

FRBNY Blackbook

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FRBNY BLACKBOOK

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1. Overview

With incoming inflation data coming in close to our expectations, our central projection for core PCE inflation over the forecast horizon has not changed since the last Blackbook. We're projecting 2.4% core PCE inflation in 2006, 2.0% in 2007, and slightly below 2.0% in 2008. The overall risks to the inflation outlook remain approximately the same; the upside concern prompted by the revision to labor compensation growth for early 2006 is broadly offset by the recent abrupt decline in energy and commodity prices.

The Greenbook's central projection for core inflation in 2007 and 2008 continues to be less favorable than ours with the gap between our two inflation forecasts driven mainly by our implicit assumptions regarding inflation persistence. The Greenbook embeds significantly more persistence, leaving core inflation in their outlook relatively insensitive to changes in the output gap. In contrast, we assume a degree of inflation persistence more consistent with what has been seen over the last decade and assume that anchored inflation expectations will help to keep inflation near the FOMC's implicit targets. The differences between the two inflation forecasts in early 2007 are not significant if we take into account the extent of the uncertainty around each forecast; we have about the same upside risk to the FOMC inflation objectives as the Greenbook. The differences become more significant in late 2007 and 2008.

We see more near-term weakness than we were calling for in the August Blackbook, mainly attributable to an increased drag from residential investment. For 2007 and 2008, our central projection is for real GDP is growth near its potential rate of 3.0%. In contrast, the September Greenbook has further lowered the path for real GDP growth, as well as the path for potential growth. An assumption that labor force participation will decline rather dramatically over the forecast horizon is a primary factor behind this reduction in potential, while the further lowering of GDP growth maintains the negative output gap. The cyclical weakness is both the direct effect of a large decline in

residential investment and the relatively strong indirect effect on consumption from the declines in real household wealth.

Some of the data over the recent period have made us less confident in our central forecast scenario; our projection relies on a moderation in aggregate demand driven by a combination of an orderly slowdown in residential investment that is offset largely, but not entirely, by fairly robust growth in business investment. While the housing market is not currently substantially weaker than we had been projecting, some of the deceleration in recent indicators raises the concern that the adjustment in housing may be less smooth, and more profound in its impact on aggregate activity, than we have been expecting. Thus, we have increased the downside risks to our real activity forecast.

Taking into account the increased uncertainties around our forecast and the Greenbook forecast for real GDP, the differences between the central projections are not significant for the current stance of monetary policy. However, as more data arrive in the next few months on the extent of the slowdown in housing and over the longer term on the labor force participation rate, one of the forecasts should converge to the other.

Our outlook is consistent with maintenance of a 5.25% FFR at this meeting, but the risks to the inflation outlook suggest that the FOMC should signal the possibility of some additional firming in the policy rate. In our central projection the FFR is lowered to 5% at the end of 2007, with an additional 25 basis point cut in 2008. The Greenbook assumes a slightly firmer policy path.

In June our central policy path was similar to that priced into markets. However, in the last three months, markets have begun placing greater weight on the possibility of cuts in the target rate in 2007. As in the August Blackbook, we view the difference between the path priced into markets and our assessment as significant; it is not clear, however, how policymakers ought to react to it. Because of the risks around the central forecast, most of the policy rules we examine imply a slightly firmer path of policy than simply maintaining the FFR at 5.25%. In this Blackbook, we introduce a new policy rule to

match the path priced into financial markets in 2007. This policy rule implies the removal of the positive tilt in the statement's signal.

The continued decline in policy rate expectations coincided with a substantial drop in short-term inflation expectations as measured in financial markets; short-term real interest rates, however, appear to have increased. Long-term forward inflation expectations both in financial markets and among consumers have shown little net change over the inter-meeting period. The improvement in short-term inflation expectations, considered in conjunction with the fall of market policy expectations, is consistent with an increased risk of a slowdown in real activity, as is the signal from the inversion of the yield curve. At the moment, however, no other financial or real leading indicator (outside of housing) is giving a recession signal.

Thus, while recession risks have increased in both our forecast and the Greenbook, they have not increased sufficiently to explain the decrease in policy expectations priced into markets with our standard policy rules. This raises the question of whether the committee should more strongly signal, either using the statement language or a policy action, its views on the current deviation of the market path from the one consistent with the committee's central forecast, one possibility is discussed in the special topic *The Case for a 25 Basis Point Hike*.

2. Recent Developments

U.S.

Summary. The economic releases during the inter-meeting period indicate continued upside risk to the implicit inflation target and downside risk to real activity. Even though core inflation measures have moderated some recently, measures of underlying inflation generally remained elevated. Monthly indicators suggest that real GDP growth in 2006Q3 may be about 2¼% (annual rate) but do not suggest changes in the medium-term outlook. Housing indicators were weak but still consistent with an "orderly cooling." Payroll and hours growth indicate that the more subdued tone in the labor market

continues. However, upward revisions to compensation imply that the market may be tighter than previously thought. Consumer and business surveys remain consistent with the outlook.

Inflation. Core inflation measures generally remain elevated compared to desired levels, signaling continued upside risks. Nevertheless, the most recent monthly data show some moderation, which is in accord with our view that core inflation peaked in Q2 [Exhibit A-6]. The core CPI rose 2.65% (annual rate) over July and August, considerably below the 3½% rate in Q2. Part of the moderation occurred in the more transitory components of the index, such as apparel; thus it does not appear to signify as much moderation in underlying inflation. In fact, the 12-month change in core CPI was 2.8% in August, the highest since 1996. The core PCE deflator also indicated moderate inflation in July. The one-month change in the index was 1.7% (annual rate), the lowest since December; however, the moderation also appeared to be concentrated in the more transitory components. Moreover, the 12-month change was 2.4%; with the exception of September 2002 (when statistical quirks associated with 9/11 raised this change), this is the highest such change since 1995.

Fluctuations in energy prices during the period influenced overall inflation. With the sharp rise in energy prices in July, the one-month change in the overall CPI was 5.5% (annual rate) in that month. The July one-month change in the overall PCE deflator was also elevated at 4.1% (annual rate). As energy prices moderated in August, overall CPI inflation fell to 3.0% (annual rate) in that month. The 12-month changes in both indices have fallen somewhat from their levels in Q2 but remain elevated compared to most “comfort ranges,” as well as to the ranges that have prevailed since the early 1990s. However, recent declines in energy prices should lead to some further moderation in overall inflation. Alternative measures of underlying inflation indicate that inflation pressures remain elevated [Exhibits A-7 and A-8]. The median and trimmed mean CPI both increased in July and were fairly stable in August; the trimmed mean PCE deflator also increased in July. Our smoothed inflation measures and underlying inflation gauge were little changed. Long-term financial market expectations have been relatively stable;

shorter-term expectations have declined as energy prices have fallen. Household survey measures rose in August but declined in early September. These fluctuations appear to reflect short-term reactions to fluctuations in gasoline prices and thus suggest that household expectations remain contained.

Real activity. Real GDP growth in 2006Q2 was revised upward modestly to 2.9% (annual rate). Productivity growth in the quarter was a fairly subdued 1.6% (annual rate), but the four-quarter change was 2.5%, which is near our estimate of trend productivity growth. The monthly indicators released during the inter-meeting period suggest that real GDP growth in 2006Q3 could be about 2¼%, which is below our estimate of potential growth (3%). Although these data have not led us to change our medium-term outlook for real activity, they do suggest continued downside risk to that outlook.

Real PCE growth was fairly vigorous in July, supported by strong motor vehicle sales during the month; nondurable goods and services expenditures also were fairly robust. However, auto sales declined in August to their slowest pace this year. Retail sales excluding autos rose modestly in August; further excluding gasoline and building materials (the former because of gasoline price swings and the latter because they are included in residential investment rather than consumption), sales increased moderately. Still, the data suggest a small rebound in consumer spending in Q3 after rather slow growth in Q2. Income growth was solid in July, although we expect more subdued growth in August; combined with the upward revisions to income in previous quarters, this suggests that income growth remains sufficient to sustain consumer spending growth at a level consistent with our outlook.

Housing indicators were consistent with an orderly slowing in the market. Housing starts and building permits fell again in July; their decline since the housing market peak in 2005Q3 roughly parallels the housing market slowdowns in the late 1980s and mid-1990s. However, they are at the lower end of ranges consistent with our outlook, signifying greater downside risks to the “orderly cooling;” therefore, the declines need to level off in coming months to remain consistent. Despite declines in July, the recent path

of new and existing home sales roughly parallels previous housing slowdowns and does not imply a more severe bust. Mortgage applications fell moderately in August but have recovered some so far in September, which portends only moderate further declines in sales. In contrast, pending home sales indicate a more severe drop. The new home inventories-sales ratio rose in July to its highest level since 1995. Home price appreciation has also shown significant moderation; the four-quarter change in the “purchase-only” OFHEO repeat sales index has fallen from 11.3% in 2005Q3 to 8.3% in 2006Q2. Median sales prices have moderated to a greater extent (showing only minimal appreciation), although this may reflect a changing mix in sales.

Business investment indicators showed some strength in July. Shipments of nondefense capital goods excluding aircraft, as well as the industrial production index for computer equipment, had robust gains in the month, indicating resumed growth in equipment spending after the Q2 decline. Nonresidential construction continued to be strong. Inventory accumulation in July displayed slower growth than in Q2, suggesting that inventory investment may be a negative contributor to real GDP growth in Q3. Inventories-sales ratios were little changed at low levels. Manufacturing production rose moderately on net in July and August, but its 12-month change remained near the upper end of its range over the past two years. The capacity utilization rate remained near its highest level since mid-2000. IT production growth was relatively modest in August, primarily because of a decline in communications equipment (a slowdown after exceptional growth earlier in the year). However, the recent growth in our Tech Pulse index indicates the overall sector remains robust.

Labor market. Payroll growth continued on a pace similar to the more subdued pace of the previous four months, and some other indicators were rather soft. In the three months through August, payroll growth averaged 128,000 per month, compared to 146,000 in the first half of 2006 and 165,000 in 2005. The temporary help services sector remained tepid, which suggests that payroll growth will continue to be subdued in the second half. The growth in aggregate hours in July and August was considerably below the pace of the first half of the year. The unemployment rate fell slightly to 4.7% in August. The

labor force participation rate was unchanged, and the employment-population ratio increased slightly in August; both are modestly above their levels from the beginning of the year. Initial claims for unemployment insurance have been stable, indicating little deterioration in the labor market. Measures of labor compensation indicate a somewhat tighter labor market. The 12-month change in average hourly earnings remained at its cyclical high. Compensation per hour and unit labor costs were revised upward to show considerably higher growth; the four-quarter changes in Q2 were 7.7% and 5.0% respectively. The rise in compensation growth may partly reflect the sharing of past profits (via bonuses and stock option realizations) and thus may exaggerate labor cost pressures; however, its general acceleration over the past year still indicates some increase in these pressures.

Surveys. Reflecting fluctuations in energy prices, consumer confidence measures fell somewhat in August and rebounded in early September. Their levels remain consistent with the consumer outlook. Although there were differences in the direction of monthly movements, the levels of business survey indices generally indicate continued steady growth in the manufacturing and service sectors. The price indices in these surveys generally fell, although their levels remain relatively high.

Global

The overall foreign outlook for 2006 is essentially unchanged since the last FOMC meeting. In response to Q2 GDP data, the forecast assumes less growth for the year in Japan and Canada, while expecting more in the euro area and Mexico. Slower foreign growth is projected in 2007 as the euro area, Japan, China, and Mexico ease closer to their potential growth rates.

Industrial Countries. New and revised data show that the euro area grew at a remarkable 3.4 percent rate (saar) in the first half of 2006. The outlook views this growth rate as unsustainable and projects a slowdown to a respectable pace of 2.0 percent in the second half of the year. The small decline in August industrial confidence is consistent with this

forecast. Responses on orders were stable, but those concerning expectations had a more negative tone. The overall reading, though, is still well above its long-run average. Credit growth declined in June and July after rising steadily the previous two years. Consumer prices were up 2.4 percent over the year in July, while core inflation moved up slightly to 1.6 percent, near the pace it has kept since early 2005.

Japanese growth slowed more than expected in Q2, as GDP increased only 1.0 percent (saar) after a 3.3 percent rise in the previous quarter. Strength in consumption and private non-residential investment was offset by cuts in government spending and weak export growth. The forecast is for growth to rebound modestly in Q3 and then slow to around 1.5 percent in early 2007. The quarterly survey of investment plans by the Ministry of Finance points to sustained momentum in capital spending. July shipments data were strong, but the volatile orders data fell sharply in July, implying some downside risk to the outlook. Industrial production retreated 0.9 percent in July but was still up 5.0 percent over the year. The consumer price data were revised, with the base year updated from 2000 to 2005. This change in weights revealed a sizable bias, with the revised series showing overall prices up 0.3 percent in July over the year, rather than the previous 0.8 percent reading. A new price index that excludes food and energy fell 0.3 percent over the year.

Canadian GDP growth was weak at 2.0 percent (saar) in Q2. Private investment spending fell sharply, while exports dropped for the second quarter in a row. GDP growth came mostly from inventory accumulation, raising questions about the resilience of domestic demand going forward. Some rebound is expected in Q3 and Q4, although not enough to prevent a 0.4 percentage point reduction of the GDP forecast for 2006 Q4/Q4. The U.K. economy is poised to record above-trend growth in Q3 following surprisingly strong GDP growth of 3.2 percent (saar) in Q2. Both private and public consumption posted strong gains. House prices have regained momentum after starting the year slowly.

Emerging Economies. China's GDP forecast is unchanged at 10.3 percent growth in 2006 (Q4/Q4) and 9.0 percent in 2007. Notably, the forecast assumes considerable moderation since GDP was up 11.3 percent from its year-ago level in Q2. The risks are on the upside, although August data for production and fixed-asset investment showed some tentative signs of slowing. China's trade surplus posted all-time highs in May through August and looks set to reach \$150 billion for the year as a whole, although growth rates of export and import volumes have moderated in recent months. Money and loan growth have also moderated, albeit from high levels. Since some of the strongest credit and macro controls have been introduced only recently, the expectation is for further moderation in these series. Inflation remains subdued. The 2006 forecast for the NIEs was downgraded slightly to 4.0 percent (Q4/Q4), due to slower than expected growth in Q2. Trade data in the NIEs remains strong, and production figures have strengthened after Q2 weakness. The forecast is for trend growth, with external demand softening somewhat and domestic demand remaining steady or firming modestly.

Mexico and Argentina outperformed growth expectations in Q2, while Brazil underperformed. The region continues to benefit from strong global demand and high commodity prices. In Mexico, Q2 GDP growth of 6.1 percent (saar) was much stronger than expected and signaled that the economy entered the second half of the year on very firm footing. The data revealed strong domestic demand, with especially robust performance in the service and construction sectors. Brazilian GDP growth was weaker than expected in Q2 at 1.8 percent (saar). While private consumption accelerated, investment fell below its previous-quarter level. Net exports remained a drag on growth. A snapback in activity is expected in the second half of the year, but the lack of momentum going into this period has resulted in a 0.5 percentage point reduction of the 2006 (Q4/Q4) GDP forecast to 3.1 percent. In Argentina, economic activity remains strong. Industrial production was up 8.6 percent over the year in July, and growth in recent months exceeded 10 percent, the highest level since October 2005.

Trade

The trade deficit came in above consensus at \$68.0 billion in July, up from \$64.8 billion in June. The increase was largely due to higher oil prices. Rising oil prices have been the main cause of the increase in the trade deficit over the past year. July's nominal trade deficit was up 17 percent from a year ago, or roughly \$10 billion, due to the 32 percent rise in oil prices over that period. The trade balance excluding oil has been relatively stable over the past year.

There appears to be little momentum for further widening of the trade deficit going forward. The forecast for 2006 sees exports continuing to grow at a healthy rate, while demand for non-oil imports remains soft. As a result, net exports are projected to be neutral for GDP growth in Q3 and for 2006 as a whole.

Financial

Domestic Markets. Treasury yields of all maturities fell moderately over the inter-meeting period. The 10-year yield rose after the FOMC announcement [Exhibit B-1] but then fell for most of the rest of August. It rebounded somewhat in recent weeks; its September 14th close was 4.79%, only 13 basis points below its August 7th level and above its recent low of 4.73%.

Increased expectations of no change in the target rate at the next FOMC meeting and of potential rate cuts in the near future were a major factor in the decline of Treasury yields. The expected policy path implied by futures shifted down during the period, more so at longer horizons [Exhibit B-4]. Options on fed funds futures reflected increased market certainty about no near-term policy tightening. The implied probability of the 5.25% outcome at the September FOMC meeting increased from 60% to 91% over the inter-meeting period, while the implied probability of a 5.25% target at the October meeting rose from 77% to 88%.

