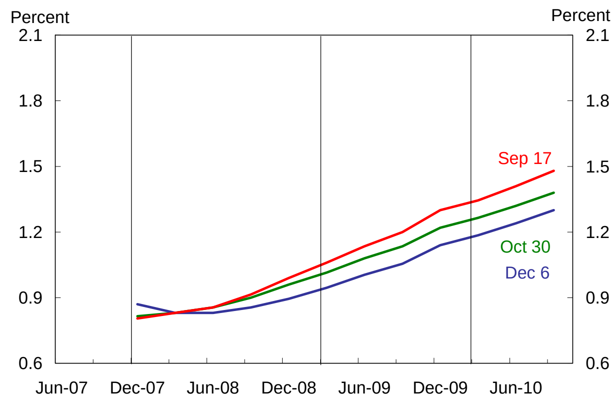
Note: Data are monthly averages.

Three-Month Eurocurrency Futures Rates: Euro



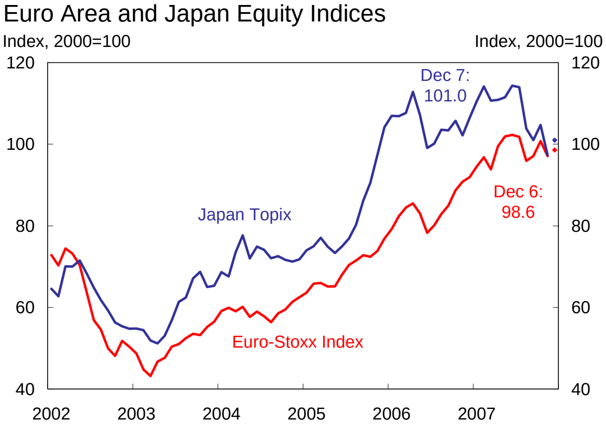
Source: Datastream

Three-Month Eurocurrency Futures Rates: Yen



Source: Datastream

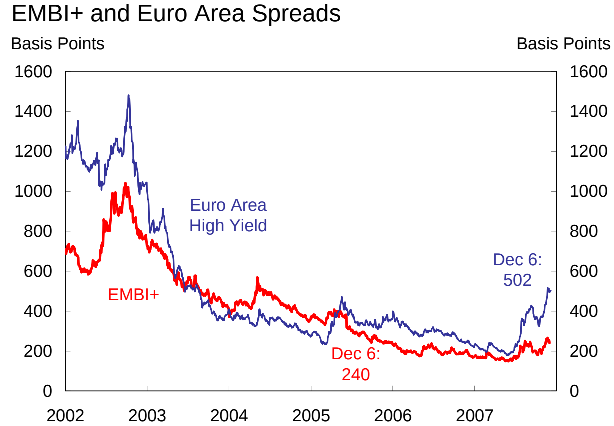
Euro Area and Japan Equity Indices



Source: BIS and Bloomberg

Note: Data are monthly averages.

EMBI+ and Euro Area Spreads



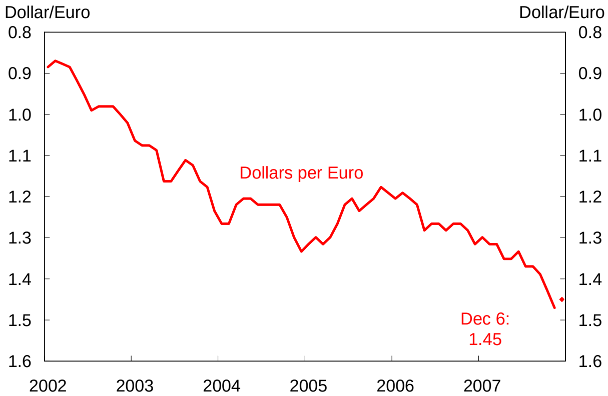
Source: Bloomberg

Note: Data are daily observations.

A. Significant Developments

Exhibit A-9:
Exchange Rates

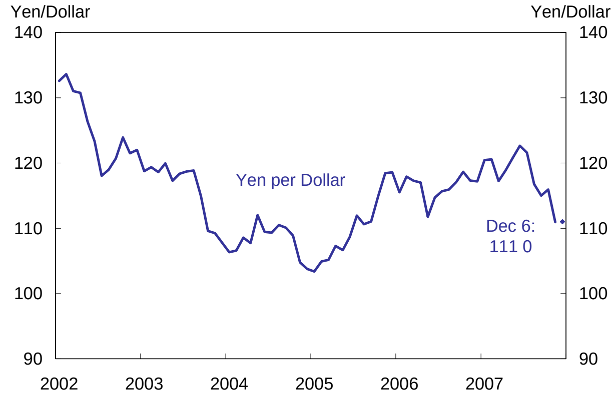
Dollar-Euro Exchange Rate



Source: BIS

Note: Data are monthly averages.

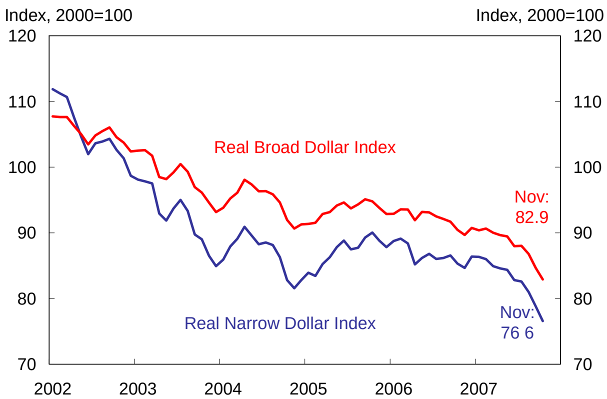
Yen-Dollar Exchange Rate



Source: BIS

Note: Data are monthly averages.

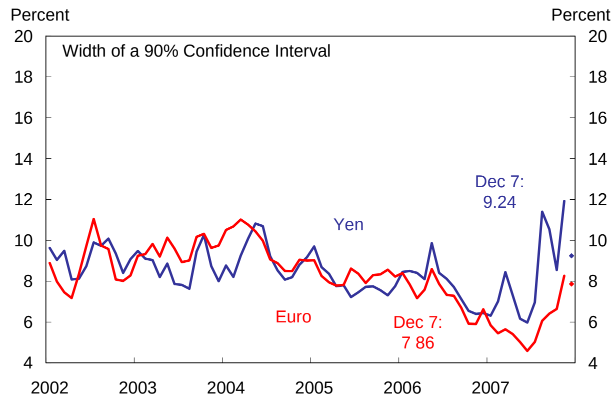
Real Effective Exchange Rates



Source: Federal Reserve Board

Note: Data are monthly averages.

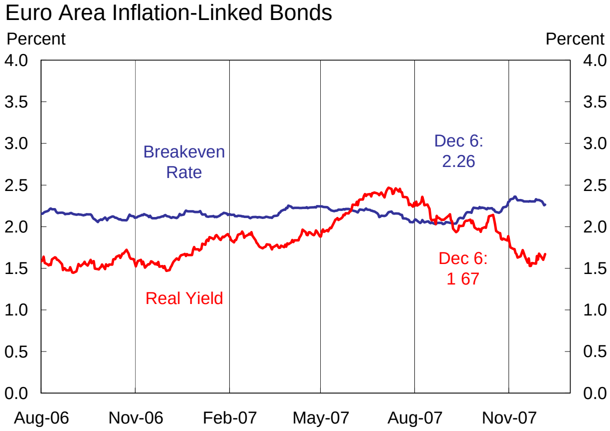
Euro and Yen One-Month Implied FX Option Volatility



Source: Reuters

Note: Data are monthly averages.

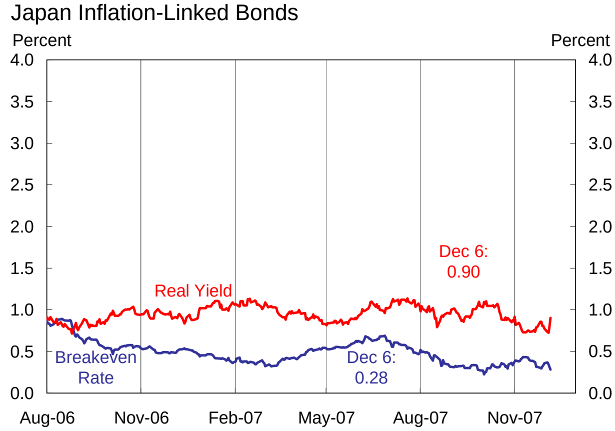
Euro Area Inflation-Linked Bonds



Source: Barclays, Daily Data

Note: OAT July 2012

Japan Inflation-Linked Bonds



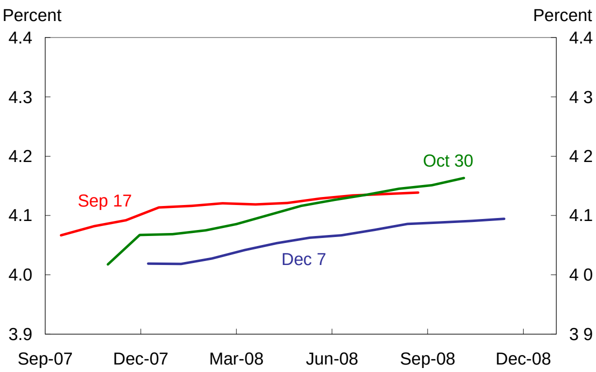
Source: Barclays, Daily Data

Note: JGB March 2014

A. Significant Developments

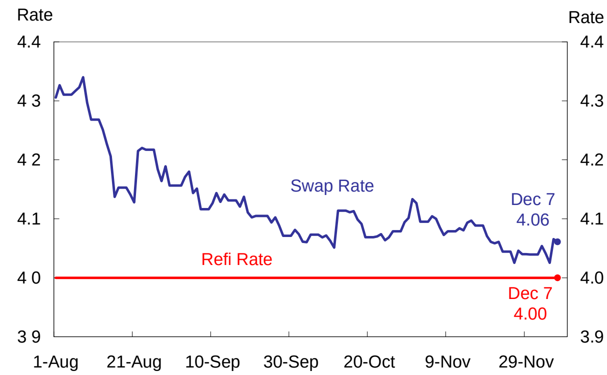
Exhibit A-10: Euro Area and Japan Swap Curves

Euro Area Swap Rates
Expected Average Overnight Rate Months Ahead



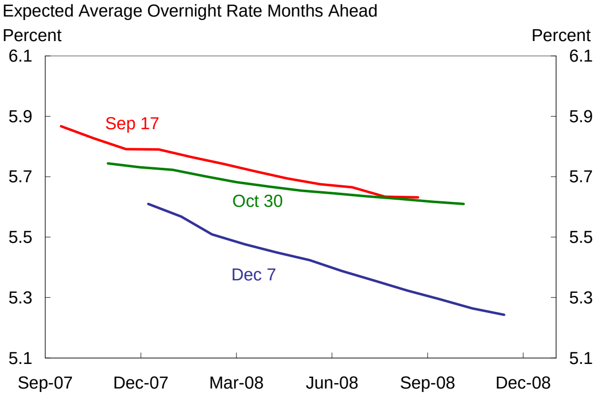
Source: Bloomberg

Euro Area: Expected Average Overnight Rate Over the Next Six Months (Swap Rate)



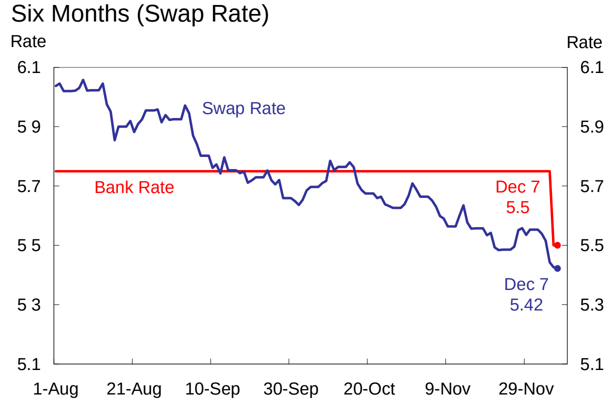
Source: Bloomberg

UK Swap Curve
Expected Average Overnight Rate Months Ahead



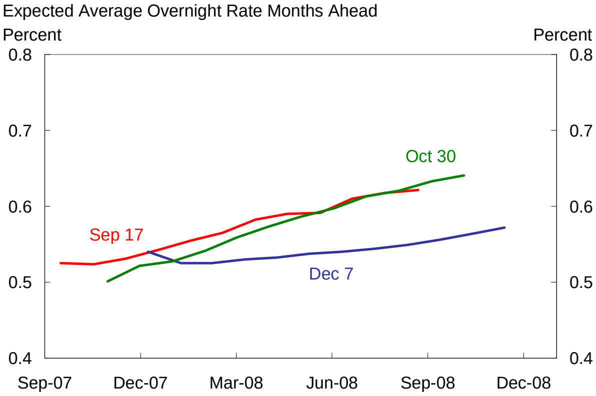
Source: Bloomberg

UK: Expected Average Overnight Rate Over the Next Six Months (Swap Rate)



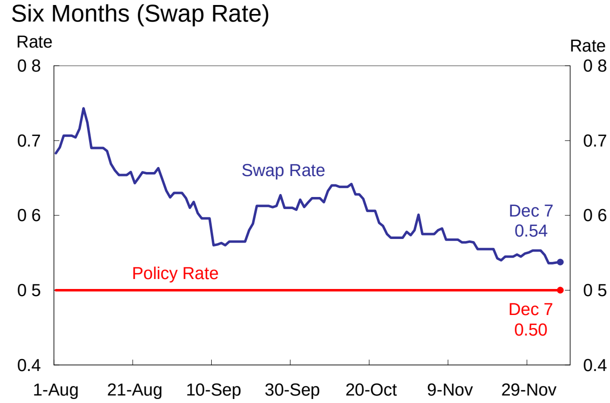
Source: Bloomberg

Japan Swap Curve
Expected Average Overnight Rate Months Ahead



Source: Bloomberg

Japan: Expected Average Overnight Rate Over the Next Six Months (Swap Rate)



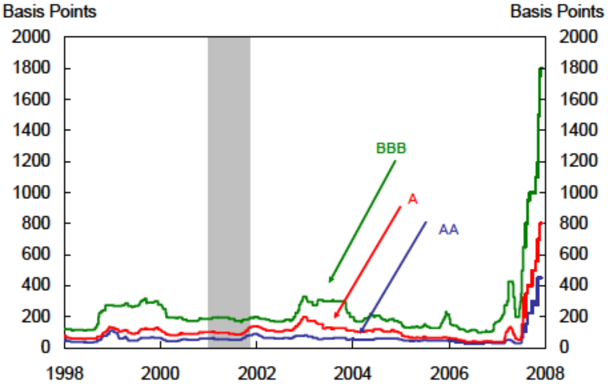
Source: Bloomberg

Note: Shading represents NBER recessions.

A. Significant Developments

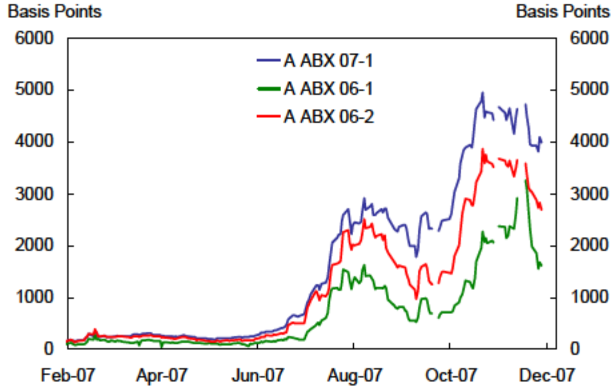
Exhibit A-11: Financial Market Indicators of Subprime Spillovers

Spreads on Subprime MBS Tranches



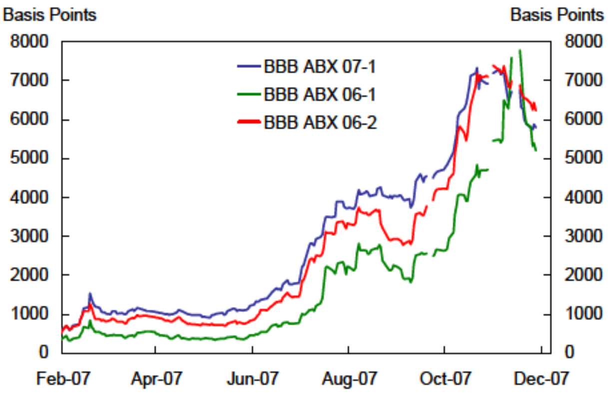
Source: JPMorgan and FRBNY (Markets Group)

A-Rated ABX Spreads



Source: JPMorgan and FRBNY (Markets Group)

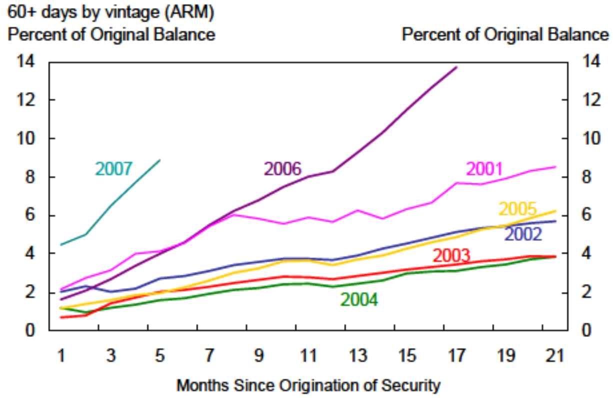
BBB-Rated ABX Spreads



Source: JPMorgan and FRBNY (Markets Group)

Subprime Delinquencies (through Aug '07)

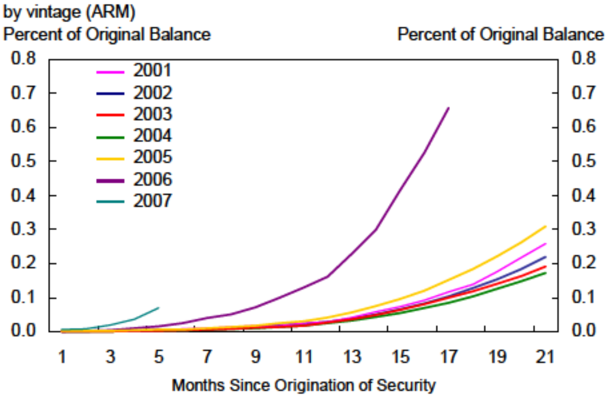
60+ days by vintage (ARM)



Source: Moody's and FRBNY (Bank Supervision)

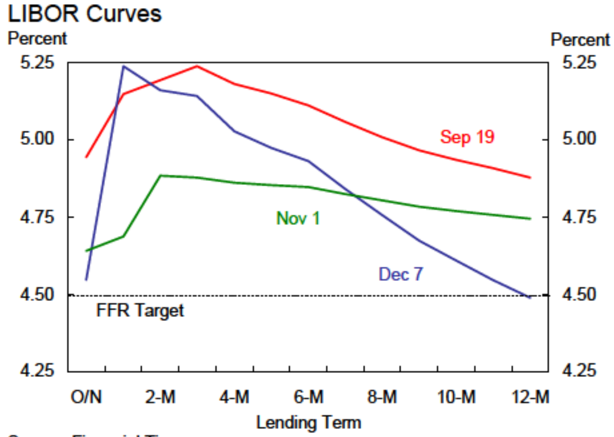
Cumulative Subprime Losses

by vintage (ARM)



Source: Moody's and FRBNY (Bank Supervision)

LIBOR Curves



Source: Financial Times

B. FRBNY Forecast Details

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

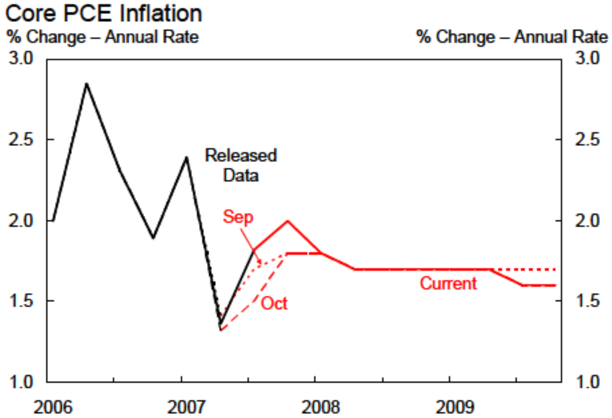
	Core PCE Inflation			Real GDP Growth			Unemployment Rate*			Fed Funds Rate**		
	Sep	Oct	Dec	Sep	Oct	Dec	Sep	Oct	Dec	Sep	Oct	Dec
2007												
Q1	*2.4*	*2.4*	*2.4*	*0.6*	*0.6*	*0.6*	*4.5*	*4.5*	*4.5*	*5.3*	*5.3*	*5.3*
Q2	*1.3*	*1.4*	*1.4*	*3.8*	*3.8*	*3.8*	*4.5*	*4.5*	*4.5*	*5.3*	*5.3*	*5.3*
Q3	1.7	1.5	*1.8*	2.9	3.3	*4.9*	4.6	*4.6*	*4.6*	4.8	*4.8*	*4.8*
Q4	1.8	1.8	2.0	2.4	2.0	0.8	4.7	4.7	4.7	4.8	4.8	4.3
2008												
Q1	1.8	1.8	1.8	2.4	2.0	1.6	4.7	4.7	4.9	4.8	4.8	4.0
Q2	1.7	1.7	1.7	2.6	2.8	2.5	4.7	4.7	5.0	4.5	4.8	3.8
Q3	1.7	1.7	1.7	2.7	2.8	2.3	4.7	4.7	5.0	4.3	4.5	3.8
Q4	1.7	1.7	1.7	2.8	3.0	2.8	4.6	4.6	5.0	4.3	4.3	3.8
2009												
Q1	1.7	1.7	1.7	2.8	2.8	2.8	4.6	4.6	4.9	4.3	4.3	4.0
Q2	1.7	1.7	1.7	2.7	2.7	3.0	4.6	4.6	4.9	4.3	4.3	4.3
Q3	1.7	1.6	1.6	2.8	2.8	2.8	4.6	4.6	4.9	4.3	4.3	4.3
Q4	1.7	1.6	1.6	2.7	2.6	2.6	4.6	4.6	4.9	4.3	4.3	4.3
Q4/Q4												
2006	*2.3*	*2.3*	*2.3*	*2.6*	*2.6*	*2.6*	*-0.5*	*-0.5*	*-0.5*	*1.0*	*1.0*	*1.0*
2007	1.8	1.8	1.9	2.4	2.4	2.5	0.2	0.2	0.2	-0.5	-0.5	-1.0
2008	1.7	1.7	1.7	2.6	2.6	2.3	-0.1	-0.1	0.3	-0.5	-0.5	-0.5
2009	1.7	1.6	1.6	2.7	2.7	2.8	0.0	0.0	-0.1	0.0	0.0	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.