Real interest rates fell less than nominal rates, particularly at shorter horizons [Exhibit B-1]. With this pattern of real and nominal rates, inflation expectations declined, with the largest falls at shorter horizons; as such, most of the decline in ten-year breakeven rate reflected declines in inflation expectations at short horizons. At the 0-5 year horizon, carry-adjusted implied inflation expectations declined 28 basis points [Exhibit B-2]. In contrast, carry-adjusted implied inflation expectations at the 4-5 year horizon fell 1 basis point, and those for the 5-10 year horizon fell 11 basis points. The decline in short-term expectations probably reflected the drop in energy prices during the period.

The yield curve was on average more inverted during this inter-meeting period than during the previous inter-meeting period. The spread between the 10-year and 3-month yields averaged -21 basis points during the period, compared to a -1 basis point average from June 28-August 7. According to the Estrella-Hardouvelis-Mishkin model, the August spread of -21 basis points implies a 33% probability of a recession 12 months from now. The spread, however, has narrowed recently. As of September 14th, it stands at -14 basis points, leaving the yield curve less inverted than it was before the last FOMC meeting [Exhibit B-1].

The major equity indices generally have risen. The S&P 500 index gained 3.2%, despite losses posted on the release of data on home sales, the consumer confidence survey, and unit labor costs [Exhibit B-7]. Expectations of a lower policy path were an important factor for increases during mid-August, while the drop in oil prices probably has been a primary factor for the gains since late August.

Risk measures in equity and fixed income markets remained low relative to their historical levels. Implied volatilities for the S&P 500 and NASDAQ 100 indices remain well below their June levels [Exhibit B-7]. Implied interest rate volatilities also remain low [Exhibit B-5 and B-6]. Corporate credit risk measures, such as credit spreads and default rates, also remained stable [Exhibit B-8].

Monetary Policy and Global Bond Markets. Regional events were the drivers of diverging policy developments during the inter-meeting period. Favorable economic data are leading the ECB to tighten policy at a faster pace, while the Bank of Japan is slowing the pace of its own rate hikes as concerns with domestic deflation have resurfaced. Diverging monetary stances, after a period of widespread policy tightening, are apparent also in the rest of the world.

Spurred by favorable economic data, the ECB raised its policy rate to 3.0 percent in August and is likely to do so again at its October 5th meeting. Another rate hike is likely in December, possibly followed by another one in early 2007. Euro area short rates rose accordingly in the inter-meeting period [Exhibit B-10], with the rate on the December 2006 euribor futures reaching a high for the year.

The Bank of Japan has not altered its policy stance since it hiked the overnight interest rate to 25 basis points on July 14th. Revisions to price data have showed a slower emergence from deflation than previously believed, dampening expectations that the Bank might tighten policy at a rapid pace. The next upward move in policy rates is now expected in early 2007.

Elsewhere in Asia, accelerating growth has led the PBC to implement measures to restrain credit growth, although such measures are partly undermined by the Bank's continued commitment to a weak exchange rate. The rest of emerging Asia is nearing the end of the current tightening cycle, with only modest rate hikes are expected by year-end and Indonesia already on an easing path.

Diverging policy stances are apparent elsewhere as well. Faced with building inflation pressures, the Bank of England is likely to tighten policy before year-end, while the Bank of Canada has concluded its tightening cycle. Brazil's central bank is continuing to ease.

Contrasting the mixed behavior of short-term rates, long rates fell uniformly across the globe, spurred by concerns about U.S. growth and falling inflation expectations.

Japanese long rates fell by 15 basis points over the period, while European rates fell by 10 basis points. These moves led to generally flatter yield curves, especially in Europe [Exhibit B-10].

Inflation-linked yields show both lower inflation expectations and falling real rates contributing to lower global long rates [Exhibit B-10]. A retreat in energy prices during the inter-meeting period likely accounts for much of the moderation in inflation expectations, with revisions to price series also playing a role in Japan. However, concerns with long-term growth prospects are also being priced into long rates; real rates continue to fall from the peaks reached last spring, having declined by 20-30 basis points in both Europe and North America since then. Yields have fallen also in emerging market, both in absolute terms and as spreads over industrial countries' rates, with the EMBI+ index hovering at historically low levels [Exhibit B-9].

Foreign Equity Markets. Equity markets ended the inter-meeting period modestly higher, spurred by lower long-term interest rates [Exhibit B-9]. Euro area stocks were more buoyant; the DJ EuroStoxx index stood 3.9 percent higher on September 14th than on August 8th, lifted by the continued health of corporate profits and optimism about regional growth. Japanese equities also gained, with the Nikkei up 3.1 percent over the period, continuing their recovery from their spring 2006 woes. Shares of Japanese exporters were relatively stronger, benefiting from a weaker yen.

Emerging markets shares also rose broadly during the period, although some declines were recorded since early September. These declines likely reflect an orderly correction after the sustained rally in emerging market assets recorded since the June lows. Lower energy and other commodity prices may have also negatively affected commodity-exporting countries.

Exchange Rates and Capital Flows. Capital flows to the United States continue smoothly, aided by rising saving in oil-exporting countries and Asia. Official flows to the United

States also continue, though flows from non-China emerging Asia have tapered off their frenzied pace from the first half of the year.

Major exchange rates are little changed since the last FOMC, as investors seem to have temporarily shifted focus away from global imbalances, while option-implied volatility for major rates has retreated to historical lows after the Q2 spike [Exhibit B-9].

The dollar strengthened by a modest 0.8 percent on the euro, 2.0 percent on the yen, and 0.8 percent in effective terms. The dollar appears to have benefited from renewed investor interest in yen funding of carry trades, given the expectation that interest rates may remain low for some more time in Japan.

Other currencies moved mostly within recent ranges, including a relatively weaker performance of Mexico's peso and relatively stronger performance of Canada's dollar, which continues on its two-year appreciation trend.

The Chinese yuan appreciated only 0.2 percent against the dollar since August 8th. Its daily volatility against the dollar increased somewhat, however, possibly reflecting speculation that the Chinese currency regime might be adjusted ahead of the September G7 finance ministers' and IMF/World Bank meetings. Despite such speculation, expected yuan appreciation implied by benchmark NDFs was little changed.

Energy Market Developments. Oil prices fell sharply during the period, from an average of \$73 a barrel in August to \$68 a barrel in the first week of September; the WTI spot price was \$63.22 on September 14. Several factors contributed to this performance, including favorable geopolitical developments, a benign hurricane season, and a possible upcoming slowdown in oil demand. However, the oil price outlook hinges on OPEC's response to the current price decline. Saudi Arabia has already reduced its oil production below its Q1 level and may do so again if market softness persists. Currently, futures prices imply WTI prices of \$70.25 in Q4 2006 and \$74.75 in Q4 2007; the previous assumptions were \$72.00 and \$72.25, respectively.

For 2006 as a whole, global oil demand is set to increase 1.4 percent, near last year's pace. Much of the increase reflects China's demand growth, while oil demand in the U.S. and other industrial partners is projected to stabilize near its 2005 levels. On the supply side, new oil fields are coming into production in non-OPEC countries, while the recent peace accord in Lebanon and deferral of a tougher stance against Iran should mitigate the risk of supply disruptions in the short term.

Second District

Our Indexes of Coincident Economic Indicators for July indicate modest growth in New York State and New Jersey but accelerating expansion in New York City [Exhibit E-1]. Looking ahead to the next nine months, our leading indexes predict growth of 3.8% (annual rate) in New York City, not quite as strong as recent growth, and 2.4% in New York State, while remaining close to zero in New Jersey [Exhibit E-2]. Local-area inflation remained quite high in July; the 12-month change in metropolitan New York City's CPI was 5.0% in July, down from 5.6% in June but still almost a percentage point above the U.S. rate. Similarly, the 12-month change in the core CPI fell in June from 4.6% to 4.1% but is still about 1½ percentage points above the U.S. rate. Much of the divergence between local and national core inflation continued to reflect local shelter costs, which rose 6.7% over the past 12 months, compared with 3.6% nationally.

Labor Markets. The district's labor markets rebounded in August. Private-sector employment in the New York-New Jersey region grew at an annual rate of slightly over 1% in August—up from near zero in July and similar to increases in May and June. Over the past year, job growth has averaged slightly above 1.0% in New York and slightly below that in New Jersey [Exhibit E-3]. In New York City, which has been a consistently stronger part of the region, private-sector employment expanded by a robust 2% over the past 12 months. Labor force data have also been generally positive. New York State's unemployment rate retreated from 5.1% to 4.7% in August, while New York City's fell from 5.7% to 5.1%, in both cases reversing a brief spike in July. Although

New Jersey's reported unemployment rate rose to 5.3% in August—up from 5.1% in July, 4.9% in June, and 4.4% a year ago—the latest increase did not reflect declining employment but rather outsized increases in the number of people looking for jobs. A more telling indicator, the employment-population ratio, rose for the first time since March [Exhibit E-4]. Moreover, in both New York City and New York State, this measure set historic highs earlier this year and remains close to that peak.

Real Estate. Manhattan's office market showed further signs of strengthening in August. Office vacancy rates fell in Lower Manhattan and were little changed in Midtown, while rents posted fairly sharp gains in both areas. In contrast, housing markets have shown broad signs of further softening thus far in the third quarter. The New York Association of Realtors reported that sales of single-family homes slowed sharply in July, and were more than 10% below 2005 levels. Median prices in July were up 4% from a year earlier, a significant moderation from 8% in the second quarter. Similarly, a major Manhattan brokerage firm reports that prices of Manhattan apartments were only 3% higher in July than a year earlier. Residential construction also displayed signs of slowing; single-family housing permits, which fell to a 10-year low in the second quarter, weakened further in July, though multi-family permits have remained high throughout.

Surveys and Other Business Activity. Recent surveys indicate little change in business sentiment on balance but further softening in consumer confidence. August surveys of purchasing managers suggest some pickup in growth in the Rochester area, a slight deceleration in the New York City area, and noticeable slowing in growth in the Buffalo area. Results from the September Empire State Manufacturing Survey suggest steady, albeit modest, growth in the manufacturing sector and some easing in price pressures. Similarly, non-manufacturing firms in the second district, surveyed in early September, indicate a moderate pickup in business activity and mild optimism about the near-term outlook. August consumer surveys from both the Conference Board and Siena College indicated a moderate pullback in consumer confidence. Finally, tourism activity has shown some signs of picking up in New York City in early September, possibly buoyed by the commemoration of the 5th anniversary of the 9-11 attacks.

3. Outlook

FRBNY's Central Forecast

There are three fundamental factors underlying our central projection [Exhibits A-1 to A-5].

1. Inflation expectations are likely to remain contained.
2. There is little, if any, slack remaining in resource utilization. Therefore, if there are no large shocks and if fiscal and monetary policies maintain a near-neutral stance, growth over the medium term will be near its potential rate of approximately 3% (2% long-run productivity growth [GDP basis] plus 1% labor force growth).
3. The term premium is expected to remain low.

These underlying assumptions for the central forecast, about which we remain reasonably confident, are generally similar to those of the last Blackbook. Longer-term inflation expectations in financial markets and household surveys have been relatively stable during the inter-meeting period, suggesting that they remain contained. The unfolding slowdown in real activity during 2006Q3 appears relatively moderate and thus consistent with future growth remaining near its potential rate. However, an inverted yield curve may signal a deeper and/or more persistent slowdown, and there is somewhat more downside risk to real activity in this forecast than in the previous cycle.

With regard to the monetary policy path, our forecast is consistent with a Fed funds target rate of 5¼% through 2007Q3, a modest decline to 5% at the end of 2007, followed by another modest decline to 4.75% by the end of 2008. This path is only slightly lower than that underlying the Greenbook forecast.

Inflation. Oil prices have declined significantly during the inter-meeting period, although it is not clear that these declines will persist. Indeed, longer-dated oil futures prices suggest significant increases from current levels. Monthly changes in core price indices have been consistent with our expectation that core inflation, expressed as a quarterly

percent change at an annual rate, peaked in 2006Q2. Thus, we have made little change in our inflation forecast over the forecast horizon, while we have lowered our short-term overall inflation forecast modestly. The 2006 Q4/Q4 change in the core PCE deflator is still expected to be almost 2½%, with the overall deflator expected to rise around 2¾%. Over the remainder of the forecast horizon we expect inflation to move toward the implicit target. This is based in part on an assumption of relatively stable oil prices. More importantly, inflation expectations remain well anchored at a level consistent with some slowing of inflation over the next few years.

Real Activity. Real output is likely to grow at a rate somewhat below potential in the second half of 2006 due largely to the ongoing slowing of housing market activity. Beyond 2006, with the housing slowdown expected to be near its end and no other factors expected to push the economy off path, our forecast is for growth to be at its potential rate of around 3% in 2007 and 2008. Because average real growth remains close to its potential rate, we expect little change in the unemployment rate. In the near term there is some downside risk to that forecast. The downturn in housing market activity could be more severe than expected, with greater downside impact on consumer spending. However, thus far the weakness in housing is largely confined to that sector, and business fixed investment remains strong. The slowing of employment growth has also been relatively modest. Finally, the leveling off of energy prices should provide a boost to real disposable income and consumer spending.

Comparison with Greenbook Forecasts

GDP and Inflation Forecast. The Greenbook baseline forecast is conditioned on the assumption that the policy rate stays at 5.25% through mid-2008 and then is lowered to 5%. Relative to the last Greenbook, the Board staff has significantly changed the conditioning assumptions on energy prices and long-term interest rates. The path of energy prices was lowered, corresponding to the drop in spot and futures prices for petroleum. Long-term interest rates, meanwhile, are projected to decline through 2006 because of the change in the market's outlook for policy. These rates are then expected to

rise in the first half of 2007 as market participants are assumed to realize that policy rates will need to be higher to induce a decline in inflation. They have also made very minor changes in the assumptions for equity prices, house prices, fiscal policy, and the dollar.

Other major features of the current Greenbook forecast are the following:

- The Greenbook projection for core PCE inflation is the same as in August; the impact of the projected lower path for energy prices offset upward pressure from higher labor costs.
- The real GDP growth forecast is lower than in August. The real GDP growth projection for 2006H2 has been lowered by roughly 0.4 percentage point to 1.7%, while the forecast for 2007 has been reduced by 0.2 percentage point to 2.1%. In 2008 GDP growth is expected to rebound to 2.4%.
- Potential GDP growth has been revised down 0.2 percentage point from August; it is projected to be 2.7% for both 2006 and 2007, with a decline to 2.5% in 2008. Given the assumption of sustained growth in structural productivity, the lower level of potential GDP depends on a projected decline in labor supply.
- Slow real GDP growth over the forecast horizon leads to negative output gaps in 2007 and 2008.
- Relative to the August projections, output per hour has been revised down by 0.3 percentage point for 2006H2 and 0.1 percentage point for 2007. This reflects a gradual adjustment of hours worked in response to slower output growth. In 2008, however, labor productivity is expected to revert to its trend of 2.7%.
- The unemployment rate is projected to increase to 5.2% in 2007 and 2008.

Our staff forecast of real GDP growth differs some from the Greenbook forecast [Exhibit A-2]. In particular our forecast for both 2006H2 (2.5% vs. 1.7%) and for 2007 (3% vs. 2.1%) is more than 0.8 percentage point higher than the Greenbook forecast, while our projection for 2008 is 0.6 percentage point higher (3% vs. 2.4%). Even so, given the uncertainty about both these forecasts, these differences are relatively minor, as shown in the table in the *Alternative Scenarios and Risks* section.

The Greenbook's slower GDP growth projection for 2006H2 reflects lower consumption growth and a more severe decline in residential investment. The Board staff has 2006H2 growth contributions for consumption and residential investment that are 0.15 and 0.4 percentage point lower, respectively, than our staff forecast. For 2007 and 2008, the

lower GDP growth in the Greenbook forecast is largely a consequence of the lowering of potential output, driven mainly by their projected decrease in labor supply.

For inflation, our staff forecast differs significantly from that of the Greenbook, especially at longer horizons. In particular, the Greenbook forecast is 0.3 percentage point higher for both 2007 (2.3% vs. 2%) and 2008 (2.1% vs. 1.8%). Compared to the uncertainty about these forecasts, these differences are sizable (again, see the table in the *Alternative Scenarios and Risks* section). This difference between the forecasts is somewhat surprising; the Greenbook's forecast has lower output growth, a higher unemployment rate, and a wider output gap than our forecast. The likely source of the divergence, then, is differing views on inflation persistence.

Our headline inflation forecast also differs from the Greenbook, reflecting different assumptions about the evolution of oil prices. The Greenbook's forecast assumes a decline in oil prices through the end of 2006, with a subsequent rebound in 2007 and 2008, while our forecast projects a less steep decline through 2006 and a lesser rebound (although resulting in a higher level) in 2007 and 2008.

Alternative Greenbook forecasting scenarios. These simulations are constructed using the FRB-US model (after its residuals have been adjusted to match the Greenbook forecast). As usual, unlike the baseline scenario, the projections are not conditioned on an assumed exogenous path for the federal funds rate; the path of the target rate is instead simultaneously generated by a policy rule incorporated in the model, the Bluebook-estimated version of the Taylor rule. The exception here is a scenario that instead uses the target rate path implied by futures markets.

The September Greenbook describes four alternative scenarios of particular interest. Two scenarios address the risk of underestimating the inflationary pressures implied by the increase in labor costs. Another examines the issue of inflation persistence, while the last one investigates the growth and inflation implications of the market-implied policy path.

The two “greater wage pressure” scenarios both assume a more persistent increase in labor costs than in the baseline scenario; they differ on the assumptions about the behavior of long-run inflation expectations. In the first case, long-run inflation expectations remain well-anchored; inflation peaks at 3% in 2007H1 and declines to 2.5% in 2008. In response to higher inflation, the federal funds rate increases to 5.8% in 2007 (0.5 percentage point above baseline) and reverts to 5% in 2008. Real activity declines because of tighter monetary policy. In the second case, long-run inflation expectations climb 50 basis points higher than in the baseline scenario, inducing a more persistent increase in inflation (as high as 2.7% in 2008). As a result, monetary policy is tighter than in the baseline scenario through 2008. Economic activity is lower than in the baseline scenario but the same as in the anchored-expectations version of the scenario.

In the “less persistence” scenario, the structural inflation persistence of the model is reduced. As a result, inflation falls below 2% in 2007H2 and 2008, while the economy grows more quickly than in the baseline scenario. Consistent with lower inflation, the federal funds rate is lower than in the baseline, reaching 4.6% in 2008. This scenario produces a path for inflation more similar to our staff outlook, consistent with what would be expected given our assumed lower level of persistence. This scenario also produces a path of the policy rate more in line with that of the market.

In the “market-based funds rate” scenario, the forecast is conditioned on the market policy path. In this case, GDP grows at a higher rate (up to 2.7% in 2008), while inflation is similar to baseline scenario inflation in 2007 and only slightly higher in 2008.

Foreign Outlook. Our forecast is similar to the Board’s outlook. We both see growth in 2006 to be similar to last year’s growth rate and have growth falling in 2007 by around 0.5 percentage point. In the second half of 2006, the Board sees slightly more growth in the euro area and slightly less growth in Japan. We see recent tightening moves in China as having more of an impact this year; consequently, we project weaker growth in the second half of 2006. The Board projects more of a slowdown in 2007.

U.S. Trade. Our forecast is virtually identical to the Board's for the rest of 2006 and 2007. We both anticipate a neutral contribution of net exports to real GDP growth in 2006Q3 and a slight drag in 2006Q4. For 2007, we have slightly higher real import growth, consistent with our higher domestic demand forecast. We also project slightly more export growth. The overall result is that our forecast for net exports in 2007 is essentially the same as the Board's.

Comparison with Private Forecasters

Our staff forecast for real GDP growth is slightly below those from the private sector for 2006Q3 and is in the middle for 2006Q4. Our growth projection of 2.3% for 2006Q3 is 0.4 percentage point below that of the Blue Chip, median SPF, and Macro Advisers and is comparable to the FRBNY PSI model projection of 2.1%. For 2006Q4, we are 0.2 percentage point above the most recent private forecast available (Blue Chip) at 2.6%, while we are below the median SPF and Macro Advisers. For 2006Q3 CPI inflation, the FRBNY forecast is notably above the private sector forecasts. However, many of these forecasts were recorded before the August CPI release, which was a slight upside surprise. For 2006Q4, our headline inflation forecast is comparable to that of the median SPF but above that from the Blue Chip and Macro Advisers. Our core CPI forecasts over the next three quarters, meanwhile, are slightly above those from Macro Advisers.

FRBNY Alternative Scenarios and Risks

In addition to the central projection discussed at the beginning of this section, we consider a number of alternative scenarios that have different implications for monetary policy. Our approach differs from the one in the Greenbook in that we attach probabilities to our alternative scenarios and usually maintain the same scenarios across FOMC cycles. This allows us to interpret more easily the forecast distribution for output and inflation, as well as analyze the impact from variation in the probabilities over time. Once introduced, we retain an alternative scenario until we assess its likelihood as minimal; for example, in

the June Blackbook we removed the global deflation scenario introduced in May 2005 and replaced it with an over-tightening scenario.

We also can generate when necessary other forecast distributions that place a greater probability on a specific alternative scenario in order to examine its implications for policy. This was done in January 2006 in response to the near inversion of the yield curve and the surprisingly low advance reading on 2005Q4 GDP growth. To capture these developments, we produced a forecast distribution in which we doubled the probability of a productivity slowdown.

We describe some features of the scenarios next. In these descriptions we continue to spend more time on the overheating scenario because it has the most significant consequences for appropriate policy.

FRBNY Alternative 1: Overheating. There are two potentially connected forms of this alternative. The first is a more standard scenario in which the extremely accommodative policy stance adopted in the U.S. and other countries in response to the global slowdown of 2000-2003 produces a persistent move of inflation above implicit targets with an abrupt slowdown in real output growth starting in mid-2006. If central banks have consistently underestimated the equilibrium real rate (i.e., overestimated the slack in the global economy), this will lead to excess aggregate demand growth and, ultimately, to an increase in inflation and inflation expectations. The recent declines in energy prices and inflation expectations provide evidence against this scenario. This evidence is offset by the labor income revisions that suggest greater inflationary pressures from compensation growth.

The second form of this scenario (described in the special topic *The Free Lunch* in the May Blackbook) highlights the possibility that the U.S. economy could be overheating but that the overheating might not manifest itself immediately in high domestic consumer inflation rates (i.e., a rate well in excess of the FOMC's implicit target). If the dollar is not freely floating and, moreover, if the dollar is being boosted by capital inflows whose

purpose is to keep the dollar strong relative to other currencies, then it is possible that market interest rates could be held below what might be reasonably viewed as the equilibrium rate for a significant period of time.

Under this scenario, the low market rates should induce “over-consumption” today at the expense of future consumption. There is now less evidence suggesting that is occurring in the U.S. The most direct evidence in favor of this view was the apparent non-sustainability of the U.S. current account deficit, the fiscal imbalances in the U.S., and strong home price appreciation. The recent stabilization of the U.S. real trade deficit and the short-run improvement in the fiscal position both suggest that less weight should be placed on this version of the scenario. However, the recent U.S. housing data have increased the risk of a less orderly housing market slowdown, raising the possibility of a more severe aggregate growth slowdown.

FRBNY Alternative 2: Productivity Shifts. 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 onward, High II). The July NIPA revisions produced a drop in the estimate of potential growth in our central forecast. Therefore, our current central projection for productivity in the medium-term assumes a growth rate slightly lower than that of the pre-1973 epoch. There are two alternatives to this projection.

2a. Productivity Boom. The developments in the labor market and the continued strength of labor productivity over the longer term suggest that firms have become more efficient in using labor. As such, strong productivity growth could persist, which would imply that the potential growth rate is higher than our current estimate. Strong productivity growth would also limit labor cost pressures and thereby help to keep inflation subdued. The NIPA revisions and the negative growth of equipment and software investment in 2006Q2 lowered the probability of this scenario. However, this scenario continues to receive some support from alternative indicators, such as the continued strength in IT industrial production growth, the FRBNY Tech Pulse index, and the Kahn-Rich

productivity model, which showed a more optimistic forecast for productivity growth after the recent revisions to labor compensation.

2b. Productivity Slowdown. It is possible that the upswing in productivity that began in the early 2000s may not be sustained. Furthermore, the persistent increases in the level and volatility of energy and commodity prices also could result in lower labor productivity growth. The NIPA revisions implied less robust productivity growth over the last three years and a higher profile for the growth of unit labor costs. This pattern provides support for the view that more of the strong productivity growth in the last few years was cyclical, meaning that total factor productivity growth has not been as robust.

FRBNY Alternative 3: Over-Tightening. Our outlook is based on the assumption that the neutral policy rate is between 4% and 4.25%, with an implicit target for core PCE inflation of 1.5%. Recent inflation data have core PCE inflation running above 2%. If sustained, this development is consistent with a fed funds rate above 5%. However, there is a risk that the recent acceleration in inflation is a lagging indicator of demand pressures and the economy will slow significantly below potential. The recent behavior of inflation expectations, which remain contained and have fallen recently despite a long period of headline inflation running at 3% or more, supports this view. Furthermore, the Fed has been increasing the FFR for two years, with a cumulative increase of 425bp. The yield curve has now inverted, apparently driven by expectations of the FOMC easing. While the yield curve nearly inverted in early 2006 due to the low levels of long forward rates, the current situation seems different from that experience and more reminiscent of prior periods of a Fed-induced yield curve inversion. We have thus increased the weight on the over-tightening scenario.

Foreign Outlook. In the euro area, an upside risk is the continuation of the unusually strong growth in the first half of the year. Consumption, investment spending, and exports all did well, and the broad-based nature of H1 growth may give greater-than-expected momentum to the economy. The downside risk stems from the possibility of a deeper-than-expected slowdown in the second half of the year to balance this above-

potential growth. In particular, investment spending was unusually strong in H1, which may result in a harsher-than expected payback in H2. Imports were also restrained (relative to euro area growth) in H1 and represent another potential source of downside risk to growth in the near term. Finally, weak productivity data also raise questions about the outlook.

In Japan, the revision in the consumer price indices underscored the tentative nature of the economy's exit from deflation. The overall price index is increasing solely because of higher energy prices. The new core price measure (that excludes both food and energy rather than just fresh food) continues, as it has for almost three years, to fall at a steady rate of around 0.5 percent. The consumer price data suggest that the Bank of Japan's March exit from the quantitative easing policy may have been premature, as prices were barely increasing on a year-over-year basis at that time. In particular, stability in energy prices would put the economy at considerable risk of a return to deflation.

The investment share of GDP in China remains unsustainably high and continues to rise. It remains uncertain how soon and how effectively official measures to reign in overheated investment will gain traction. As a result, China could cycle from boom to bust, with unwelcome spillover effects for the rest of Asia. Growth in emerging Asia outside China remains highly geared to the global cycle. Recoveries in the region would be at risk in the case of a significant slowdown in global growth. On the positive side, solid fundamentals leave emerging Asia less vulnerable than most other emerging market economies to the impact of cycles in global risk appetite. Countries in the region, with the possible exceptions of Indonesia and the Philippines, could weather a renewed spell of global volatility without significant financial duress.

Key watch points for Latin America include financial market reactions to political developments in Mexico and Brazil. In Mexico, the electoral court has confirmed Felipe Calderón's narrow victory, but the Mexican left may continue to generate considerable political noise. In Brazil, President Lula is the clear frontrunner in the upcoming presidential election, and his chances of avoiding a run-off and winning in the October 1st

first round have grown in recent weeks. However, his inclination and ability to push ahead with needed reforms during his likely second term remain unclear. In Argentina, inflation and the government's heterodox policy response remain central concerns.

U.S. Trade Forecast. Domestic demand may grow more slowly than currently forecast in Europe, Canada, and Japan. If so, U.S. exports would receive a lower-than-expected boost in the rest of 2006 and in 2007.

Oil prices represent a risk in both directions. Consistent with the oil futures market, the forecast assumes that oil prices will decline in Q4 and rise steadily in 2007. Geopolitical developments could push oil prices higher than currently anticipated, implying a larger trade deficit than currently forecast. Alternatively, the recent softness in oil prices may be a harbinger of further declines.

Quantifying the Risks. The inflation data over the inter-meeting period have been broadly consistent with our central scenario, while the real activity data have been roughly consistent with the soft landing of our central scenario. However, our confidence in this outlook has been reduced by the labor income revisions, the acceleration of the decline in housing activity, and the yield curve inversion. Therefore, we have lowered the likelihood of the central scenario to 62% (65% in August). The decrease in the probability associated with the central scenario is the result of an increase in the weight placed on the over-tightening scenario. We assume that the most likely alternative scenario is over-tightening at 13% (10% in August), followed by the productivity slowdown at 9% (9% in August), overheating at 7% (7% in August), and lastly the productivity boom at 6% (6% in August). The remaining 3% (3% in August) is split evenly between upside and downside risks. The implied dynamic balance of risks is shown in Exhibit C-1.

The forecast distributions for core PCE inflation and GDP growth produced by the standard risk assessments are shown in Exhibits C-4 and C-5. The Bank forecast projects through the end of 2009 under the assumptions that output grows at the potential rate of

3.0% and core PCE inflation eventually converges back to the implicit inflation target of 1.5%. We discussed the assumption behind this extension in the special topic *Forecast Errors and Implications for Policy* in the June Blackbook.

The probability of core PCE inflation exceeding 2.5% during any quarter through the end of 2008 is now 75% (75% in August); this probability is produced by considering the share of inflation paths that have at least one four-quarter inflation rate exceeding 2.5% and cannot be obtained directly from the forecast distribution presented in Exhibit C-4. The probability that the expansion continues through the end of 2008 is 80% (83% in August). This increase in the downside risk is produced by the additional weight placed on the over-tightening scenario.

The FRBNY “confidence intervals” can be compared to those presented in the Greenbook. In general we have a similar level of confidence as the Board for 2006 but less confidence in 2007 on inflation. For example, the Greenbook has a 70% probability interval of width 1.4 percentage points for core PCE inflation in 2007, while our 70% interval has a width of 1.7 percentage points. Thus, though we have a more benign central forecast for inflation in 2007, the 85th percentile of the distributions are equal. The source of the wider interval around our forecast is the weights we place on our alternative scenarios. These scenarios do not receive the same weights in the historical data since 1986, from which the Greenbook derives its forecast errors.

To help gauge the importance of the differences between our outlook and the Greenbook we calculate the percentile of the baseline Greenbook forecasts for outlook and inflation in our forecast distributions. The results are shown in the table below. We are slightly more optimistic than the Greenbook on output growth going forward and significantly more optimistic on inflation. This latter statement is particularly true in 2008, when the 85th percentile of our inflation distribution is 2.5%, while that for the Greenbook is 3.2%. These substantive differences stem from our assumption of a lower level of inflation persistence.

Table: Percentile of Greenbook Forecast in FRBNY Forecast Distribution

| | Core PCE | Output |
|-------------|-----------------|---------------|
| <i>2006</i> | 54 | 44 |
| <i>2007</i> | 67 | 42 |
| <i>2008</i> | 70 | 44 |

4. Policy Alternatives

Under our main forecast and risk assessment, the target FFR remains at 5.25% at the upcoming meeting (the case for raising the target FFR is made in the special topic *The Case for a 25 Basis Point Hike*). The accompanying statement should signal that further increases remain possible; measures of underlying inflation remain above the comfort zone for the long-term price stability objective, and upside inflation risks are still considerable. The case for maintaining the FFR at its current level primarily relies on the lack of a substantive change in our central forecast and the risks surrounding it over the inter-meeting period. The policy path underlying our central forecast remains virtually unchanged relative to August and maintains the FFR at 5.25% through the end of 2007Q3. The economy is likely to grow around or somewhat below potential for some time, in part due to the 17 consecutive hikes between June 2004 and June 2006. The resulting modest decline in resource utilization should ease cyclical pressures on prices and be sufficient to move core inflation toward its implicit target in the absence of other shocks. Relative to the previous Blackbook, we are placing more weight on downside risks to real activity. Therefore, the upward tilt in the signal is less firm, and we place more probability on rate cuts in 2007 and 2008 than we did in August.

While maintaining the FFR at 5.25% through the end of 2007Q3 is consistent with our central forecast scenario, our policy path remains significantly flatter than the one priced into markets. Since late July, futures markets have persistently placed greater weight on the possibility of cuts in the target rate as early as 2007Q2; market participants expect the FFR to be around 4.75% by 2007Q4. Using the probabilistic metrics of Exhibits D-5 and

D-6, we find the differences between the path priced into markets and our assessment to be non-negligible under our baseline policy rule and the opportunistic disinflation rule. For this Blackbook, we have dropped the inflation hawk rule and have introduced a new version of the dove rule. In this rule, deviations of inflation from its target and output from potential are given equal weight if the output gap is negative. This rule differs significantly from our baseline rule, which gives more weight to inflation deviations from target than to the output gap.

In August we noted that the Desk's survey of primary dealers, which should reflect (risk-neutral) views of the policy path similar to that of market participants, produced a path for the FFR more similar to our assessment than that priced into markets. This pattern has continued in September; if anything, the gap between the forecasts embedded in futures and options markets and that provided by the dealers has widened in the last six weeks. Prior to the August meeting both markets and dealers expected the FFR to be above 5% in 2007Q4. Currently, the market expectation for 2007Q4 has fallen to approximately 4.75%, while the dealer expectation remains at 5%.

The divergence between our FFR projection and the markets-implied expectation stems from a combination of two elements: differences in outlook and differences in the perceptions of policy preferences. To some extent, the increasing divergence between markets' and dealers' views makes it less likely that the markets' outlook is more pessimistic than ours. If markets assigned a higher probability to an over-tightening scenario, one would expect that risk-averse investors would require compensation for the additional risk they were holding. This increase in risk compensation would imply that the path priced into markets would be above that produced from the dealer survey (and our assessment) rather than below. Even so, we cannot definitively rule out the possibility that the futures and Treasury markets are correctly pricing in substantially more weakness in real activity than is in our central forecast and risk assessment.