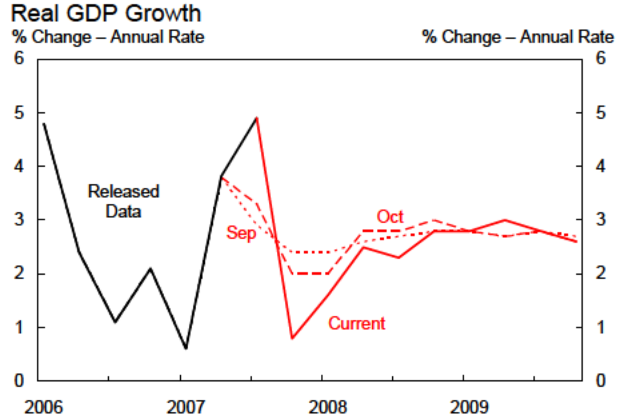
B. FRBNY Forecast Details

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

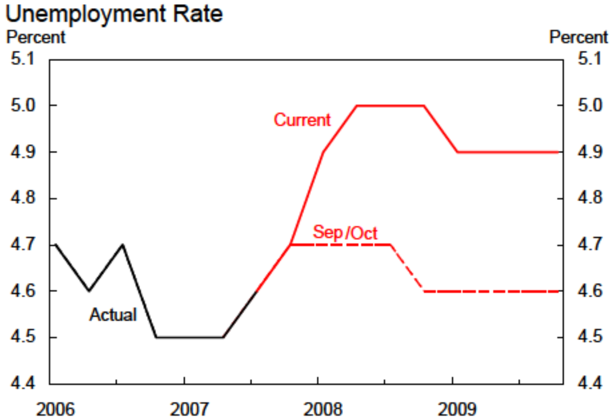
Core PCE Inflation



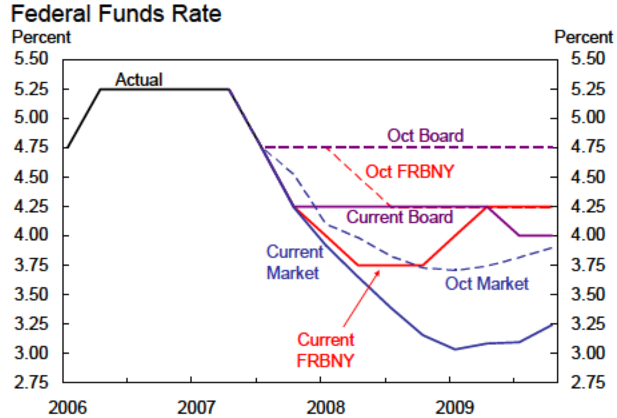
Real GDP Growth



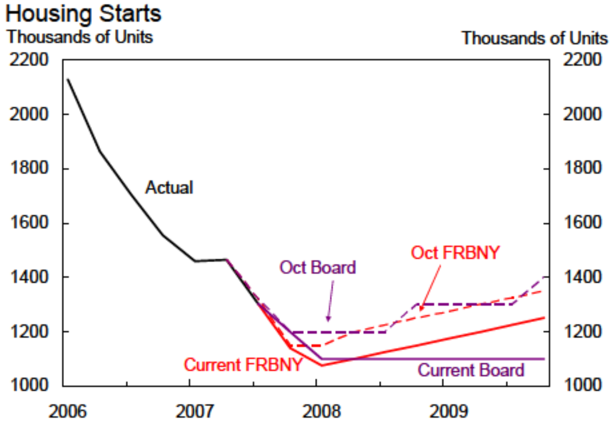
Unemployment Rate



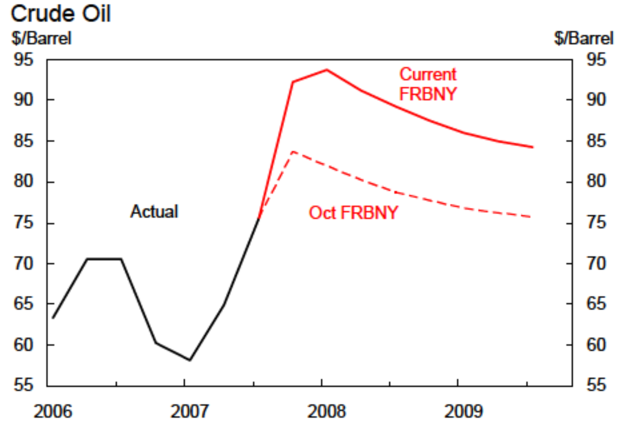
Federal Funds Rate



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)	
	2007Q4	2008Q1	2007Q4	2008Q1
OUTPUT				
Real GDP	0.8	1.6	0.8	1.6
	(2.0)	(2.0)	(2.0)	(2.0)
Final Sales to Domestic Purchasers	0.9	1.3	1.0	1.4
	(1.2)	(1.6)	(1.2)	(1.7)
Consumption	1.5	2.3	1.1	1.6
	(2.4)	(2.7)	(1.7)	(1.9)
BFI: Equipment and Software	4.0	4.0	0.3	0.3
	(4.0)	(5.0)	(0.3)	(0.4)
BFI: Nonresidential Structures	5.0	5.0	0.2	0.2
	(7.0)	(6.0)	(0.2)	(0.2)
Residential Investment	-28.0	-29.1	-1.4	-1.4
	(-28.8)	(-30.2)	(-1.5)	(-1.4)
Government: Federal	8.0	5.0	0.6	0.4
	(3.0)	(5.0)	(0.2)	(0.3)
Government: State and Local	2.5	2.3	0.3	0.3
	(2.5)	(2.3)	(0.3)	(0.3)
Inventory Investment	--	--	-0.6	0.1
	--	--	(0.4)	(0.4)
Net Exports	--	--	0.4	0.2
	--	--	(0.4)	(-0.1)
INFLATION				
Total PCE Deflator	3.5	1.9		
	(2.5)	(1.9)		
Core PCE Deflator	2.0	1.8		
	(1.8)	(1.8)		
PRODUCTIVITY AND LABOR COSTS*				
Output per Hour	0.0	1.2		
	(1.8)	(1.8)		
Compensation per Hour	7.0	4.0		
	(7.0)	(4.0)		
Unit Labor Costs	7.0	2.8		
	(5.2)	(2.2)		

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		
	2007	2008	2009	2007	2008	2009
OUTPUT						
Real GDP	2.5	2.3	2.8	2.5	2.3	2.8
	(2.4)	(2.6)	(2.7)	(2.4)	(2.6)	(2.7)
Final Sales to Domestic Purchasers	1.8	1.8	2.5	1.9	1.9	2.6
	(1.9)	(2.2)	(2.5)	(2.0)	(2.3)	(2.6)
Consumption	2.3	2.4	2.6	1.6	1.7	1.9
	(2.8)	(2.7)	(2.6)	(2.0)	(1.9)	(1.8)
BFI: Equipment and Software	4.0	3.5	3.0	0.3	0.3	0.2
	(3.0)	(3.7)	(3.0)	(0.2)	(0.3)	(0.2)
BFI: Nonresidential Structures	12.6	3.7	3.0	0.4	0.1	0.1
	(11.8)	(4.0)	(3.0)	(0.4)	(0.1)	(0.1)
Residential Investment	-19.2	-14.8	3.0	-1.0	-0.6	0.1
	(-18.5)	(-10.2)	(3.0)	(-1.0)	(-0.4)	(0.1)
Government: Federal	3.5	2.0	1.5	0.2	0.1	0.1
	(1.4)	(2.0)	(1.5)	(0.1)	(0.1)	(0.1)
Government: State and Local	2.6	2.1	1.9	0.3	0.3	0.2
	(2.8)	(2.1)	(2.0)	(0.3)	(0.3)	(0.2)
Inventory Investment	--	--	--	0.0	0.1	0.1
	--	--	--	(-0.1)	(0.0)	(0.0)
Net Exports	--	--	--	0.6	0.3	0.0
	--	--	--	(0.5)	(0.3)	(0.1)
INFLATION						
Total PCE Deflator	3.2	1.9	1.7			
	(2.9)	(1.9)	(1.7)			
Core PCE Deflator	1.9	1.7	1.6			
	(1.8)	(1.7)	(1.6)			
Total CPI Inflation	3.9	2.5	1.9			
	(3.5)	(2.2)	(1.9)			
Core CPI Inflation	2.2	2.0	1.9			
	(2.2)	(2.0)	(1.9)			
GDP Deflator	2.0	2.2	2.0			
	(2.4)	(2.3)	(1.9)			

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		
	2007	2008	2009
INTEREST RATE ASSUMPTIONS			
Federal Funds Rate (End-of-Year)	4.25	3.75	4.25
	(4.75)	(4.25)	(4.25)
10-Year Treasury Yield (Avg. Q4 Level)	4.3	4.1	4.1
	(4.4)	(4.6)	(4.6)
PRODUCTIVITY AND LABOR COSTS*			
Output	2.8	2.6	3.1
	(2.6)	(2.9)	(3.0)
Hours	0.6	1.0	1.3
	(0.6)	(1.1)	(1.2)
Output per Hour	2.3	1.6	1.8
	(2.2)	(1.8)	(1.8)
Compensation per Hour	4.5	4.7	4.7
	(5.4)	(4.7)	(4.7)
Unit Labor Costs	2.2	3.2	2.9
	(3.3)	(2.9)	(2.9)
LABOR MARKET			
Unemployment Rate (Avg. Q4 Level)	4.7	5.0	4.9
	(4.7)	(4.6)	(4.6)
Participation Rate (Avg. Q4 Level)	66.1	66.1	66.1
	(66.0)	(66.0)	(66.0)
Avg. Monthly Nonfarm Payroll Growth (Thous.)	131	115	143
	(104)	(123)	(137)
INCOME			
Personal Income	5.7	5.3	5.3
	(6.4)	(5.5)	(5.1)
Real Disposable Personal Income	2.1	3.3	3.7
	(3.1)	(3.5)	(3.5)
Corporate Profits Before Taxes	5.2	1.4	1.3
	(9.1)	(1.4)	(0.9)