Given less evidence for the possibility of such differences in outlook, we are placing more weight on the possibility that markets perceive a policy rule different from the ones

we have considered in previous Blackbooks. To provide a quantitative analysis of the germane policy alternatives, we examine the prescriptions implied by three policy rules:

1. *Baseline Policy Rule (at near-term market expectations)*. Hold the FFR at 5.25% in September and send a mild positive signal regarding future actions. Closest to the path underlying our forecast.
2. *Opportunistic Disinflation Rule (above near-term market expectation)*. No clear prescription for September and a clear signal of tighter policy until four-quarter core PCE inflation drops below 2%.
3. *Dove Rule (below near-term market expectations)*. Hold at 5.25% in September but signal the possibility of rate cuts in response to signs of weakness in real activity.

The preamble to the Section D Exhibits has a description of how the various rules react to incoming data.

The *Opportunistic Disinflation* rule is designed to provide information on the profile of an FFR path for policymakers who want to signal a more aggressive stance on inflation. Under this rule the policymaker lowers the FFR more slowly than the *Baseline* rule prescribes, which keeps the real rate higher for longer. The *Dove* rule, meanwhile, generates the profile of an FFR path for policymakers who want to signal a stronger reaction to weakness in real activity. As described above, when the output gap is negative, the *Dove* rule places equal weight on deviations of inflation from target and output below potential.

Exhibit D-1 contains the prescriptions implied by each of these three rules when averaging over the Bank's forecast distribution; the prescriptions thus reflect the range of our alternative scenarios, as well as to the probabilities we attach to those scenarios. The figure shows the implied (quarterly average path) of FFR through the end of 2009 for each rule and for the path currently priced into markets.

The *Opportunistic Disinflation* rule increases the FFR to 5.5% over the forecast horizon and maintains it there for some time. Such a policy path depends upon the policymaker

having established credibility in fighting inflation. To understand this assertion, consider two policymakers, both with the same preferences, but one enjoying (exogenously assigned) perfect credibility while the other has to “earn” it. The policymaker with the luxury of not having to ensure against a loss of credibility would likely choose to respond to inflation and inflation forecasts above target according to the *Opportunistic Disinflation* rule. In contrast, the other policymaker, needing to establish credibility, would respond more aggressively to inflation data above the comfort zone and choose a more hawkish (and volatile) policy path.

The *Dove* rule implies lower rates in 2007 and some chance of a cut in late 2006. The projected FFR falls slightly below the market-implied rate in 2006 but closely mirrors the market path throughout 2007. The two projections start diverging in 2008.

As indicated above, the *Baseline* rule is more consistent with holding the FFR at 5.25% through the summer of 2007. Then it suggests that the FFR should decline toward 4.125% (our current assumption for the neutral level) in 2008 and 2009. This behavior is mainly based on our central forecast, which has inflation returning to target and output growing at potential in the latter part of the forecast horizon.

Exhibit D-2 and Exhibit D-3 show, respectively, the nominal and real FFR implied by our four alternative scenarios under the *Baseline* rule. The scenarios that imply significantly different paths from that currently priced into markets are the over-tightening (below the market path) and overheating/productivity slowdown (above the market path) scenarios. This dichotomy between the paths implied by different scenarios is also present for the other two rules (not pictured); in particular, the overheating and productivity slowdown scenarios imply higher levels of FFR under the *Opportunistic Disinflation* rule, while the over-tightening scenario suggests lower levels of FFR under the *Dove* rule. The differences in inflation outcomes among these scenarios are clear, as shown in Exhibit C-2, and thus incoming inflation data will be particularly important in determining the likelihood of these alternative scenarios going forward.

Exhibit D-4 shows the result of using our *Baseline* rule from 2004Q4 to the present—setting the initial FFR at its average value of 1.9% in 2004Q4—with a 1.5% inflation target and a 2.0% inflation target (see the preamble to Exhibit D for more information on the standard policy rules as well as this exercise). The path derived from the 1.5% target and 2.0% target both follow the actual FFR path closely until the middle of 2005. From this point on, the slope of actual policy has been considerably steeper than that implied by the *Baseline* rule under either target. While the policy rule with the 1.5% inflation target is closer to the implied market path at the end of 2007 than is the rule with the 2.0% target, neither target implies policy as tight (or a terminal rate as high) as that which is currently priced into markets. In fact, at the end of 2006 and into 2007, the market path is about 50 basis points higher than either path. If we replace core inflation with total inflation in these policy rules, it follows much more closely the path taken by the FOMC. The exhibit also includes the implications of averaging our three policy rules, where the weights for average were chosen to match the market-implied expected path as closely as possible. This exercise matches the market more closely than in the August Blackbook because of the replacement of the *Inflation Hawk* rule with the *Dove* rule.

Exhibit D-5 contains a probabilistic metric for comparing the market-implied paths of the FFR with those of our policy rules through the end of 2007Q3. As in August we find a significant difference between our *Baseline* and *Opportunistic Disinflation* rules and that priced into markets. It is possible that the market has mis-priced future FOMC actions relative to these two policy rules. Another explanation for some of difference, however, is that official commentary since the June FOMC meeting has lowered the market's weight on the more aggressive rules and raised the market's weight on rules that imply greater policy sensitivity to weakness in real activity. This is consistent with the prediction from the June Blackbook that the market path would be very sensitive to any re-evaluation of the FOMC's aggressiveness towards inflation.

The new *Dove Rule* captures this possibility. As noted in Exhibit D-4, standard policy rules suggest the FOMC was aggressively responding to inflation in late 2005 and early

2006. If we take the *Dove Rule* and use it to generate policy over this historical period, the implied FFR for 2006Q3 is 3.25%.

Exhibit D-6 compares the implied distributions of FFR from the three rules and the average across rules with the distribution currently priced into markets. Again, our forecast distribution and *Baseline* and *Opportunistic Disinflation* rules imply a higher path for the FFR than the market in 2007. The *Dove* rule is closer to the market but has some negative skewness that is not currently apparent in options markets.

Special Topic

The Case for a 25bp Hike

September 15th, 2006

Simon Potter Redacted

This special topic discusses the reasons why additional firming of the monetary stance requires direct action by the FOMC rather than merely communication on possible future actions.

Our forecast and risk assessment is consistent with markets pricing in a reasonably high probability of a FFR of 5.5% in the near future. Markets are currently not pricing in such a move. The decline in market interest rates in response to expectations of Fed easing in 2007 is working against the restraining effect of monetary policy built into our forecast. Although our confidence in our forecast and risk assessment has declined in the inter-meeting period on account of the somewhat greater-than-expected deceleration of activity in the housing sector, it does not appear that there has been a sufficient increase in downside risk to justify the markets' policy expectations response.

How should a policy maker respond in this circumstance? One choice is to allow the discrepancy between the policymaker's views of future policy rates and the markets' views to persist. This move is logical for a policymaker who has more confidence in the market outlook for inflation and real activity than his own or for one who believes that the discrepancy will be short lived. Possible indications that such divergence is short term include a large increase in the implied volatility on options markets linked to the policy rate or a very large increase in the policymaker's uncertainty.

Alternatively, the policymaker could use communication about future actions to close the gap. This approach is generally preferred, as the response of markets can be used to gauge the source of the discrepancy and determine whether differing views about the outlook or a misunderstanding of policymaker preferences is the principal factor in the divergence. Overall, using communication reduces the chance of making a policy mistake and introducing unnecessary volatility into markets.

Recent communication by the FOMC apparently has been designed to communicate that an increase in the FFR is still more likely than a decrease. Markets have ignored these communications in their re-pricing of futures and options on future policy rates. In particular, after the release of the August minutes, markets priced in additional easing in 2007. It is possible to interpret this pricing in of easing rather than of tightening as indicating that the market has a different outlook than the FOMC. However, other financial markets indicators do not seem to be pricing in the same relatively high probability of an abrupt slowdown in real activity. In particular both implied and realized volatility are low, credit spreads are unchanged, and we see no evidence of a step-up in default risk or rating downgrades. Thus, it is possible that recent communications have not effectively signaled policymaker preferences.

This brings us to the last option: surprising markets with an interest rate move and maintaining a signal that rates are more likely to increase than decrease in the near future. If we assume that our forecast and risk assessment are correct, a surprise increase might be beneficial; it is likely to raise future policy expectations and market rates as markets reconsider their assessment of policymaker preferences. These

moves would facilitate the attainment of monetary policy objectives. Of course, if our forecast and risk assessment are incorrect, this action could have significant negative consequences. In the present situation, however, there may be benefits even if the downside risk to real activity is higher than we assume. First, other financial markets are not currently pricing in this downside risk. Additional uncertainty generated by the central bank might lead to an increase in implied volatility and more pricing-in of risk. Second, such a surprise would improve inflation-fighting credibility and give the FOMC additional flexibility in the future. Finally, inflation would return to target more quickly, embedding lower inflation expectations. The FOMC still would be able to respond by lowering rates if it became clear after the increase that the recession risk was higher than previously thought. This near-term FOMC flexibility could be effectively communicated in the September meeting minutes.

A. Forecast Details

Exhibit A-1. Actual and Projected Percentage Changes in GDP, Prices, and the Unemployment Rate

This table summarizes the FRBNY forecast for the current FOMC cycle and the previous two cycles. It provides the forecasts of real GDP growth, the change in the GDP deflator, the change in the PCE deflator, the change in core PCE deflator, and the level of the unemployment rate. Data frequencies are both quarterly and yearly (Q4/Q4) over the forecast horizon.

Source: MMS Function, FRBNY

Exhibit A-2. Detailed Comparison of FRBNY and Greenbook Forecasts

This table summarizes the baseline FRBNY and Board forecasts for the current FOMC cycle and the previous cycle. In addition to variables included in Exhibit A-1, there are forecasts for the growth contributions of some broad components of GDP, the growth of some measures of productivity and wages, labor force participation, payroll employment growth, and some financial market variables. Data frequencies are yearly (Q4/Q4 or Q4 level) over the forecast horizon.

Source: MMS Function, FRBNY; and Federal Reserve Board staff

Exhibit A-3. Judgment Table

This table gives history and current forecasts of the primary variables in the FRBNY forecast over the forecast horizon. This includes the detailed judgments—such as those for interest rates, profit growth, productivity, and real activity—that are behind the FRBNY forecasts for aggregates such as real GDP and inflation. Data frequencies are both quarterly and yearly (Q4/Q4 or Q4 level).

Source: MMS Function, FRBNY

Exhibit A-4. Real GDP and Components (Growth Contributions)

This table provides history and current forecasts of the real GDP growth contributions for the broad components of expenditures. Growth contributions are in percentage points.

Source: MMS Function, FRBNY

Exhibit A-5. Alternative GDP and Inflation Forecasts

This table compares the FRBNY forecast with real GDP growth and CPI inflation forecasts from other sources. In addition to the FRBNY forecast, the table includes the median forecasts from two surveys of forecasters (Blue Chip and Survey of Professional Forecasters [SPF]), the forecast from Macroeconomic Advisers, and the forecast from a small internal model (PSI model) that uses business activity and sentiment measures as the primary independent variables.

Source: MMS Function, FRBNY; Blue Chip Economic Indicators; FRB Philadelphia Survey of Professional Forecasters; and Macroeconomic Advisers

Exhibit A-6 (1, 2, & 3). Recent Behavior of Inflation

The three tables in this exhibit show the changes in the overall price indices and various components for the most recent month of released data, as measured by the PCE deflator, CPI, and PPI. Growth rates (at annual rate) are taken over 1, 3, 6, 12, and 24 months.

Source: Bureau of Economic Analysis and Bureau of Labor Statistics

Exhibit A-7. Measures of Trend Inflation

These charts display various measures of trend inflation. The alternative measures of CPI inflation are the core, the median, the trimmed mean (Cleveland Fed), a smoothed measure (from overall CPI inflation using a time series model estimated at FRBNY), and the Underlying Inflation Gauge (UIG) measure. (A non-technical description of the construction of this measure is in the Appendix to Exhibit A-7 and A-8 below.) The alternative measures of PCE inflation are the core, the trimmed mean (Dallas Fed), and a smoothed measure (calculated in a manner similar to the smoothed CPI measure). Also included are charts showing the annualized change in the core CPI and PCE over the 24-, 12-, 6-, and 3-month horizons. The horizontal lines show the implied target range used by Macroeconomic Advisers.

Source: FRB Cleveland; FRB Dallas; MMS Function, FRBNY; and Swiss National Bank

Exhibit A-8. Expected Inflation: Underlying Inflation Gauge (UIG) and TIPS Implied Inflation

The chart displays compares inflation expectations over various horizons as measured by the UIG and TIPS (A non-technical description of the construction of the UIG is in the Appendix to Exhibit A-7 and A-8 below. A non-technical description of the construction of inflation expectations from TIPS is in the Appendix to Exhibit B-2).

Source: MMS Function, FRBNY; and Swiss National Bank

Appendix to Exhibit A-7 and A-8. Construction of UIG (Underlying Inflation Gauge)

The Underlying Inflation Gauge is a measure of underlying inflation that incorporates information from a broad set of nominal and real variables. It uses a dynamic factor model to extract a common component from the set of variables and then removes the high frequency movements (fluctuations with a frequency of up to one year) from this common component. This filtering reflects our view that monetary policy is primarily concerned with shocks that impact inflation in the medium-term. The level of the UIG is designed to map into the level of the CPI.

A. Forecast Details

Exhibit A-1: Actual and Projected Percentage Changes of GDP, Prices, and the Unemployment Rate

| | Real GDP | | Chain Type | | PCE Deflator | | Core PCE | | Unemployment Rate | | | | | |
|-----------------------|----------|-------|------------|-------|--------------|-------|----------|-------|-------------------|-------|-----|-----|------|------|
| | Jun06 | Aug06 | Jun06 | Aug06 | Jun06 | Aug06 | Jun06 | Aug06 | Jun06 | Aug06 | | | | |
| | Sep06 | Sep06 | Sep06 | Sep06 | Sep06 | Sep06 | Sep06 | Sep06 | Sep06 | Sep06 | | | | |
| 2006 Q1 | 5.3 | 5.6 | 5.6 | 3.3 | 3.2 | 3.2 | 2.0 | 2.0 | 2.1 | 2.1 | 4.7 | 4.7 | 4.7 | |
| 2006 Q2 | 2.8 | 2.5 | 2.9 | 3.6 | 3.3 | 3.3 | 4.3 | 4.1 | 4.1 | 2.9 | 2.9 | 4.7 | 4.6 | |
| 2006 Q3 | 3.2 | 3.4 | 2.3 | 1.5 | 3.4 | 2.6 | 2.3 | 2.9 | 2.6 | 2.5 | 2.4 | 4.7 | 4.7 | |
| 2006 Q4 | 2.8 | 2.2 | 2.6 | 1.8 | 1.7 | 1.7 | 2.3 | 2.3 | 2.3 | 2.2 | 2.2 | 4.7 | 4.7 | |
| 2007 Q1 | 3.1 | 3.1 | 3.0 | 2.3 | 2.3 | 2.0 | 2.3 | 2.3 | 2.3 | 2.1 | 2.1 | 4.7 | 4.7 | |
| 2007 Q2 | 3.5 | 2.9 | 3.0 | 2.5 | 2.4 | 2.4 | 2.2 | 2.2 | 2.2 | 2.0 | 2.0 | 4.7 | 4.7 | |
| 2007 Q3 | 3.5 | 3.5 | 3.1 | 2.1 | 2.4 | 2.4 | 2.2 | 2.2 | 2.2 | 1.9 | 1.9 | 4.7 | 4.7 | |
| 2007 Q4 | 3.2 | 2.4 | 3.0 | 2.1 | 2.0 | 1.9 | 2.2 | 2.2 | 2.2 | 1.9 | 1.9 | 4.7 | 4.7 | |
| 2008 Q1 | NA | 3.5 | 3.0 | NA | 2.2 | 2.4 | NA | 2.2 | 2.2 | 1.8 | 1.8 | NA | 4.7 | |
| 2008 Q2 | NA | 3.2 | 3.0 | NA | 2.5 | 2.6 | NA | 2.2 | 2.2 | 1.8 | 1.8 | NA | 4.7 | |
| 2008 Q3 | NA | 2.9 | 3.0 | NA | 2.3 | 2.4 | NA | 2.2 | 2.2 | 1.8 | 1.8 | NA | 4.7 | |
| 2008 Q4 | NA | 2.6 | 3.0 | NA | 1.9 | 2.0 | NA | 2.2 | 2.2 | 1.8 | 1.8 | NA | 4.7 | |
| 2004 Q4 to 2005 Q4 | 3.2 | 3.1 | 3.1 | 3.1 | 3.1 | 3.1 | 3.0 | 3.1 | 3.1 | 2.0 | 2.1 | 2.1 | -0.4 | -0.5 |
| 2005 Q4 to 2006 Q4 | 3.5 | 3.4 | 3.3 | 2.5 | 2.9 | 2.7 | 2.7 | 2.8 | 2.7 | 2.4 | 2.4 | 2.4 | -0.3 | -0.2 |
| 2006 Q4 to 2007 Q4 | 3.3 | 3.0 | 3.0 | 2.3 | 2.3 | 2.2 | 2.2 | 2.2 | 2.2 | 2.0 | 2.0 | 2.0 | 0.0 | 0.0 |
| 2007 Q4 to 2008 Q4 | NA | 3.0 | 3.0 | NA | 2.2 | 2.4 | NA | 2.2 | 2.2 | NA | 1.8 | 1.8 | NA | 0.0 |

Notes: Columns reflect the date of a forecast. Italics/blue font indicate a data release prior to date of a forecast

A. Forecast Details

Exhibit A-2: Detailed Comparison of FRBNY and Greenbook Forecasts

| | FRBNY | | | | | | Board | | | | | |
|-------------------------------------------|-------|------|------|------|------|------|-------|------|------|------|------|------|
| | 2006 | | 2007 | | 2008 | | 2006 | | 2007 | | 2008 | |
| | AUG | SEP | AUG | SEP | AUG | SEP | AUG | SEP | AUG | SEP | AUG | SEP |
| REAL GDP (Q4/Q4) | 3.4 | 3.3 | 3.0 | 3.0 | 3.0 | 3.0 | 3.2 | 3.0 | 2.3 | 2.1 | NA | 2.4 |
| GROWTH CONTRIBUTIONS(Q4/Q4) | | | | | | | | | | | | |
| FINAL SALES TO DOMESTIC PURCHASERS | 3.4 | 3.3 | 3.2 | 3.2 | 3.0 | 3.2 | 3.1 | 2.9 | 2.5 | 2.3 | NA | 2.5 |
| CONSUMPTION | 2.4 | 2.4 | 2.1 | 2.1 | 1.9 | 2.1 | 2.3 | 2.3 | 1.7 | 1.8 | NA | 1.9 |
| BFI | 0.8 | 0.9 | 0.7 | 0.7 | 0.6 | 0.6 | 0.9 | 0.9 | 0.6 | 0.5 | NA | 0.3 |
| STRUCTURES | 0.2 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 | 0.4 | 0.4 | 0.2 | 0.1 | NA | 0.0 |
| EQUIPMENT & SOFTWARE | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.6 | 0.5 | 0.4 | 0.3 | NA | 0.4 |
| RESIDENTIAL INVESTMENT | -0.4 | -0.6 | -0.2 | -0.3 | 0.0 | 0.0 | -0.6 | -0.8 | -0.2 | -0.4 | NA | 0.1 |
| GOVERNMENT | 0.7 | 0.7 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | NA | 0.2 |
| FEDERAL | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | NA | 0.0 |
| STATE & LOCAL | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.2 | NA | 0.2 |
| INVENTORY INVESTMENT | 0.0 | -0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | -0.1 | 0.0 | NA | 0.2 |
| NET EXPORTS | 0.0 | 0.1 | -0.3 | -0.2 | 0.0 | -0.3 | 0.1 | 0.1 | -0.1 | -0.1 | NA | -0.3 |
| INFLATION/PRODUCTIVITY/WAGES (Q4/Q4) | | | | | | | | | | | | |
| GDP DEFLATOR | 2.9 | 2.7 | 2.3 | 2.2 | 2.2 | 2.4 | 2.8 | 2.7 | 2.3 | 2.6 | NA | 2.4 |
| PCE | 2.8 | 2.7 | 2.2 | 2.2 | 2.2 | 2.2 | 2.9 | 2.2 | 2.1 | 2.5 | NA | 2.0 |
| CORE PCE | 2.4 | 2.4 | 2.0 | 2.0 | 1.8 | 1.8 | 2.5 | 2.4 | 2.3 | 2.3 | NA | 2.1 |
| COMPENSATION PER HOUR | 5.4 | 7.4 | 5.2 | 5.1 | 5.0 | 5.0 | 5.5 | 6.5 | 5.3 | 5.3 | NA | 5.1 |
| OUTPUT PER HOUR | 2.4 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.4 | 1.9 | 2.5 | 2.4 | NA | 2.7 |
| UNIT LABOR COSTS | 3.0 | 4.9 | 2.7 | 2.6 | 2.5 | 2.5 | 3.0 | 4.5 | 2.8 | 2.8 | NA | 2.3 |
| EMPLOYMENT VARIABLES | | | | | | | | | | | | |
| UNEMPLOYMENT RATE (Q4 LEVEL) | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.8 | 4.8 | 5.2 | 5.1 | NA | 5.2 |
| PARTICIPATION RATE (Q4 LEVEL) | 66.2 | 66.2 | 66.2 | 66.2 | 66.2 | 66.2 | 66.0 | 66.1 | 65.7 | 65.7 | NA | 65.5 |
| NONFARM PAYROLL EMPLOYMENT (Q4/Q4 CHANGE) | | | | | | | | | | | | |
| TOTAL, IN THOUSANDS | 1801 | 1654 | 1572 | 1321 | 1675 | 1355 | 1500 | 1600 | 700 | 400 | NA | 500 |
| AVERAGE PER MONTH, IN THOUSANDS | 150 | 138 | 131 | 110 | 140 | 113 | 125 | 133 | 58 | 33 | NA | 42 |
| FINANCIAL MARKET VARIABLES | | | | | | | | | | | | |
| FED FUNDS RATE (PERCENT) | 5.25 | 5.25 | 5.00 | 5.00 | NA | 4.75 | 5.25 | 5.25 | 5.25 | 5.25 | NA | 5.00 |
| BAA BOND YIELD (PERCENT) | 6.8 | 6.8 | 6.8 | 6.8 | NA | 6.8 | 6.6 | 6.5 | 6.6 | 6.6 | NA | 6.7 |
| EFFECTIVE EXCHANGE RATE (Q4/Q4 % CHANGE) | -4.6 | -6.5 | -1.5 | -1.5 | NA | -1.7 | -3.4 | -3.5 | -1.8 | -0.9 | NA | -1.4 |

A. Forecast Details

Exhibit A-3: Judgment Table

| | 2006:01 | 2006:02 | 2006:03 | 2006:04 | 2007:01 | 2007:02 | 2007:03 | 2007:04 | 2008:01 | 2008:02 | 2008:03 | 2008:04 | 2005 | 2006 | 2007 | 2008 |
|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| REAL GDP AND COMPONENTS (% Change, AR) | | | | | | | | | | | | | | | | |
| GDP..... | 5.6 | 2.9 | 2.3 | 2.6 | 3.0 | 3.0 | 3.1 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.1 | 3.3 | 3.0 | 3.0 |
| CHANGE IN INVENTORIES (GROWTH CONTRIBUTION) 1)..... | 0.0 | 0.6 | -0.8 | 0.1 | 0.2 | -0.1 | -0.2 | 0.3 | 0.0 | -0.2 | 0.0 | 0.5 | -0.1 | -0.1 | 0.0 | 0.1 |
| DOMESTIC PRIVATE PURCHASES..... | 5.3 | 2.3 | 2.2 | 2.6 | 3.0 | 2.8 | 2.9 | 3.4 | 3.2 | 2.8 | 3.0 | 3.4 | 3.1 | 3.1 | 3.0 | 3.1 |
| CONSUMPTION EXPENDITURES..... | 4.8 | 2.6 | 3.3 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 2.9 | 3.4 | 3.0 | 3.0 |
| BUSINESS FIXED INVESTMENT..... | 13.7 | 4.7 | 8.6 | 7.8 | 6.7 | 6.7 | 6.7 | 6.7 | 5.7 | 5.7 | 5.4 | 5.3 | 5.6 | 8.7 | 6.7 | 5.5 |
| RESIDENTIAL INVESTMENT..... | -0.3 | -9.8 | -11.5 | -16.9 | -10.0 | -5.0 | -2.4 | -1.4 | -0.8 | -0.8 | -0.8 | -0.8 | 9.0 | -9.8 | -4.8 | -0.8 |
| NET EXPORTS (GROWTH CONTRIBUTION) 1)..... | 0.0 | 0.4 | 0.0 | -0.1 | -0.2 | 0.1 | 0.1 | -0.6 | -0.4 | 0.0 | -0.1 | -0.6 | -0.1 | 0.1 | -0.2 | -0.3 |
| EXPORTS..... | 14.0 | 5.1 | 7.1 | 8.6 | 7.8 | 7.1 | 7.0 | 6.1 | 6.7 | 6.8 | 7.7 | 7.6 | 6.7 | 8.6 | 7.0 | 7.2 |
| IMPORTS..... | 9.1 | 0.6 | 4.4 | 6.3 | 6.4 | 4.3 | 4.0 | 7.7 | 7.0 | 4.5 | 6.0 | 8.5 | 5.2 | 5.0 | 5.6 | 6.5 |
| FEDERAL GOVERNMENT..... | 8.8 | -4.3 | 6.0 | 4.0 | 6.0 | 1.5 | 2.0 | 2.0 | 5.5 | 1.5 | 1.5 | 1.5 | 2.1 | 3.5 | 2.9 | 2.5 |
| STATE & LOCAL GOVERNMENTS..... | 2.7 | 4.2 | 2.5 | 4.0 | 3.5 | 3.5 | 3.5 | 3.5 | 3.0 | 3.0 | 3.0 | 3.0 | 0.8 | 3.3 | 3.5 | 3.0 |
| INTEREST RATE ASSUMPTIONS (%) | | | | | | | | | | | | | | | | |
| FEDERAL FUNDS RATE (TARGET)..... | 4.43 | 4.90 | 5.25 | 5.25 | 5.25 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 4.75 | 4.75 | 3.97 | 5.25 | 5.00 | 4.75 |
| YIELD ON 10-YR GOVERNMENT..... | 4.6 | 5.1 | 4.9 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 4.5 | 5.0 | 5.0 | 5.0 |
| BAA BOND YIELD..... | 6.3 | 6.7 | 6.7 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 | 6.3 | 6.8 | 6.8 | 6.8 |
| INCOME (% Change, AR) | | | | | | | | | | | | | | | | |
| PERSONAL INCOME..... | 9.4 | 6.9 | 4.5 | 2.8 | 5.6 | 6.2 | 7.9 | 3.8 | 6.9 | 6.5 | 7.9 | 3.9 | 4.6 | 5.9 | 5.9 | 6.3 |
| REAL PERSONAL DISPOSABLE INCOME..... | 4.6 | 1.5 | 2.9 | 0.7 | 3.7 | 4.3 | 7.8 | 1.3 | 4.7 | 4.2 | 5.8 | 1.4 | 0.3 | 2.4 | 4.3 | 4.0 |
| PERSONAL SAVING RATE (% OF DPI)..... | -0.3 | -0.7 | -0.7 | -1.3 | -1.1 | -0.9 | 0.2 | -0.2 | 0.2 | 0.3 | 0.9 | 0.5 | -0.4 | -0.8 | -0.5 | -0.2 |
| CORPORATE PROFITS BEFORE TAXES..... | 60.8 | 13.2 | -28.4 | 0.7 | 2.0 | -0.2 | -0.1 | -1.3 | -3.5 | -0.6 | -0.6 | -1.4 | 12.8 | 7.0 | 0.1 | -1.5 |
| PRICES & PRODUCTIVITY (% Change, AR) | | | | | | | | | | | | | | | | |
| GDP IMPLICIT DEFLATOR..... | 3.2 | 3.3 | 2.6 | 1.7 | 2.0 | 2.4 | 2.4 | 1.9 | 2.4 | 2.6 | 2.4 | 2.0 | 3.1 | 2.7 | 2.2 | 2.4 |
| PERSONAL CONSUMPTION EXPENDITURES..... | 2.0 | 4.1 | 2.6 | 2.3 | 2.3 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 3.1 | 2.7 | 2.2 | 2.2 |
| CORE PERSONAL CONSUMPTION EXPENDITURES..... | 2.1 | 2.9 | 2.4 | 2.2 | 2.1 | 2.0 | 1.9 | 1.9 | 1.8 | 1.8 | 1.8 | 1.8 | 2.1 | 2.4 | 2.0 | 1.8 |
| CONSUMER PRICE INDEX..... | 2.2 | 5.0 | 3.9 | 2.8 | 2.7 | 2.6 | 2.5 | 2.5 | 2.4 | 2.4 | 2.4 | 2.4 | 3.7 | 3.5 | 2.6 | 2.4 |
| CORE CONSUMER PRICE INDEX..... | 2.4 | 3.5 | 2.9 | 2.8 | 2.7 | 2.6 | 2.5 | 2.4 | 2.3 | 2.3 | 2.3 | 2.3 | 2.1 | 2.9 | 2.5 | 2.3 |
| COMPENSATION PER HOUR (NONFARM BUSINESS)..... | 13.7 | 6.6 | 4.5 | 5.2 | 5.2 | 5.0 | 5.1 | 5.1 | 5.1 | 5.0 | 4.9 | 4.9 | 2.8 | 7.4 | 5.1 | 5.0 |
| OUTPUT PER HOUR (NONFARM BUSINESS)..... | 4.3 | 1.6 | 1.8 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| UNIT LABOR COST (NONFARM BUSINESS)..... | 9.4 | 5.0 | 2.7 | 2.7 | 2.7 | 2.5 | 2.6 | 2.6 | 2.6 | 2.5 | 2.4 | 2.4 | 0.3 | 4.9 | 2.6 | 2.5 |
| REAL ACTIVITY | | | | | | | | | | | | | | | | |
| CAPACITY UTILIZATION (MANUFACTURING, %)..... | 80.3 | 80.9 | 81.2 | 81.4 | 81.6 | 81.8 | 81.9 | 82.0 | 82.0 | 82.0 | 82.0 | 82.0 | 77.1 | 81.0 | 81.8 | 82.0 |
| CIVILIAN UNEMP RATE (%) 2)..... | 4.7 | 4.6 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 4.9 | 4.7 | 4.7 | 4.7 |
| PRIVATE HOUSING STARTS (THOUS. AR)..... | 2123 | 1875 | 1780 | 1715 | 1690 | 1690 | 1715 | 1740 | 1740 | 1740 | 1740 | 1740 | 2073 | 1873 | 1709 | 1740 |
| LIGHT VEHICLE SALES (MIL UNITS, AR) 3)..... | 16.9 | 16.3 | 16.6 | 16.6 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.9 | 16.6 | 16.7 | 16.7 |
| FEDERAL SURPLUS/DEFICIT (Unified Basis, Bil. \$) 4)..... | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | -317.7 | -357.2 | -298.6 | -297.6 |

NOTE: All series other than interest rates and the federal deficit are seasonally adjusted. Italics/blue indicate a reported value. 1) Growth contribution to real GDP 2) Annual values are end of Q4 levels 3) Includes domestic and imported auto and light truck sales 4) Yearly numbers are based on the fiscal year

A. Forecast Details

Exhibit A-4: Real GDP and Components (Growth Contributions)

| | 2006 | | | | 2007 | | | | 2008 | | | | Q4/Q4 % CHANGE/Q4 LEVEL | | | |
|-------------------------------------------------|---------------------------------------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------------------|-------------|-------------|-------------|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | 2005 | 2006 | 2007 | 2008 |
| | REAL GDP (Growth, Annual Rate) | 5.6 | 2.9 | 2.3 | 2.6 | 3.0 | 3.0 | 3.1 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.1 | 3.3 | 3.0 |
| <i>Contributions to GDP growth:</i> | | | | | | | | | | | | | | | | |
| FINAL SALES TO DOMESTIC PURCHASERS | 5.7 | 1.8 | 3.1 | 2.7 | 3.0 | 3.0 | 3.2 | 3.3 | 3.4 | 3.1 | 3.1 | 3.1 | 3.1 | 3.3 | 3.2 | 3.2 |
| CONSUMPTION EXPENDITURES..... | 3.4 | 1.8 | 2.3 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.4 | 2.1 | 2.1 |
| BUSINESS FIXED INVESTMENT..... | 1.4 | 0.5 | 0.9 | 0.8 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.9 | 0.7 | 0.6 |
| RESIDENTIAL INVESTMENT..... | 0.0 | -0.6 | -0.7 | -1.0 | -0.6 | -0.3 | -0.1 | -0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.6 | -0.3 | 0.0 |
| FEDERAL GOVERNMENT..... | 0.6 | -0.3 | 0.4 | 0.3 | 0.4 | 0.1 | 0.1 | 0.1 | 0.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| STATE & LOCAL GOVERNMENTS..... | 0.3 | 0.5 | 0.3 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| NET EXPORTS | 0.0 | 0.4 | 0.0 | -0.1 | -0.2 | 0.1 | 0.1 | -0.6 | -0.4 | 0.0 | -0.1 | -0.6 | -0.1 | 0.1 | -0.2 | -0.3 |
| EXPORTS..... | 1.4 | 0.5 | 0.8 | 0.9 | 0.9 | 0.8 | 0.8 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 | 0.7 | 0.9 | 0.8 | 0.8 |
| IMPORTS..... | -1.5 | -0.1 | -0.7 | -1.0 | -1.1 | -0.7 | -0.7 | -1.3 | -1.2 | -0.8 | -1.0 | -1.5 | -0.8 | -0.8 | -1.0 | -1.1 |
| CHANGE IN INVENTORIES | 0.0 | 0.6 | -0.8 | 0.1 | 0.2 | -0.1 | -0.2 | 0.3 | 0.0 | -0.2 | 0.0 | 0.5 | -0.1 | -0.1 | 0.0 | 0.1 |

Note: Contributions may not add up to GDP growth due to rounding.