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

B. FRBNY Forecast Details

Exhibit B-6: FRBNY and Greenbook Forecast Comparison

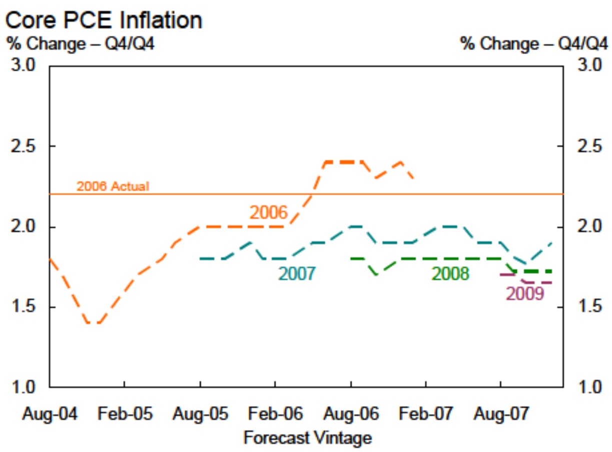
	FRBNY			Board		
	2007	2008	2009	2007	2008	2009
OUTPUT						
Real GDP	2.5	2.3	2.8	2.3	1.3	2.1
	(2.4)	(2.6)	(2.7)	(2.3)	(1.7)	(2.2)
GDP Growth Contributions						
Final Sales to Domestic Purchasers	1.9	1.9	2.6	1.7	0.8	2.0
	(2.0)	(2.3)	(2.6)	(1.9)	(1.4)	(2.1)
Consumption	1.6	1.7	1.9	1.6	1.0	1.6
	(2.0)	(1.9)	(1.8)	(1.9)	(1.2)	(1.5)
BFI	0.7	0.4	0.3	0.7	0.1	0.3
	(0.6)	(0.4)	(0.3)	(0.6)	(0.2)	(0.3)
Residential Investment	-1.0	-0.6	0.1	-1.1	-0.6	-0.1
	(-1.0)	(-0.4)	(0.1)	(-1.1)	(-0.3)	(0.1)
Government	0.6	0.4	0.4	0.5	0.3	0.2
	(0.4)	(0.4)	(0.4)	(0.5)	(0.3)	(0.2)
Inventory Investment	0.0	0.1	0.1	0.0	0.0	0.0
	(-0.1)	(0.0)	(0.0)	(0.0)	(-0.1)	(0.1)
Net Exports	0.6	0.3	0.0	0.6	0.5	0.1
	(0.5)	(0.3)	(0.1)	(0.5)	(0.4)	(0.0)
INFLATION						
Total PCE Deflator	3.2	1.9	1.7	3.2	2.0	1.7
	(2.9)	(1.9)	(1.7)	(3.0)	(1.8)	(1.7)
Core PCE Deflator	1.9	1.7	1.6	2.0	2.0	1.9
	(1.8)	(1.7)	(1.6)	(1.8)	(1.9)	(1.9)
INTREST RATE ASSUMPTION						
Fed Funds Rate (End-of-Year)	4.25	3.75	4.25	4.25	4.25	4.00
	(4.75)	(4.25)	(4.25)	(4.75)	(4.75)	(4.75)
PRODUCTIVITY AND LABOR COSTS*						
Output per Hour	2.3	1.6	1.8	2.3	1.3	1.9
	(2.2)	(1.8)	(1.8)	(2.0)	(1.8)	(1.9)
Compensation per Hour	4.5	4.7	4.7	3.7	4.5	4.2
	(5.4)	(4.7)	(4.7)	(4.7)	(4.5)	(4.3)
Unit Labor Costs	2.2	3.2	2.9	1.3	3.1	2.3
	(3.3)	(2.9)	(2.9)	(2.7)	(2.6)	(2.4)
LABOR MARKET						
Unemployment Rate (Avg. Q4 Level)	4.7	5.0	4.9	4.7	4.9	5.0
	(4.7)	(4.6)	(4.6)	(4.7)	(4.8)	(4.8)
Participation Rate (Avg. Q4 Level)	66.1	66.1	66.1	65.9	65.7	65.5
	(66.0)	(66.0)	(66.0)	(66.0)	(65.8)	(65.6)
Avg. Monthly Nonfarm Payroll Growth (Thous.)	131	115	143	133.3	50.0	75.0
	(104)	(123)	(137)	(92)	(42)	(67)
HOUSING						
Housing Starts (Avg. Q4 Level, Thous.)	1140	1150	1250	1200	1100	1100
	(1150)	(1250)	(1350)	(1400)	(1200)	(1300)

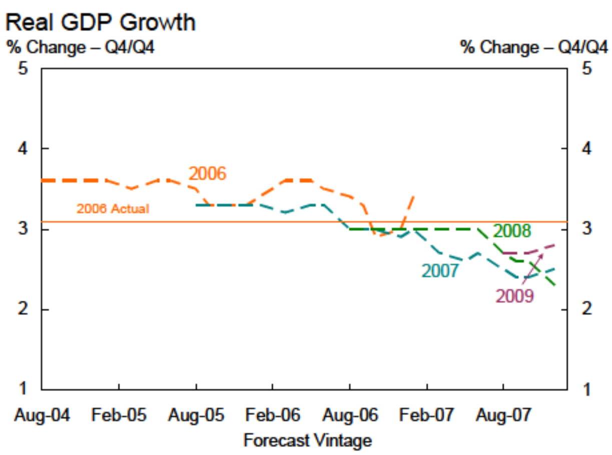
Note: All values are Q4/Q4 percent change, unless indicated otherwise. Numbers in parentheses are from the previous Blackbook or Greenbook.
*Nonfarm business sector

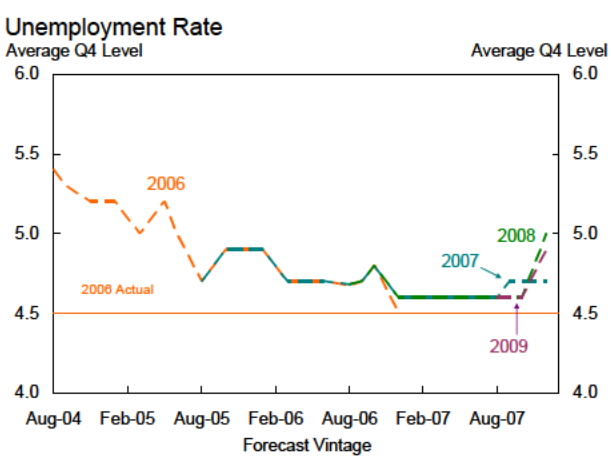
B. FRBNY Forecast Details

Exhibit B-7: Evolution of FRBNY and Board Forecasts since Mid-2004

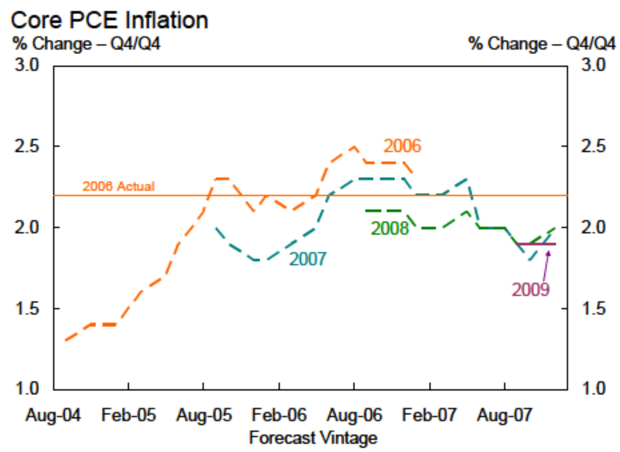
FRBNY

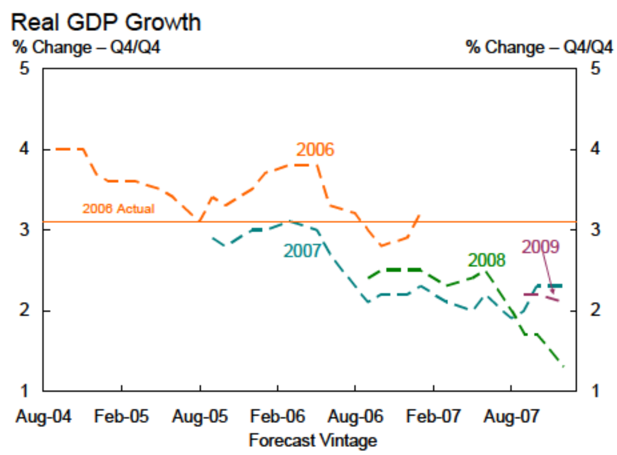


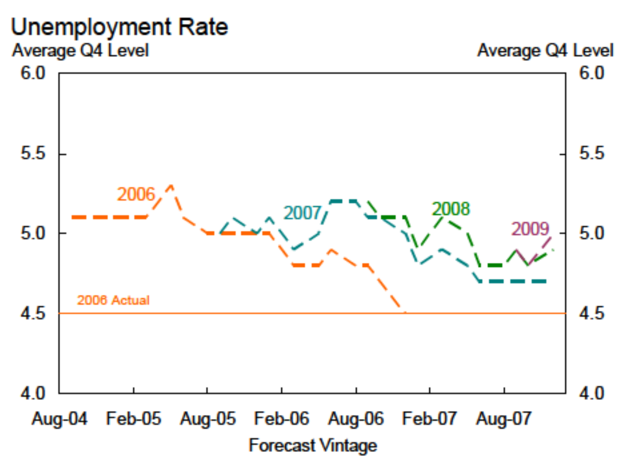




Board







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	2007Q4	2008Q1	2007 Q4/Q4	2008 Q4/Q4
FRBNY	12/7/2007	0.8	1.6	2.5	2.3
		(2.0)	(2.0)	(2.4)	(2.6)
PSI Model	12/3/2007	2.2	1.9	--	--
		(2.1)	--	--	--
Blue Chip	11/10/2007	1.7	1.9	2.5	2.4
		(1.8)	(2.1)	(2.2)	(2.5)
Median SPF	11/13/2007	1.5	2.2	2.1	2.5
		(2.7)	(2.7)	(1.9)	(2.8)
Macro Advisers	12/7/2007	0.0	1.8	2.4	2.7
		(1.7)	(2.5)	(2.2)	(2.6)