A. Forecast Details

Exhibit A-5: Alternative GDP and Inflation Forecasts

| | Release Date | 2006-Q3 | | 2006-Q4 | | 2007-Q1 | |
|-----------------|--------------|---------|-----|---------|-----|---------|-----|
| | | Prev* | Sep | Prev* | Sep | Prev* | Sep |
| GDP | | | | | | | |
| FRBNY | 9/15/2006 | 3.4 | 2.3 | 2.2 | 2.6 | 3.1 | 3.0 |
| PSI Model | 9/14/2006 | 2.1 | 2.1 | 1.6 | 2.3 | -- | -- |
| Blue Chip | 9/10/2006 | 2.7 | 2.7 | 2.7 | 2.4 | 2.7 | 2.6 |
| Median SPF | 8/14/2006 | 3.1 | 2.7 | 3.0 | 2.9 | 2.9 | 2.9 |
| Macro Advisers | 8/22/2006 | 3.0 | 2.7 | 3.1 | 2.8 | 3.1 | 3.0 |
| CPI | | | | | | | |
| | | 2006-Q3 | | 2006-Q4 | | 2007-Q1 | |
| | | Prev* | Sep | Prev* | Sep | Prev* | Sep |
| FRBNY | 9/15/2006 | 2.7 | 3.9 | 2.8 | 2.8 | 2.7 | 2.7 |
| Blue Chip | 9/10/2006 | 3.1 | 3.4 | 2.5 | 2.3 | 2.6 | 2.6 |
| Median SPF | 8/14/2006 | 2.6 | 3.6 | 2.4 | 2.8 | 2.3 | 2.7 |
| Macro Advisers | 8/22/2006 | 2.8 | 3.7 | 2.8 | 2.4 | 2.3 | 2.7 |
| CORE CPI | | | | | | | |
| | | 2006-Q3 | | 2006-Q4 | | 2007-Q1 | |
| | | Prev* | Sep | Prev* | Sep | Prev* | Sep |
| FRBNY | 9/15/2006 | 2.9 | 2.9 | 2.8 | 2.8 | 2.7 | 2.7 |
| Macro Advisers | 8/22/2006 | 2.6 | 2.8 | 2.6 | 2.7 | 2.5 | 2.5 |

Notes: Previous release of SPF is May, Macro Advisers is July, and all others is August.

A. Forecast Details

Exhibit A-6: Reference Table 1 - CONSUMER PRICE INDEX DATA AS OF AUGUST 2006

| | Annualized Percent Change Over Indicated Interval | | | | | Weights (December 2005) |
|-------------------------------------|---------------------------------------------------|----------|---------|---------|---------|----------------------------|
| | 24 Month | 12 Month | 6 Month | 3 Month | 1 Month | |
| Consumer Price Index | | | | | | Total |
| Energy | 3.7 | 3.8 | 4.7 | 3.6 | 3.0 | 100.00 |
| | 17.6 | 15.0 | 21.6 | 9.4 | 3.5 | 8.69 |
| All Items Ex Energy | 2.5 | 2.8 | 3.1 | 3.0 | 3.0 | |
| Food | 2.3 | 2.5 | 2.1 | 3.5 | 4.4 | 13.94 |
| Food Away From Home | 3.1 | 3.1 | 3.1 | 3.1 | 3.0 | 5.95 |
| All Items Ex Food and Energy | 2.5 | 2.8 | 3.4 | 3.0 | 2.9 | 77.37 |
| Core Chain-Weight CPI (NSA) | 2.2 | 2.7 | 2.7 | 1.4 | 3.2 | 100.00 |
| Core Goods | | | | | | |
| Apparel | 0.7 | 0.6 | 1.1 | 0.6 | 2.6 | 22.32 |
| Medical Care Commodities | -0.2 | 0.3 | 3.1 | -1.0 | 11.7 | 3.79 |
| Durable Goods | 4.1 | 4.3 | 4.0 | 3.5 | 5.1 | 1.46 |
| New Vehicles | 0.3 | -0.1 | 0.2 | 0.7 | 0.0 | 11.58 |
| Used Vehicles | 0.5 | 1.0 | -0.9 | 0.0 | -0.9 | 5.16 |
| | 3.2 | 0.3 | 4.2 | 4.3 | 2.6 | 1.80 |
| Core Services | | | | | | |
| Rent of Primary Residence | 3.2 | 3.7 | 4.2 | 4.0 | 3.0 | 55.06 |
| Owners' Equivalent Rent | 3.3 | 3.7 | 4.4 | 4.7 | 4.3 | 5.83 |
| Lodging Away from Home | 3.0 | 3.9 | 5.0 | 4.5 | 3.6 | 23.44 |
| Medical Care Services | 4.0 | 5.0 | 2.9 | 2.1 | -4.3 | 2.61 |
| Transportation Services | 4.4 | 4.4 | 4.3 | 4.0 | 5.3 | 4.76 |
| | 2.5 | 2.2 | 2.8 | 3.5 | 3.7 | 5.71 |

A. Forecast Details

Exhibit A-6: Reference Table 2 - PCE DEFLATOR DATA AS OF JULY 2006

| | Annualized Percent Change Over Indicated Interval | | | | |
|---------------------------------------------|---------------------------------------------------|----------|---------|---------|---------|
| | 24 Month | 12 Month | 6 Month | 3 Month | 1 Month |
| PCE Deflator | 3.0 | 3.4 | 3.5 | 3.4 | 4.1 |
| Market Based PCE Deflator | 2.9 | 3.3 | 3.5 | 3.5 | 4.1 |
| Durable Goods | -1.0 | -1.1 | -0.9 | -0.9 | 0.7 |
| Motor Vehicles and Parts | 1.3 | 0.8 | 0.5 | 0.2 | 1.5 |
| Nondurable Goods | 4.0 | 4.8 | 6.1 | 5.5 | 7.2 |
| Clothing and Shoes | -1.3 | -0.6 | -1.4 | -5.3 | -13.9 |
| Services | 3.3 | 3.6 | 3.1 | 3.2 | 3.2 |
| Housing | 3.2 | 3.8 | 4.9 | 5.3 | 4.9 |
| Transportation | 4.1 | 4.1 | 5.0 | 5.2 | 5.2 |
| Medical Care | 3.1 | 3.0 | 3.1 | 3.1 | 4.0 |
| PCE Deflator Ex Food and Energy | 2.2 | 2.4 | 2.5 | 2.2 | 1.7 |
| Market Based Core PCE Deflator | 1.8 | 2.0 | 2.3 | 2.1 | 1.2 |
| Personal Business Services-Market Based | 2.1 | 0.9 | -0.6 | -1.8 | -10.2 |
| Personal Business Services-Not Market Based | 2.4 | 2.6 | 1.9 | 1.2 | -2.5 |

A. Forecast Details

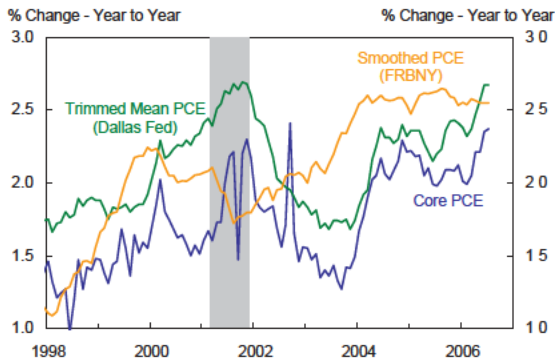
Exhibit A-6: Reference Table 3 - PRODUCER PRICE DATA AS OF JULY 2006

| | Annualized Percent Change Over Indicated Interval | | | | |
|---------------------------------------------------|---------------------------------------------------|----------|---------|---------|---------|
| | 24 Month | 12 Month | 6 Month | 3 Month | 1 Month |
| Finished Goods | | | | | |
| Finished Consumer Goods | | | | | |
| Finished Consumer Goods Ex Food | 4.4 | 4.1 | 1.9 | 3.3 | 1.5 |
| Nondurables Ex Food | 5.3 | 5.1 | 1.8 | 3.9 | 2.2 |
| Durables | 6.8 | 6.6 | 3.5 | 4.3 | 4.3 |
| Capital Equipment | 9.2 | 9.2 | 4.5 | 6.4 | 9.4 |
| Electronic Computers (NSA) | 0.7 | -0.1 | 0.4 | -1.4 | -8.4 |
| Communication and Related Equipment (NSA) | 2.0 | 1.3 | 1.9 | 1.4 | -2.4 |
| | -22.5 | -22.7 | -27.3 | -20.4 | -19.8 |
| | -0.2 | 0.1 | 1.2 | 0.8 | -1.2 |
| Finished Goods Ex Food and Energy | 2.0 | 1.3 | 1.7 | 0.8 | -3.0 |
| Finished Consumer Goods Ex Food and Energy | 2.1 | 1.3 | 1.6 | 0.5 | -3.5 |
| Intermediate Materials | | | | | |
| Intermediate Materials Ex Food and Energy | 7.8 | 8.8 | 5.6 | 9.7 | 6.7 |
| | 6.2 | 7.9 | 7.4 | 11.1 | 9.1 |
| Crude Materials | | | | | |
| Crude Materials Ex Food and Energy | 7.3 | 6.7 | -12.6 | 14.2 | 45.0 |
| | 14.5 | 34.6 | 41.4 | 43.3 | 17.3 |

A. Forecast Details

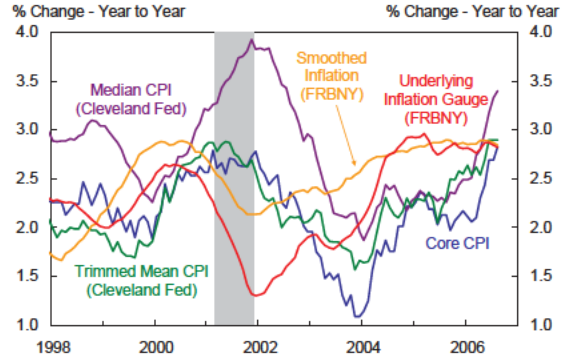
Exhibit A-7: Measures of Trend Inflation

Alternative Measures of PCE Inflation



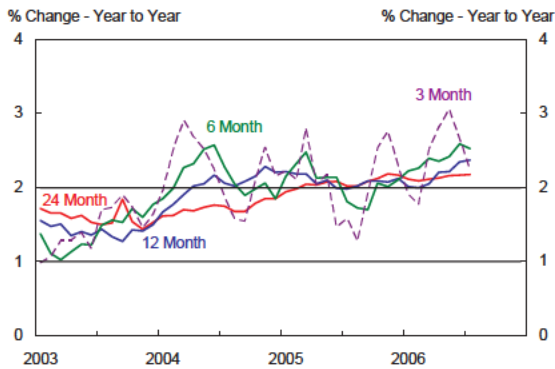
Source: Bureau of Economic Analysis, Dallas Fed, and FRBNY

Alternative Measures of CPI Inflation



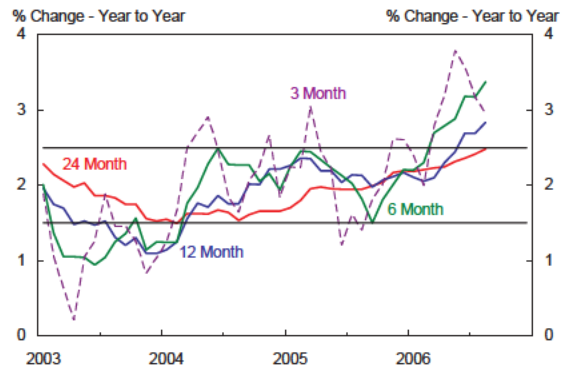
Source: Bureau of Labor Statistics, Cleveland Fed, and FRBNY

Core PCE over Various Horizons



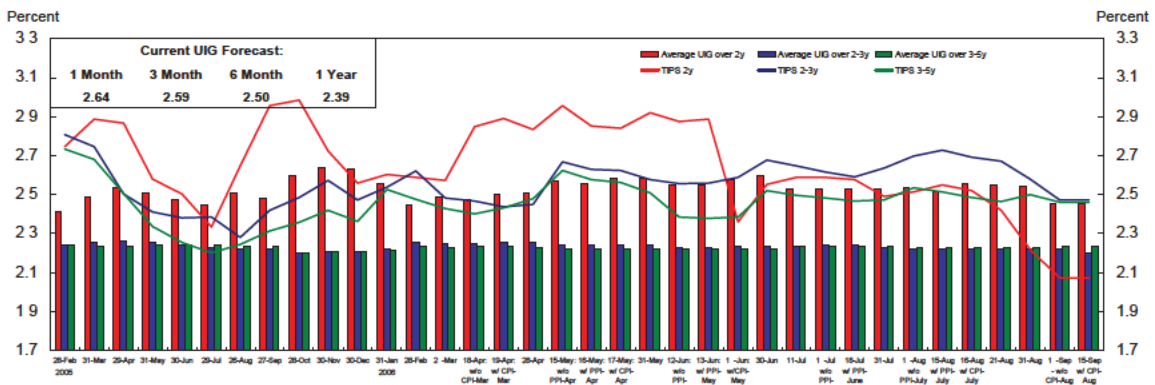
Source: Bureau of Economic Analysis

Core CPI over Various Horizons



Source: Bureau of Labor Statistics

Exhibit A-8: Underlying Inflation Gauge (UIG) and TIPS Implied Inflation



Source: Bloomberg, 8:40AM quotes, MMS Function (FRBNY)

Note: Shading represents NBER recessions, unless otherwise noted.

B. Financial Markets

Exhibit B-1. Treasury Yields

The top two charts in this exhibit plot the yields of the on-the-run 3-month and 10-year Treasury securities daily over the past three years and intraday over the inter-meeting period. The middle two charts plot the Treasury yield curve and implied one-year forward rates, as estimated using off-the-run securities. The bottom two charts plot real and nominal forward rates over the past three years for the 4-5 and 5-10 year horizons.

Source: Bloomberg and CM Function, FRBNY

Exhibit B-2. Inflation Expectations

The top two charts in this exhibit plot the time series of carry-adjusted expected CPI inflation over the past three years, as estimated from nominal and inflation-protected Treasury securities (see the Appendix to Exhibit B-2 below for a description of the construction of the FRBNY version of this measure). The left chart displays data over the 0-5 year horizon; the right chart displays data over the 4-5 and 5-10 year horizons. The third chart plots the 10-year breakeven inflation rate (not carry adjusted) over the inter-meeting period using intraday data.

Source: Bloomberg; Federal Reserve Board; and CM Function, FRBNY

Exhibit B-3. Economic Releases

This exhibit shows the response of the implied fed funds futures rate, the 10-year Treasury yield, and the 10-year breakeven inflation rate to macroeconomic announcements. Market expectations for the releases are derived from the forward price for the economic derivatives auction, which concludes 30-60 minutes before the release. The surprise, measured in standard deviations, is calculated using the at-the-money implied volatility from the auctions. Yield changes are measured from 5 minutes before to 30 minutes after the release.

Source: Bloomberg and CM Function, FRBNY

Exhibit B-4. Policy Expectations

The charts in this exhibit show market expectations of policy as derived from fed funds and Eurodollar futures, as well as from options on fed funds futures. The top left chart plots the expected path of the fed funds target rate allowing for a time-invariant term premium risk adjustment. The top right chart plots the implied September fed funds rate over the inter-meeting period using intraday data (without an adjustment for any term premia). The middle left chart plots the implied probability of no change in the funds rate versus the probability of a 25 basis point increase at the next meeting (allowing for a time-invariant term premium risk adjustment). The last two charts plot the implied probabilities of various policy rates following the next two meetings.

Source: Bloomberg; FRB Cleveland; Federal Reserve Board; and CM Function, FRBNY

Exhibit B-5. Policy Uncertainty I

The top left chart in this exhibit plots the width of the ranges within which the 3-month Eurodollar rate is expected to remain (with 90% confidence) over the next 3 and 6 months, as estimated from Eurodollar futures options. The top right chart plots the width of the ranges within which the 1-year swap rate is expected to remain (with 90% confidence) over the 1-2 and 4-5 year horizons, as estimated from swaptions. The last chart plots implied skewness and implied volatility in percentages, as derived from Eurodollar futures options. Both measures are averages of 3-, 6- and 9-month values. Positive (negative) implied skewness means that a tightening (easing) surprise around the expected target rate is expected to be larger than an easing (tightening) surprise.

Source: CME; Datastream; and CM Function, FRBNY

Exhibit B-6. Policy Uncertainty II

The top left chart in this exhibit plots the width of the range within which the 3-month Eurodollar rate is expected to remain (with 90% confidence) in the future relative to today. The top right chart shows the changes in the width of these ranges since the day before the last FOMC meeting. The middle chart shows the 50% and 90% confidence intervals around the expected policy path. The last two charts plot time series of the

width of the ranges within which the 3-month Eurodollar rate is expected to remain (with 90% confidence) over the next 6 and 12 months.

Source: Federal Reserve Board

Exhibit B-7. Equity Markets

The top left chart in this exhibit plots the daily closes of the S&P 500 and NASDAQ Composite indices over the past three years. The top right chart plots the S&P 500 over the inter-meeting period using intraday data. The bottom two charts plot implied annualized volatilities for the S&P 500 and NASDAQ Composite indices over the next month and 12 months.

Source: Bloomberg, CBOE, and OptionMetrics

Exhibit B-8. Corporate Credit Risk

The left chart in this exhibit plots corporate credit spreads over the past three years for A- and BB-rated securities. The right chart plots corporate bond default rates over time, measured over the preceding 12-month interval and distinguishing between all and speculative-grade issues.

Source: Merrill Lynch and Moody's

Exhibit B-9. Exchange Rates, Foreign Equity, and Bond Spreads

The top two charts in this exhibit display the exchange rate of the dollar against the euro (in the left panel, with higher values of the index indicating dollar depreciation) and against the yen (in the right panel, with lower values of the index indicating dollar depreciation). The middle-left panel displays the nominal effective exchange rate of the dollar, computed by the Federal Reserve Board using a “narrow” set of weights for 16 major foreign currencies (lower values of the index indicate dollar depreciation). The middle-right chart displays a measure of volatility implied by options on Yen/Dollar and Euro/Dollar rates; each line shows the width of the range (in percentage points) around the current exchange rate within which the exchange rate is expected to fall in one month (with 90 percent confidence). The bottom-left chart displays normalized equity indices for the euro area and Japan. The bottom-right chart displays J.P. Morgan's EMBI+ index of 16 emerging markets' bond spreads over U.S. Treasury yields. (The index includes

below-investment-grade bonds issued in dollars by a selected group of sovereign and quasi-sovereign issuers.)

Source: Federal Reserve Board; BIS; International Function, FRBNY; Reuters; and J.P. Morgan

Exhibit B-10. Foreign Interest Rates

The top two charts in this exhibit display short- and long-term interest rates for the euro area and Japan. The middle two charts display the three-month interest rate futures curves for the euro area and Japan, including the most recent curve. The bottom two charts display “real” yields on specific inflation-linked bonds for the euro area (OAT bonds from France) and Japan; the charts also display inflation expectations implied in these securities, computed as the spread of the yield on inflation-linked bonds over sovereign bonds of comparable maturity.

Source: BIS; Federal Reserve Board; International Function, FRBNY; and Barclays

Exhibit B-11. Energy Futures Curves

This exhibit displays futures curves for gasoline, heating oil, natural gas, and crude oil. The August 26 curve gives the state of the futures markets just before Hurricane Katrina. Also included are curves for the dates prior to the last two FOMC meetings and a curve for the most recent date.

Source: Bloomberg

Appendix to Exhibit B-2. Estimation of Implied Inflation from TIPS

The implied inflation series are estimates of inflation expectations derived from nominal Treasury securities and Treasury inflation-protected securities (TIPS). These differ from the simpler breakeven inflation rates that merely subtract real TIPS yields from on-the-run nominal yields of the same maturity. For each individual TIPS, we solve for the inflation rate that equates the discounted payments of the TIPS to its price, where the discount rates are derived from off-the-run nominal securities. We then calculate 2-, 4-, and 5-year inflation rates corresponding to TIPS with those durations. Lastly, we compute approximate forward rates from the rates at the shorter- and longer-dated durations. For example, the 4-5 year forward rate is computed from the 4- and 5-year

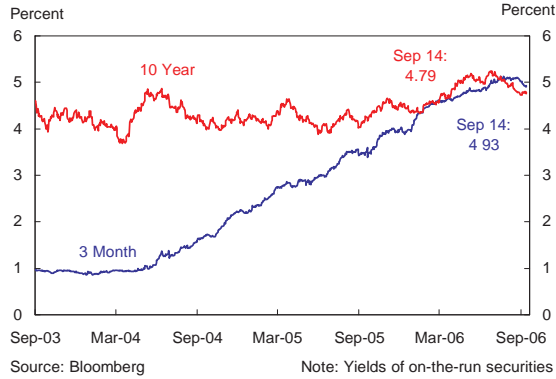
implied inflation values. The 5-10 year forward rate uses the 5-year implied inflation value and the implied inflation rate on the most recently issued 10-year TIPS.

The implied inflation series are also carry adjusted to remove the effect of expected inflation accrual in not seasonally adjusted CPI over the 2½-month indexation lag period in TIPS. Since inflation over this period is either known or largely predictable, it induces predictable variation in the unadjusted implied inflation series that is not necessarily related to future expected inflation. Our adjustment is derived from the forecast of not seasonally adjusted CPI implicit in the same day CPI futures contract traded on the CME. No adjustments are made to the implied inflation measures to account for risk premia or other technical factors.

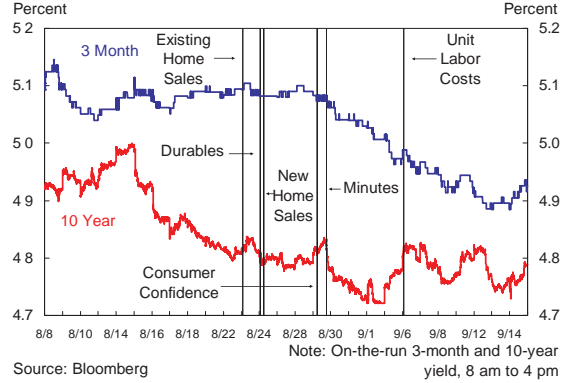
B. Financial Markets

Exhibit B-1: Treasury Yields

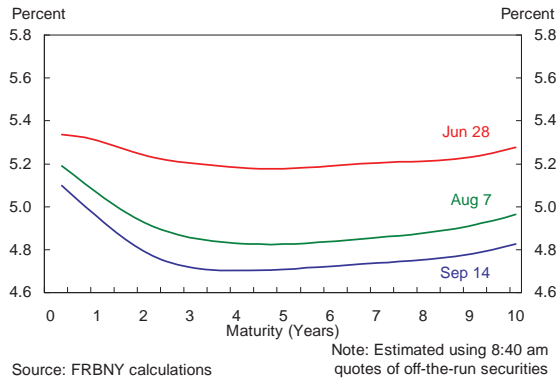
Short- and Long-Term Rates



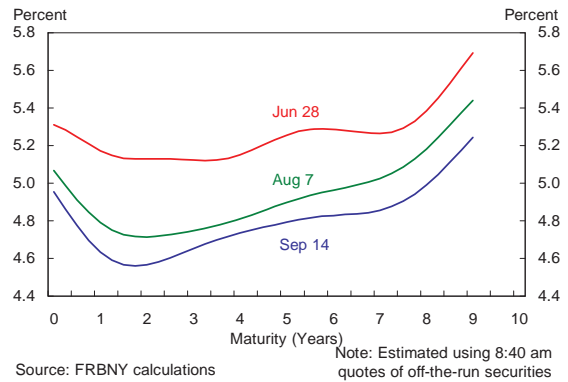
Short- and Long-Term Rates (Intraday)



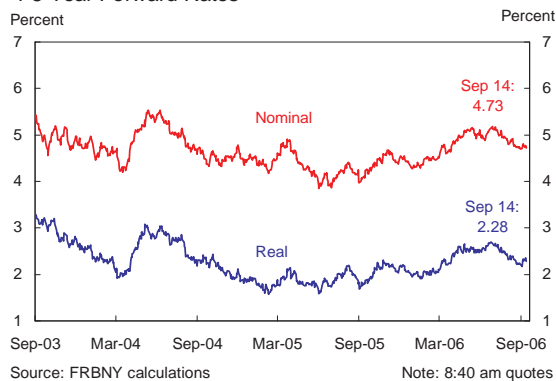
Yield Curves



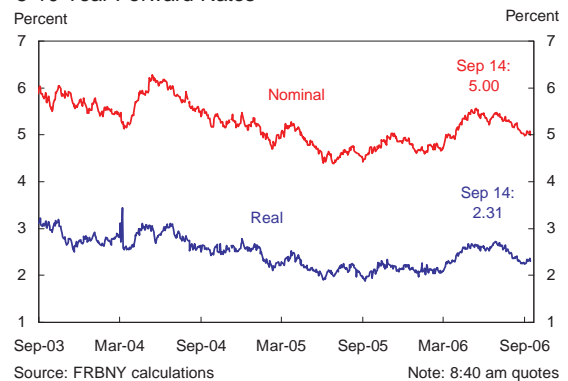
Yield Curves: Implied One-Year Forward Rates



4-5 Year Forward Rates



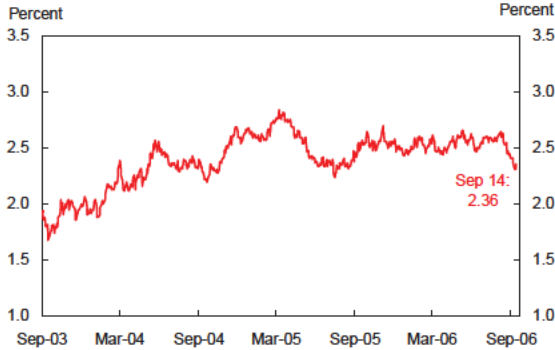
5-10 Year Forward Rates



B. Financial Markets

Exhibit B-2: Inflation Expectations

TIPS Implied Inflation: 0-5 Year Horizon



Source: Federal Reserve Board

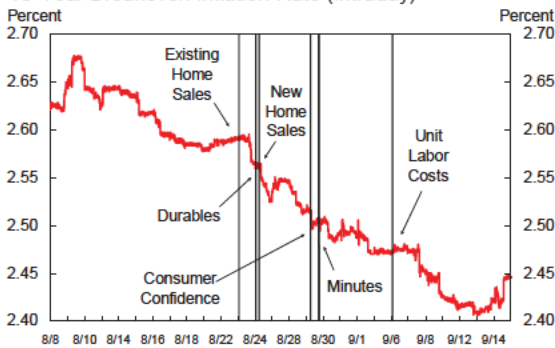
TIPS Implied Inflation: 4-5, 5-10 Year Horizons



Source: FRBNY calculations

Note: 8:40 am quotes

10-Year Breakeven Inflation Rate (Intraday)



Source: Bloomberg

Note: Calculated as difference between on-the-run 10-year Treasury and 10-year TIPS yield. 8 am to 4 pm.

Exhibit B-3: Economic Releases

Market reaction to macro releases, market expectations using economic derivatives

| Release Type | Release Date | Actual Release | Market Expectation | Surprise | Surprise (σ 's) | Yield Change (bps) | | |
|-----------------------------------|--------------|----------------|--------------------|----------|-------------------------|--------------------|----------|--------------------|
| | | | | | | September | Ten Year | Ten Year Breakeven |
| Core CPI, % | 9/15 | 0.24 | 0.24 | 0.00 | 0.0 | 0 | -2 | -1 |
| Retail Sales Less Autos, % | 9/14 | 0.19 | 0.24 | -0.05 | -0.1 | 1 | 2 | 0 |
| Initial Jobless Claims, 1000s | 9/14 | 308 | 315 | -7 | -0.5 | 1 | 2 | 0 |
| Trade Balance, \$billions | 9/12 | -68.0 | -65.1 | -2.9 | -1.2 | 0 | 0 | 0 |
| Initial Jobless Claims, 1000s | 9/7 | 310 | 314 | -4 | -0.3 | 0 | 0 | 0 |
| Change in Nonfarm Payrolls, 1000s | 9/1 | 128 | 103 | 25 | 0.3 | 0 | 3 | 0 |
| ISM Manufacturing, index level | 9/1 | 54.5 | 53.9 | 0.6 | 0.4 | 0 | -1 | 0 |
| Initial Jobless Claims, 1000s | 8/31 | 316 | 316 | 0 | 0.0 | 0 | 1 | 1 |
| Initial Jobless Claims, 1000s | 8/17 | 312 | 316 | -4 | -0.3 | 0 | 1 | 0 |
| Core CPI, % | 8/16 | 0.19 | 0.25 | -0.06 | -0.7 | -1 | -4 | 0 |
| Retail Sales Less Autos, % | 8/11 | 0.98 | 0.49 | 0.49 | 1.5 | 1 | 1 | 2 |
| Trade Balance, \$billions | 8/10 | -64.8 | -64.2 | -0.6 | -0.2 | 0 | 1 | 0 |

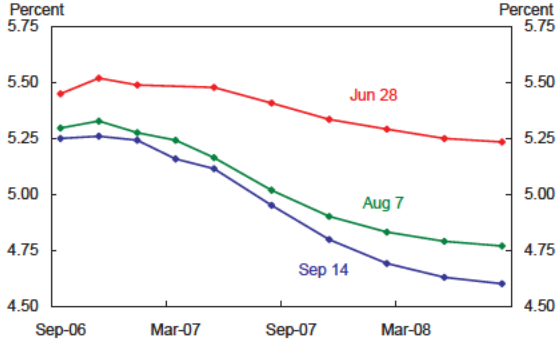
Source: Bloomberg and FRBNY calculations

Note: Market expectations are from the forward price from the most recent economic derivatives auction, which concludes 30-60 minutes before the release. Surprise in standard deviations is calculated using the at-the-money implied volatility from the auction. Yield changes are for the interval from 5 minutes before to 30 minutes after the release.

B. Financial Markets

Exhibit B-4: Policy Expectations

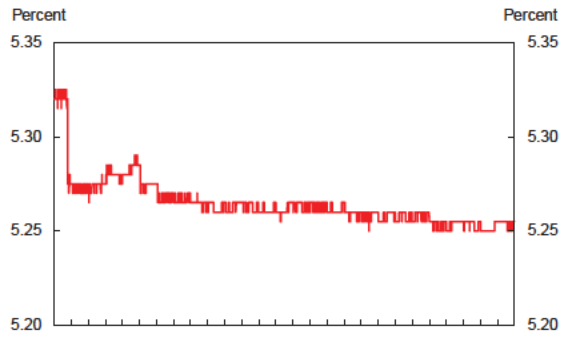
Expected Fed Funds



Source: Federal Reserve Board

Note: Estimated using Fed Funds and Eurodollar futures

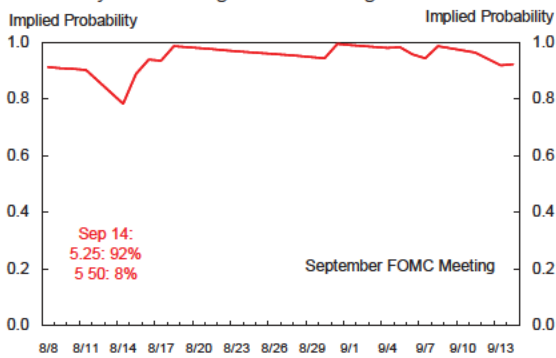
Implied September Fed Funds (Intraday)



Source: Bloomberg

Note: Calculated using Fed Funds futures

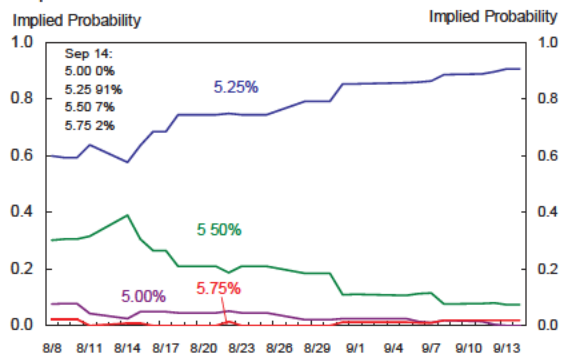
Probability of 5.25 Target vs. 5.50 Target