Core PCE Inflation

	Release Date	2007Q4	2008Q1	2007 Q4/Q4	2008 Q4/Q4
FRBNY	12/7/2007	2.0	1.8	1.9	1.7
		(1.8)	(1.8)	(1.8)	(1.7)
Median SPF	11/13/2007	1.9	1.9	1.9	1.9
		(1.9)	(2.0)	(1.9)	(2.0)

CPI Inflation

	Release Date	2007Q4	2008Q1	2007 Q4/Q4	2008 Q4/Q4
FRBNY	12/7/2007	4.0	3.4	3.9	2.5
		(2.3)	(2.3)	(3.5)	(2.2)
Blue Chip	11/10/2007	2.8	2.7	3.6	2.3
		(2.0)	(2.3)	(3.3)	(2.3)
Median SPF	11/13/2007	3.0	2.9	3.6	2.5
		(2.0)	(2.3)	(3.6)	(2.2)
Macro Advisers	12/7/2007	3.7	2.4	3.8	2.2
		(2.4)	(2.3)	(3.5)	(2.2)

Core CPI Inflation

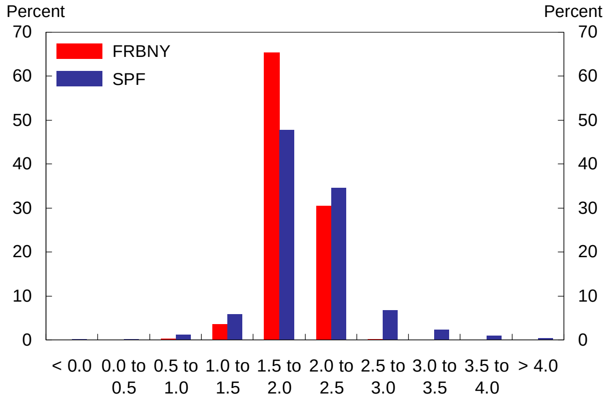
	Release Date	2007Q4	2008Q1	2007 Q4/Q4	2008 Q4/Q4
FRBNY	12/7/2007	2.1	2.3	2.2	2.0
		(2.1)	(2.1)	(2.2)	(2.0)
Median SPF	11/13/2007	2.2	2.2	2.2	2.2
		(2.2)	(2.2)	(2.2)	(2.2)
Macro Advisers	12/7/2007	2.2	2.3	2.2	2.3
		(2.3)	(2.2)	(2.3)	(2.2)

Note: Numbers in parentheses are from August release for SPF and October release for all other forecasts.
All values are quarterly percent changes at an annual rate.

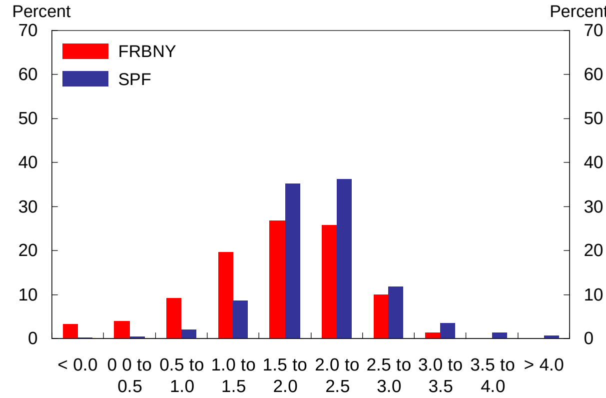
B. FRBNY Forecast Details

Exhibit B-9: FRBNY, SPF, and Board Forecast Comparison

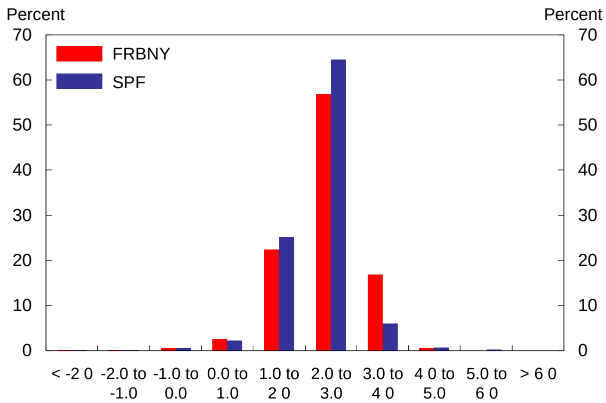
2007Q4/Q4 Core PCE Inflation Probabilities



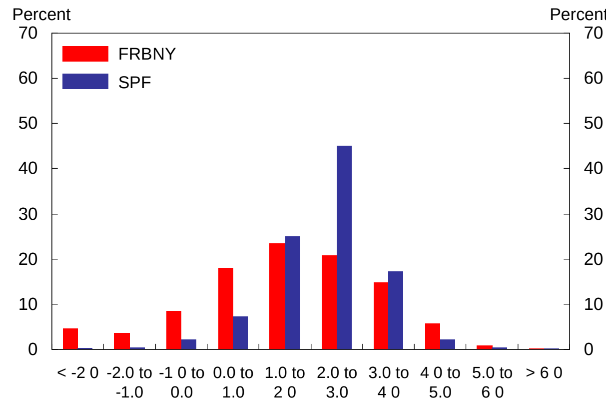
2008Q4/Q4 Core PCE Inflation Probabilities



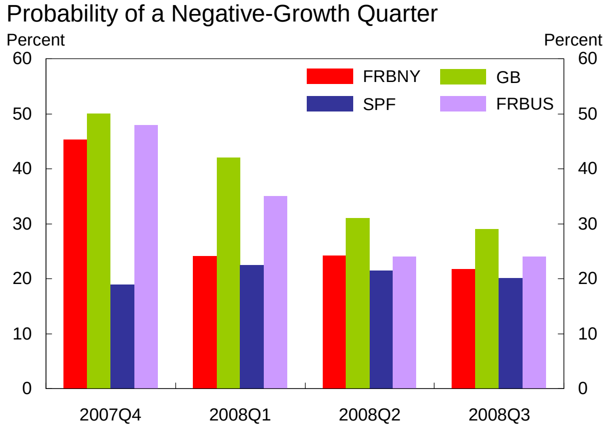
2007/2006 Real GDP Growth Probabilities



2008/2007 Real GDP Growth Probabilities



Probability of a Negative-Growth Quarter

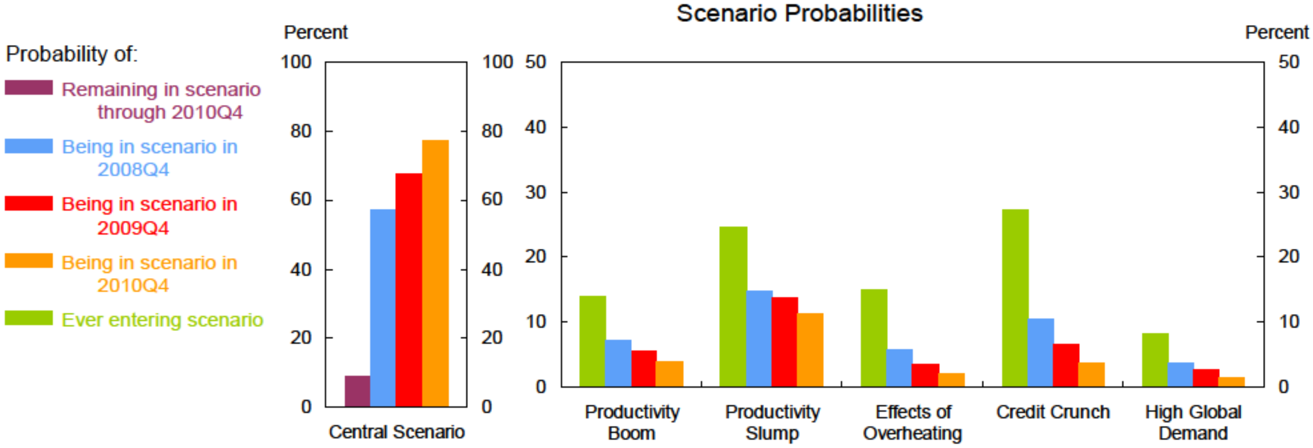


Source: MMS Function (FRBNY), FRB Philadelphia Survey of Professional Forecasters, and Federal Reserve Board
Note: SPF forecast was released November 13, 2007. Board forecasts are from the December Greenbook.

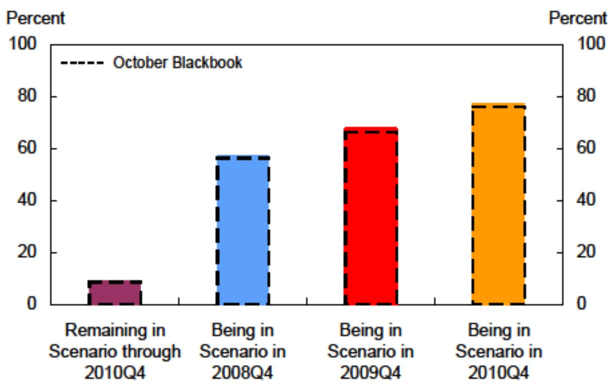
C. FRBNY Forecast Distributions

Exhibit C-1: Risks

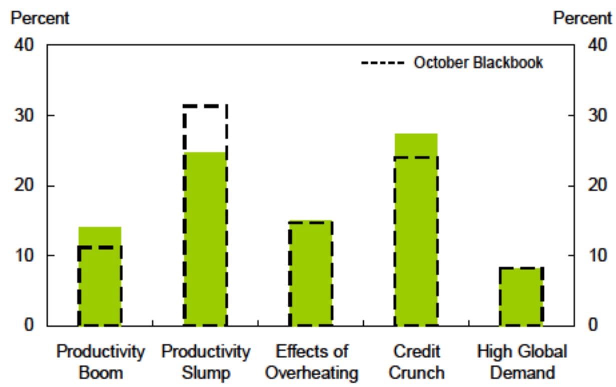
Scenario Probabilities



Change in Central Scenario Probabilities



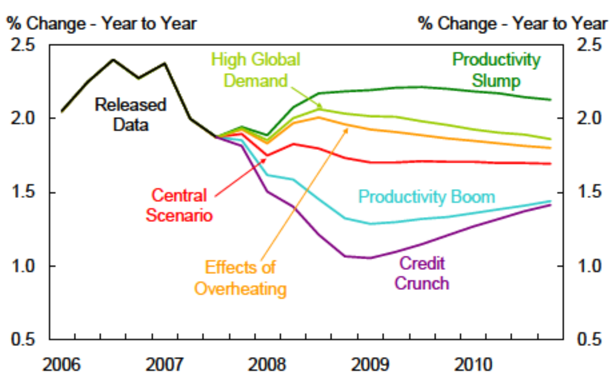
Change in Alternative Scenario Probabilities*



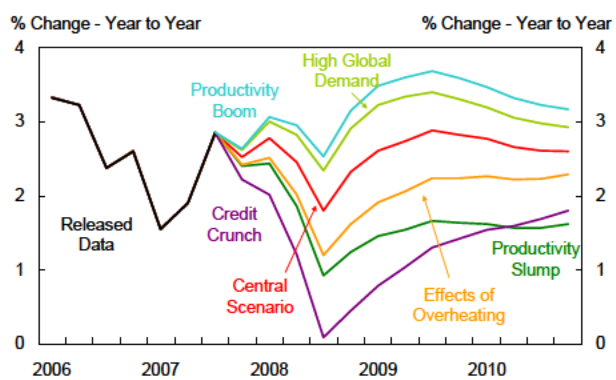
*Probability of ever reaching scenario

Exhibit C-2: Projections under Alternative Scenarios

Core PCE Inflation under Alternative Scenarios



Real GDP Growth under Alternative Scenarios

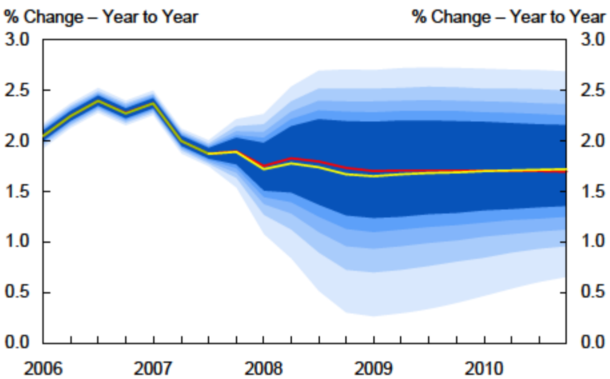


Source: MMS Function (FRBNY)

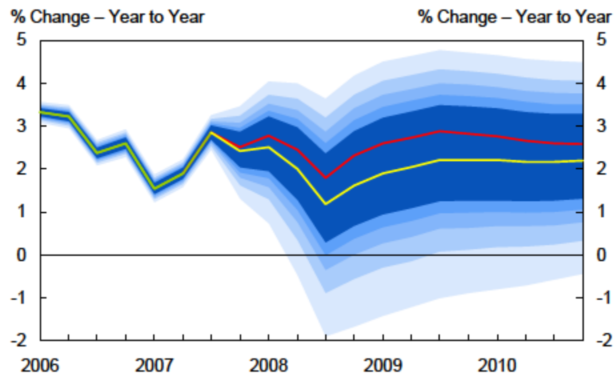
C. FRBNY Forecast Distributions

Exhibit C-3: Inflation and Output Forecast Distributions

Core PCE Inflation Forecast Distribution

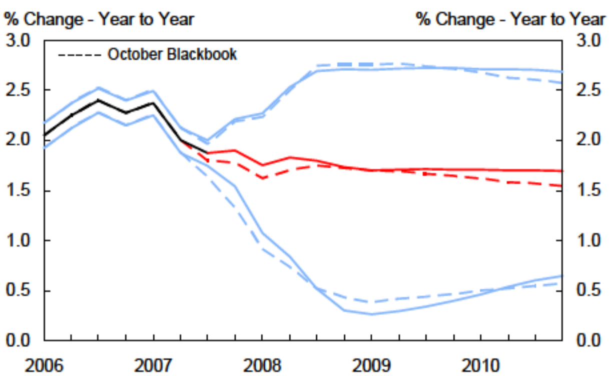


Real GDP Growth Forecast Distribution

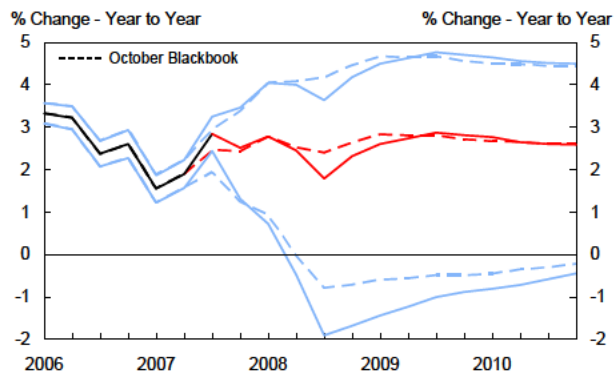


The yellow line is the expected value of the forecast distribution, the red line is the central scenario projection, and the green line is released data. The shading represents the 50, 60, 70, 80, and 90 percent chance that the four-quarter change will be within the respective range.

Change in Core PCE Inflation Forecast Distribution

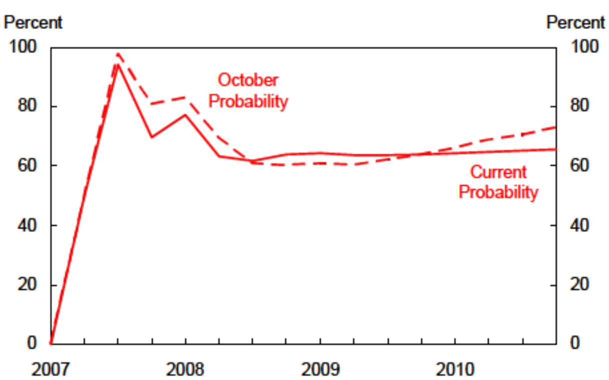


Change in Real GDP Growth Forecast Distribution

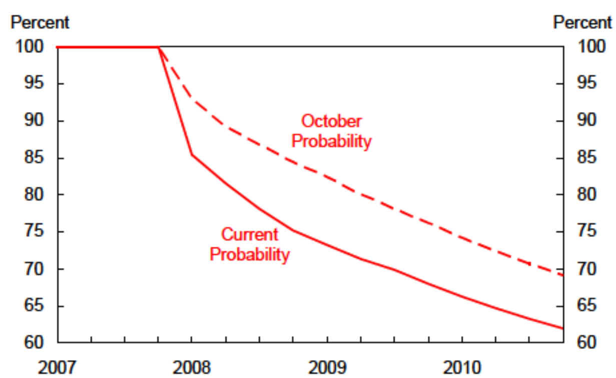


The blue lines are the 90% chance the four-quarter change will be within the lines, the red line is the central scenario projection, and the black line is released data. Dashed lines represent forecasts from previous Blackbook.

Probability of Four-Quarter Core PCE Inflation below 2%



Probability of Continuing Expansion*



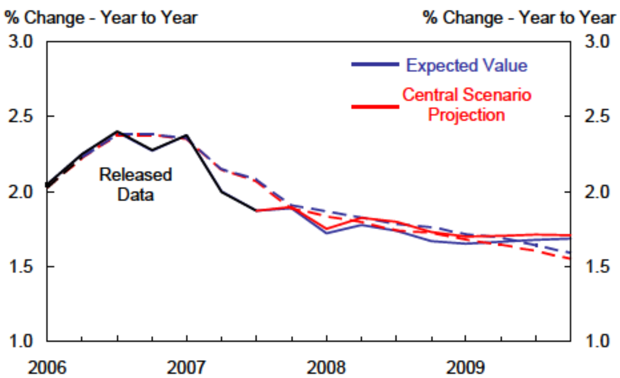
*No two consecutive quarters of negative growth

Source: MMS Function (FRBNY)

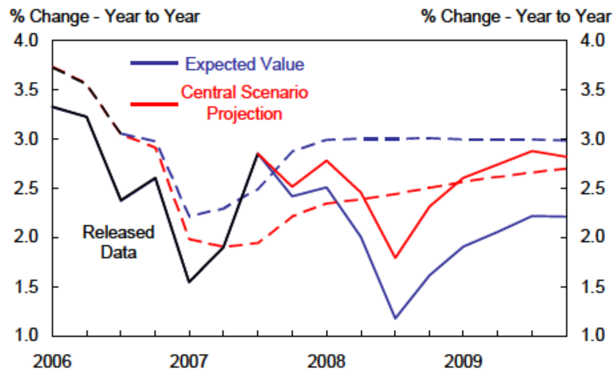
C. FRBNY Forecast Distributions

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

One-Year Comparison of Core PCE Inflation Forecast

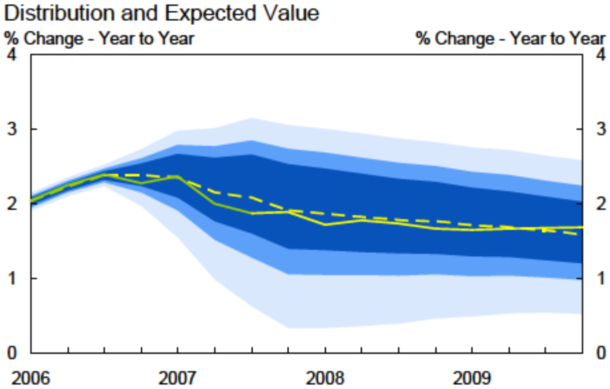


One-Year Comparison of Real GDP Growth Forecast

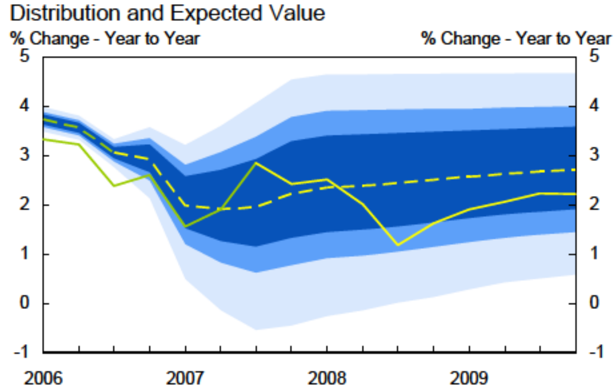


The solid lines are the **current** central scenario projection (red) and expected value of the forecast distribution, while the dotted lines are the same from the **December 2006** forecast.

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



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



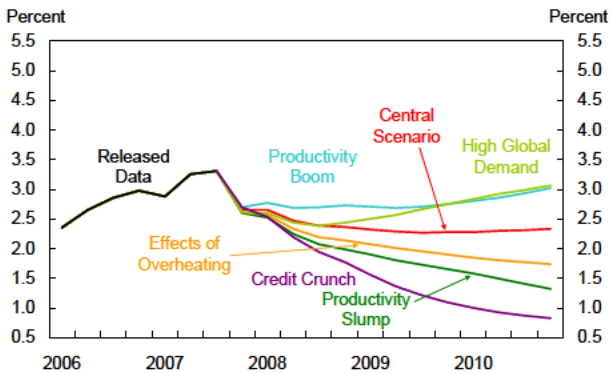
The solid yellow line is the **current** expected value of the forecast distribution, while the dashed yellow line is the **December 2006** expected value. The shading represents the 50, 75 and 90 percent probability intervals from the **December 2006** forecast. The green lines are released data.

Source: MMS Function (FRBNY)

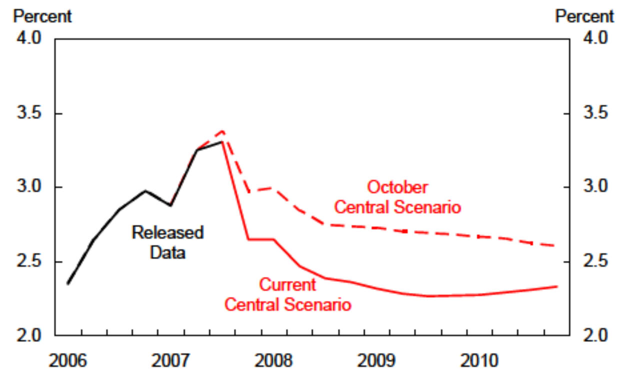
D. FRBNY Fed Funds Rate Projections

Exhibit D-1: *Baseline*
Policy Rule Analysis

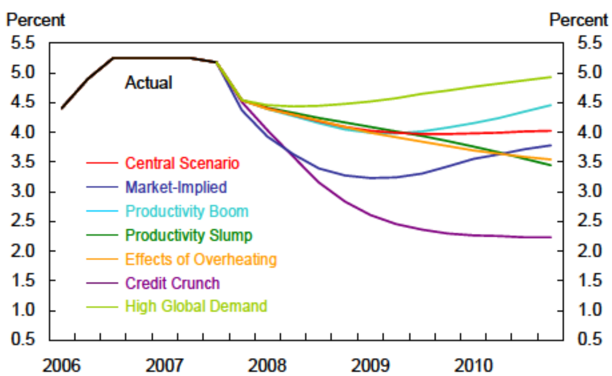
Real FFR under Alternative Scenarios



Change in Central Scenario Real FFR



Nominal FFR under Alternative Scenarios



Change in Central Scenario and Market-Implied Nominal FFR

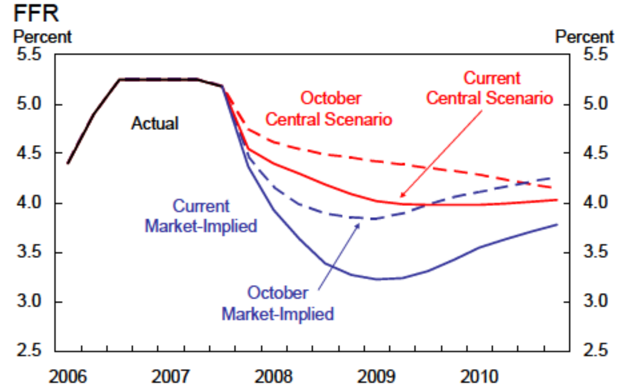
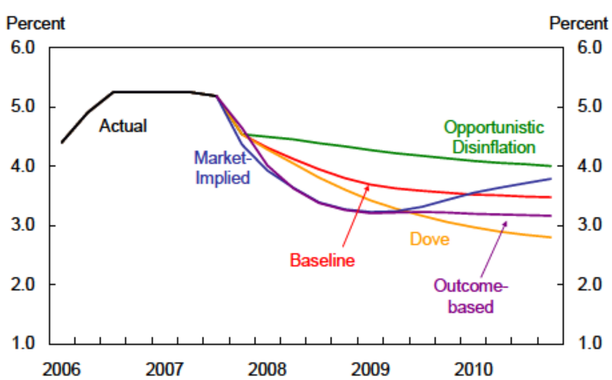


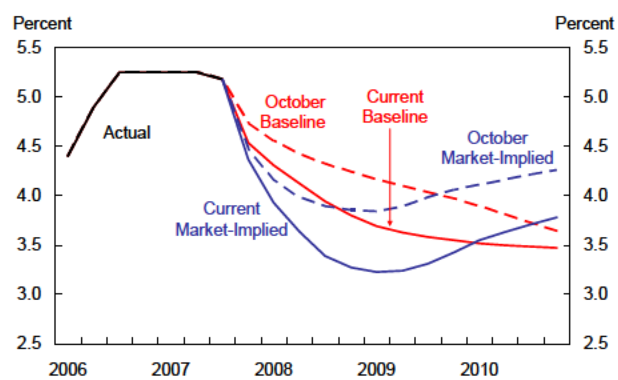
Exhibit D-2: Alternative Policy Rules under
Expected Value of Forecast Distribution

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

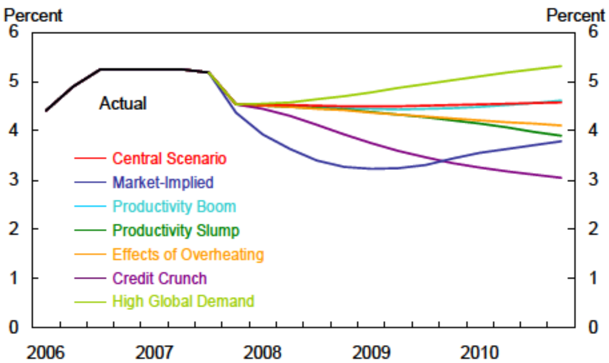
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

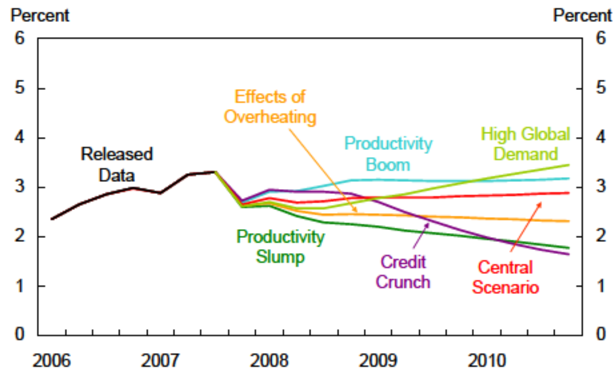
Exhibit D-3: Alternative Policy Rule Analysis

Policy Rule: *Opportunistic Disinflation*

Nominal FFR under Alternative Scenarios

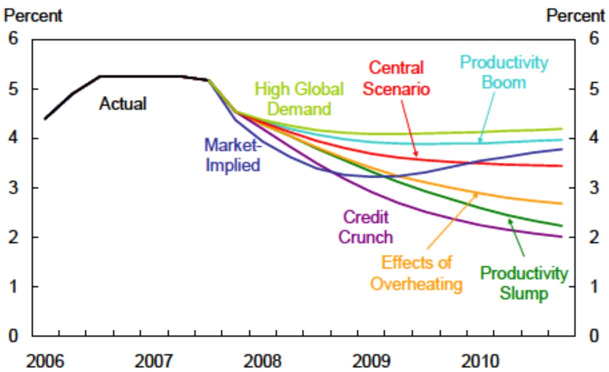


Real FFR under Alternative Scenarios

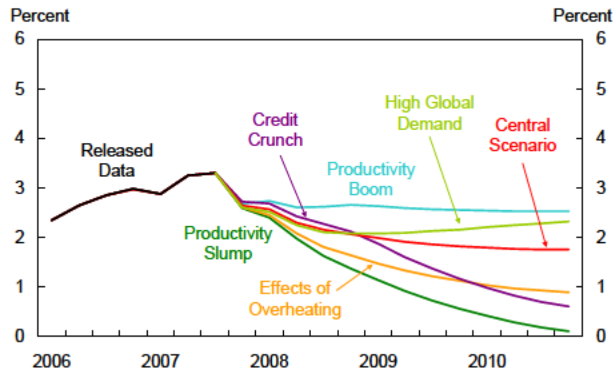


Policy Rule: *Dove*

Nominal FFR under Alternative Scenarios

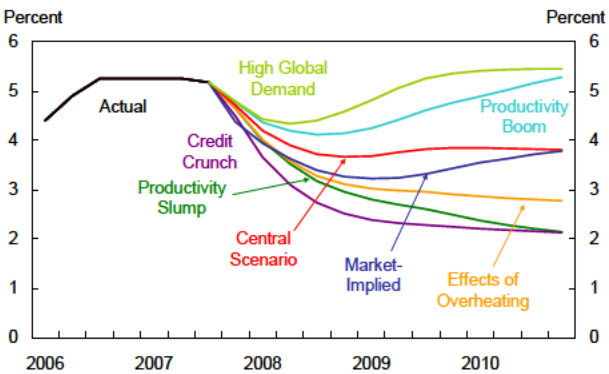


Real FFR under Alternative Scenarios

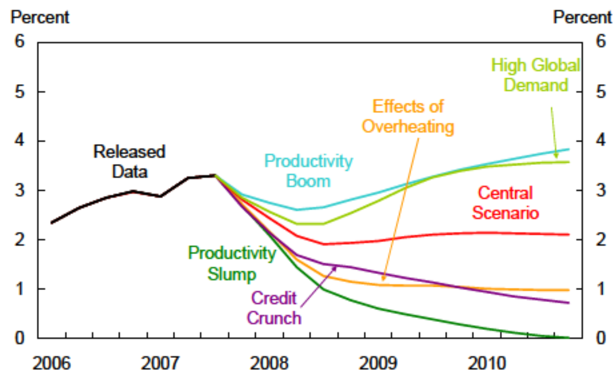


Policy Rule: *Outcome-based*

Nominal FFR under Alternative Scenarios



Real FFR under Alternative Scenarios



Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

Exhibit D-4: Comparison between Market and Policy Rule FFR Expectations: 2008Q3

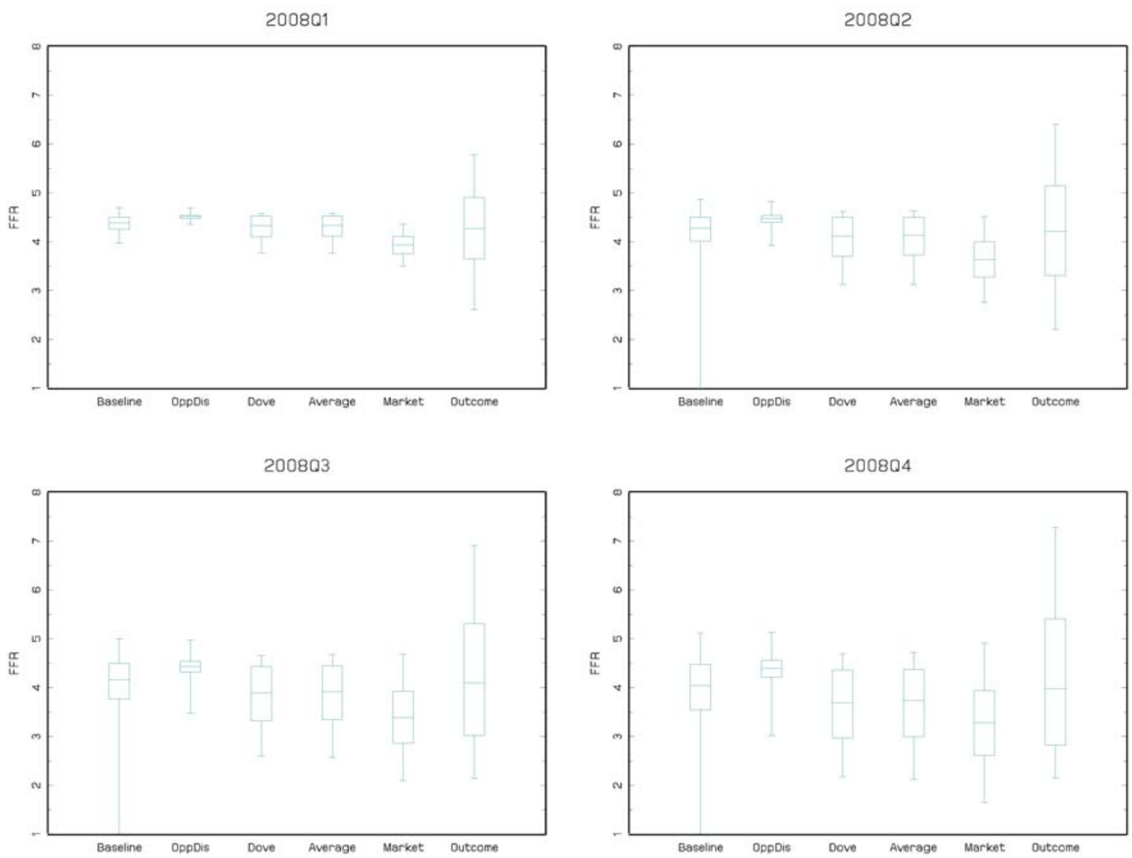
	Percentile of Rule Expectation in Market Distribution	Percentile of Market Expectation in Rule Distribution
Baseline	76 (71)	13 (17)
Opportunistic Disinflation	90 (84)	4 (4)
Dove	70 (62)	28 (32)
Outcome-based	86 (85)	34 (34)
Average	71 (63)	27 (30)

Note: Numbers in parentheses are from the previous Blackbook.

"Average" Weights:

Rule	Current	Oct. Blackbook
Baseline	0.10	0.10
Opportunistic Disinflation	0.00	0.00
Dove	0.90	0.90

Exhibit D-5: FFR Distributions



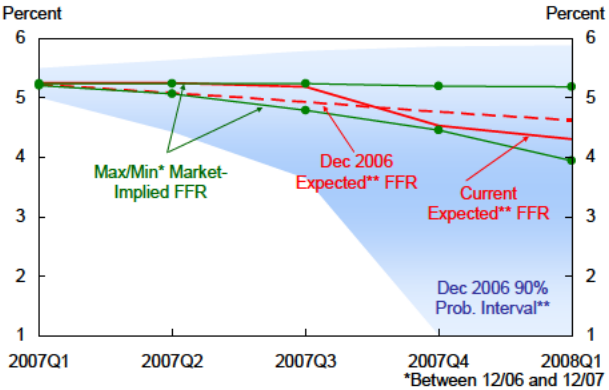
Note: The box represents the 50% probability interval, the line in the box the median, and the tails the 90% probability interval.

Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

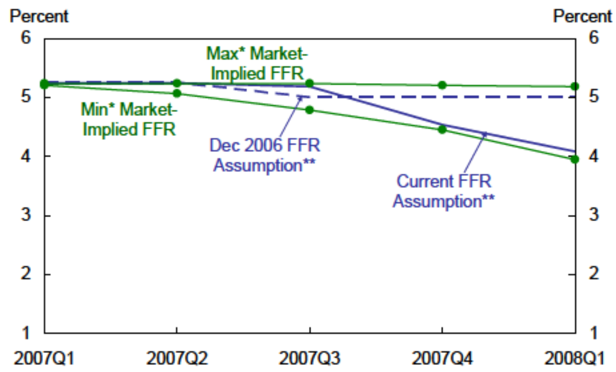
Exhibit D-6: Evolution of FFR Expectations and Assumption

FFR Forecast Distribution and Market-Implied FFR



*Between 12/06 and 12/07
**Using Baseline rule

FFR Conditioning Assumption and Market-Implied FFR



*Between 12/06 and 12/07
**Conditioning assumption for FRBNY central forecast

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. In the post-war era, the United States has experienced three productivity epochs (pre-1973, High I; 1973 to mid-1990s, Low I; and mid-1990s to 2004, High II). The NIPA revisions in July 2006 and 2007 prompted us to reduce our estimate of potential output growth; thus our current central projection for medium- and long-term productivity growth is somewhat lower than that of the pre-1973 epoch.

Alternative 1: *Productivity Boom*

The recent decline in productivity growth might prove to be a temporary, cyclical one. In this case, it is possible we will return to the strong productivity growth of the High II epoch, with some mixture of IT-driven production and applications leading the way. Support for this view comes from Moore's law on the doubling of computing power every 18^{th} months. As such, we could see persistent productivity growth above our assumed trend, implying a higher potential growth rate and thus expected real growth that is higher than our current estimate. Strong productivity growth would also limit labor cost pressures and thereby help to subdue inflation.

Alternative 2: *Productivity Slump*

It is possible that the upswing in productivity that began in the mid-1990s has ended as the IT-driven surge has run it course. This would mean a period of productivity growth below the trend in our central forecast. Furthermore, the increase in the level and volatility of energy and commodity prices could continue and cause lower productivity growth, as occurred in the 1970s. Below-trend growth would not only imply a lower estimate of potential growth, but would also push inflation above the level projected in our central forecast.

We also consider three additional scenarios, two related to the impact of past monetary policy and possible misperceptions of its past and current stances, and one related to the impact of developments in the global economy.

Alternative 3: *Effects of Overheating*

Motivated principally by concerns over the prospect of deflation, the FOMC adopted a deliberately accommodative policy stance in the aftermath of the global slowdown of 2000-2003. It is possible the FOMC markedly underestimated the equilibrium real interest rate (i.e. overestimated the degree of slack in the real resources) during this period. In this case, their accommodative policy would have stimulated aggregate demand growth in excess of potential and, ultimately, triggered inflation. The above-potential output growth in 2004-mid-2006 and the persistent above-target inflation are consistent with such a scenario, as is the abrupt slowdown in real output growth that began in mid-2006. If this overheating episode occurred, it has likely passed already; however, there is a risk its effects will linger in the form of slightly above-forecast inflation and slightly below-forecast output growth.

Developments in the global economy during this period may have contributed to the economic conditions that motivated the initial policy and may also have made it more difficult for the FOMC to identify the overheating in real time. For example, one likely factor contributing to the deflation scare in the early part of this decade was the downward pressure on global goods prices triggered largely by growth in emerging economies' labor forces. Another critical factor may have been the exchange rate policies that a number of emerging market central banks adopted over this period. These polices, which were aimed at strengthening the dollar relative to their domestic currency, may have put significant downward pressure on long-term interest rates both in the U.S. and around the world, and in doing so, may have made it more difficult to correctly assess the equilibrium real interest rate during this period.

Alternative 4: *Credit Crunch*

The financial turmoil that started in the summer of 2007 put a significant strain on the availability of credit. New issuances of commercial paper (CP) – in particular, asset-backed commercial paper (ABCP) – dropped sharply, and spreads between ABCP and AA-rated CP rose notably. Spreads on other credit products, including corporate bonds and CDS, also rose significantly. In addition, mortgage rates moved up, while credit standards began to tighten, making mortgages more difficult to attain. This combination of factors suggests the neutral rate is lower than before the financial turmoil began (we now estimate it to be between 3.5 and 4.0 in the near-term). The current FFR, which appears high relative to neutral, combined with the apparent lack of available credit creates a risk that output growth will slow significantly below the level projected in the central forecast; this would likely be accompanied by inflation below the level in the central forecast.

Alternative 5: *High Global Demand*

Recent global growth, most notably in China and other emerging markets, has been robust; at the same time, low unemployment rates and relatively high capacity utilization rates in advanced economies outside the U.S. indicate there is little slack in the global economy. If these developments continue, there is a risk that high demand for U.S. exports will raise output growth above the level in the central forecast. At the same time, the strength in global demand could cause it to outpace supply, further pushing up commodity prices (and especially energy prices) and beginning to push up the price of imported manufactured goods. These increases would likely cause above-forecast inflation in the U.S.

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. *Effects of Overheating*: inflation above central forecast, output slightly below central forecast.
4. *Credit Crunch*: inflation below central forecast, output significantly below central forecast.
5. *High Global Demand*: inflation above central forecast, output above 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, while incorporating some degree of inertia. For each of the FFR paths and each of the policy rules, we determine these deviations using the corresponding inflation and output paths.

Policy Rule – Baseline 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)

$\pi^* = 1.5$ (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

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

Because we know that, if the FFR target moves at the next meeting, its move will usually be in increments of 25 basis points, we round the first forecasted FFR value from the *Baseline* and alternative policy rule prescriptions. This serves to both capture some of the discreteness in FFR movements and to smooth the FFR paths from the current to the upcoming quarter. We currently perform this exercise according to the following table, where r* is the actual output from the policy rule:

Policy Rule Prescription	Average FFR in 2007Q4
r* < 3.00	r*
3.00 < r* < 4.00	4.50
4.00 < r* < 5.25	4.54
5.25 < r* < 6.00	4.75
r* > 6.00	r*

We then feed these modified values into the policy rules to calculate the remaining FFR values.

The two variants of the *Baseline* rule that we use this cycle are the *Opportunistic Disinflation* and *Dove* rules. The *Opportunistic Disinflation* rule reacts more strongly than the *Baseline* rule to deviations of inflation from target when inflation is above the upper bound of the implicit target range (taken to be 2%) and falling. In such circumstances, it tends to raise the policy rate higher, then lower it more slowly than the *Baseline* rule. Specifically, in each quarter over the forecast horizon, if the four-quarter average of core PCE inflation in the prior quarter is above 2% and higher than the current quarter value, we substitute the prior quarter's core PCE inflation value for the current quarter's value in the *Baseline* policy rule specification (i.e. set $\pi_t = \pi_{t-1}$). In all other cases we follow the *Baseline* rule prescription. Thus, if the four-quarter average of inflation in the last quarter is below the value for the current quarter or simply below 2%, the *Opportunistic Disinflation* rule offers the same prescription as the *Baseline* rule.

The *Dove* rule reacts more strongly than the *Baseline* rule to a negative output gap. When the output gap is negative, the *Dove* rule increases the weight on deviations of output from potential ($\varphi_x = 1$ instead of 0.5). When the output gap is positive, however, the *Dove* rule offers the same prescription as the *Baseline* rule ($\varphi_x = 0.5$, as usual).

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 previous quarters using parameters estimated from real-time historical data (1988-2006)[3].

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-6, 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).

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