Source: FRBNY calculations

Note: Estimated using Fed Funds futures

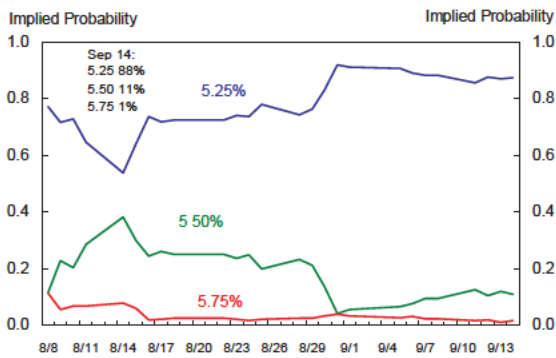
September 2006 FOMC



Source: Cleveland FRB

Note: Estimated using options on Fed Funds futures

October 2006 FOMC



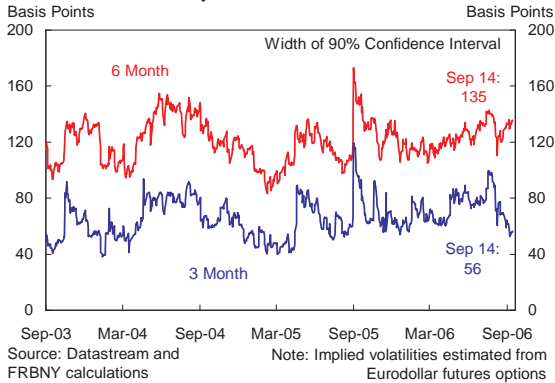
Source: Cleveland FRB

Note: Estimated using options on Fed Funds futures

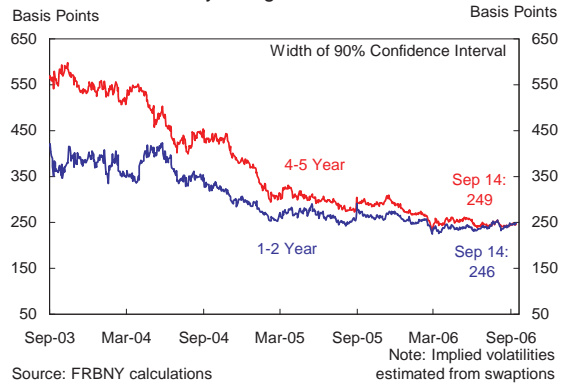
B. Financial Markets

Exhibit B-5: Policy Uncertainty I

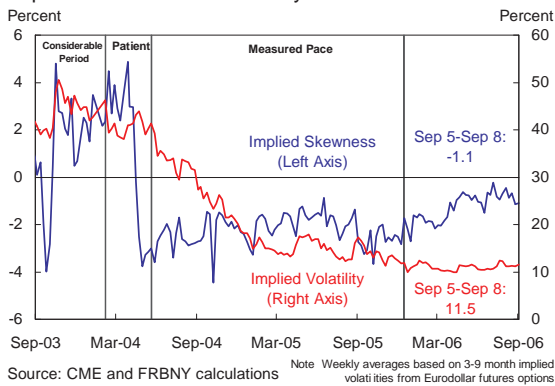
Interest Rate Volatility: Short-Term



Interest-Rate Volatility: Long-Term



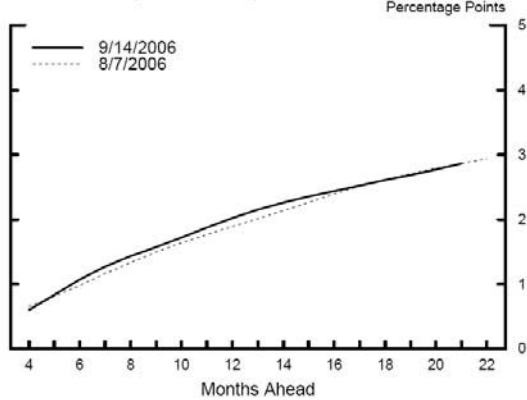
Implied Skewness and Volatility



Financial Markets

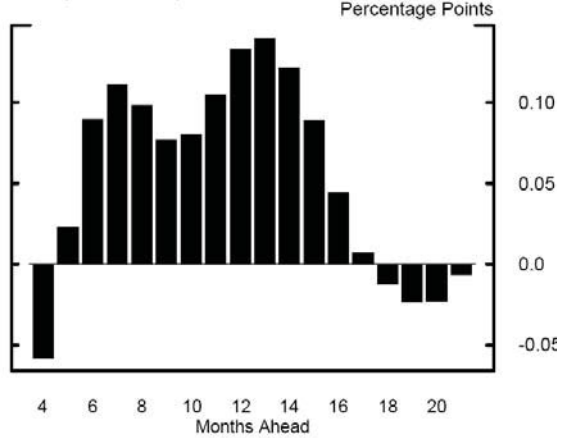
Exhibit B-6: Policy Uncertainty II

Eurodollar Implied Volatility Term Structure*

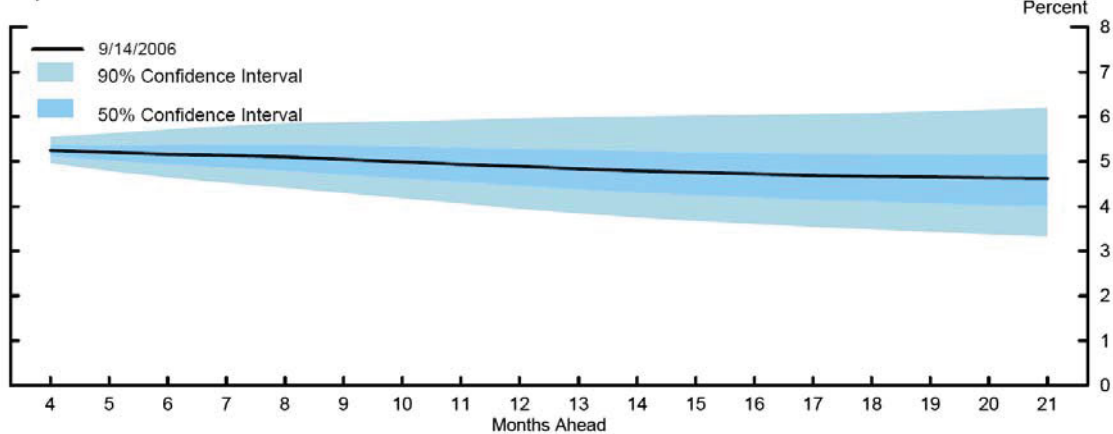


*Width of a 90 percent confidence interval computed from the term structures for the expected federal funds rate and implied volatility.

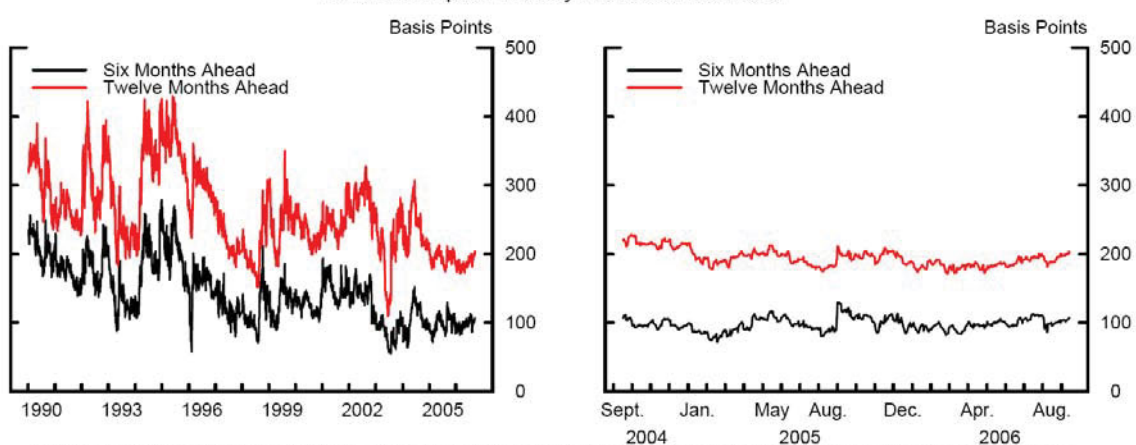
Change Since Day Before FOMC Meeting



Expected Federal Funds Rate Path and Confidence Intervals



Eurodollar Implied Volatility at Selected Maturities*

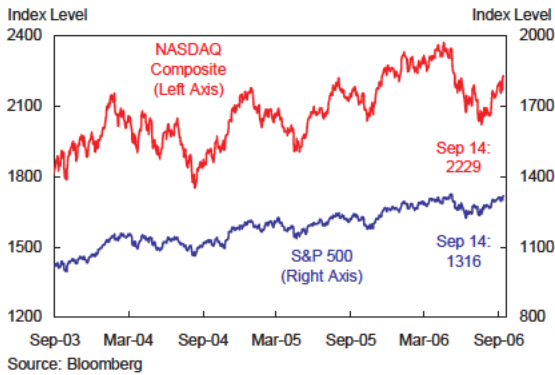


*Width of a 90 percent confidence interval computed from the term structures for the expected federal funds rate and implied volatility.

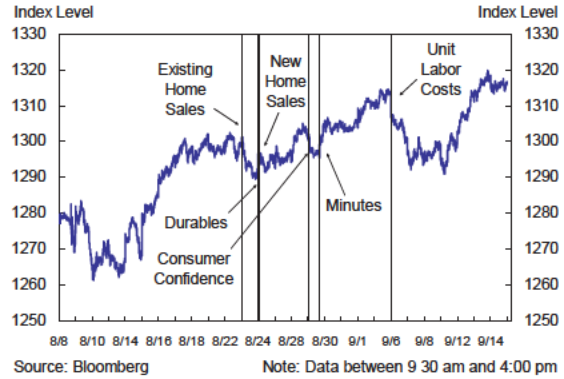
B. Financial Markets

Exhibit B-7: Equity Markets

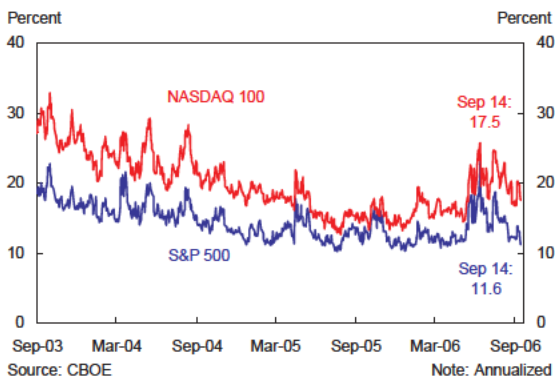
Performance



S&P 500 (Intraday)



Implied Volatility: 1 Month



Implied Volatility: 12 Months

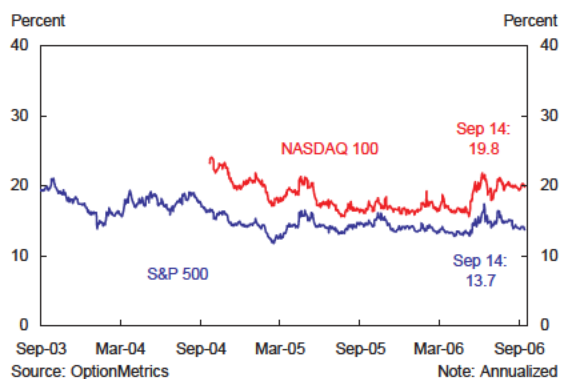
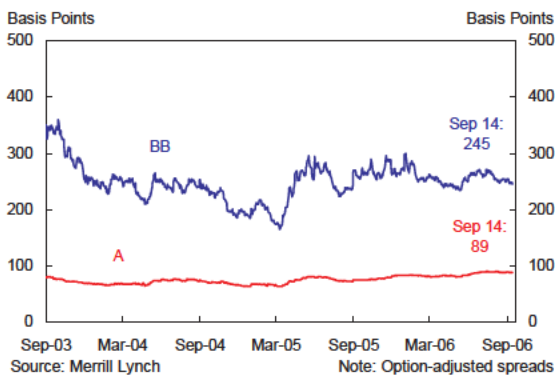
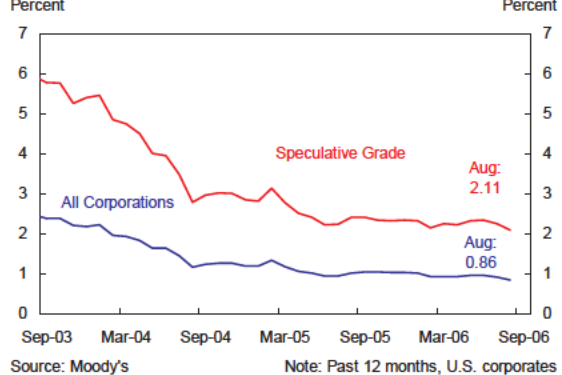


Exhibit B-8: Corporate Credit Risk

Corporate Credit Spreads



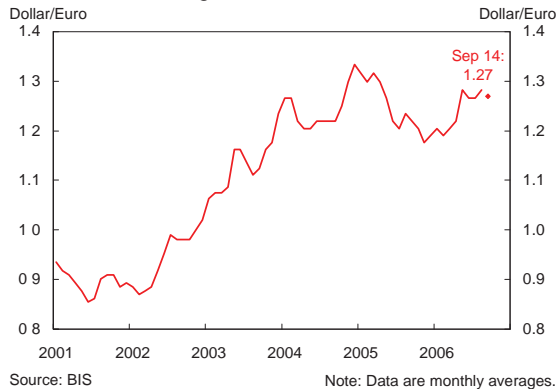
Corporate Bond Default Rates



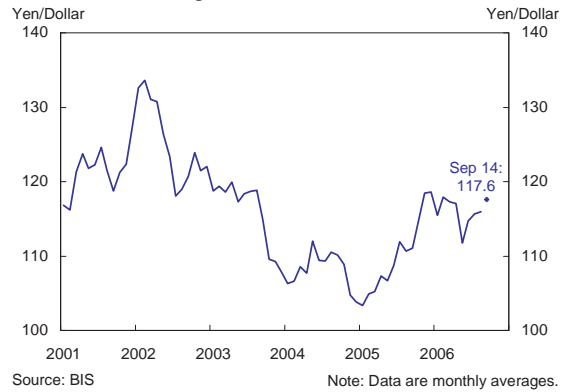
B. Financial Markets

Exhibit B-9: Exchange Rates, Foreign Equity, and Bond Spreads

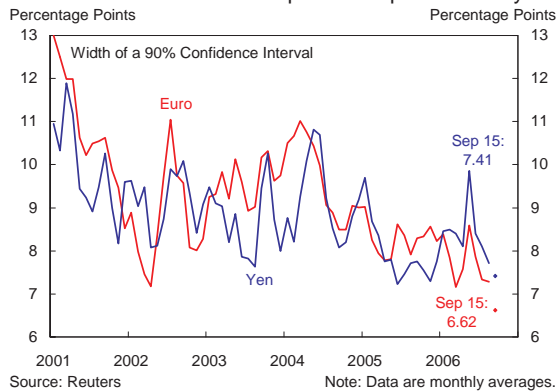
Euro-Dollar Exchange Rates



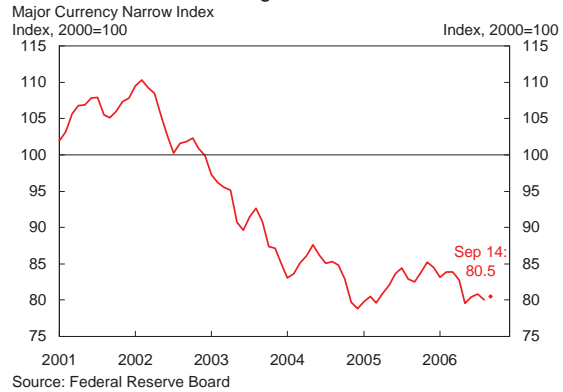
Yen-Dollar Exchange Rates



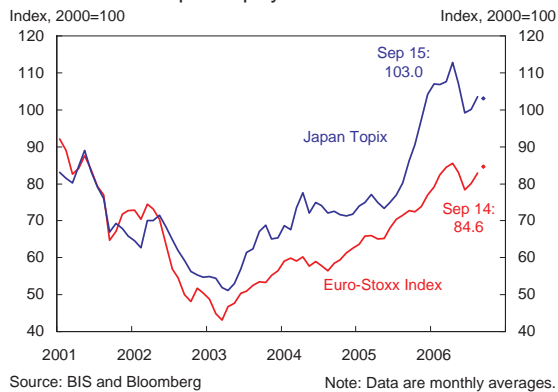
Euro and Yen One-Month Implied FX Option Volatility



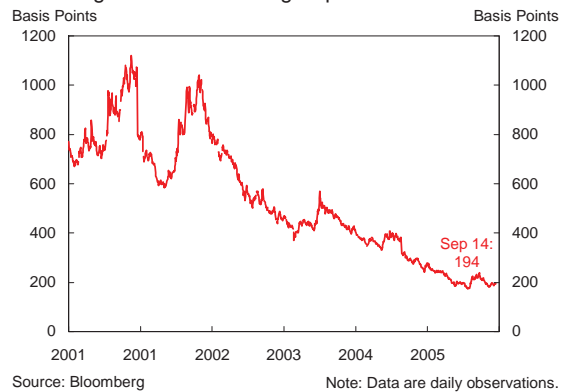
Nominal Effective Exchange Rate



Euro Area and Japan Equity Indices



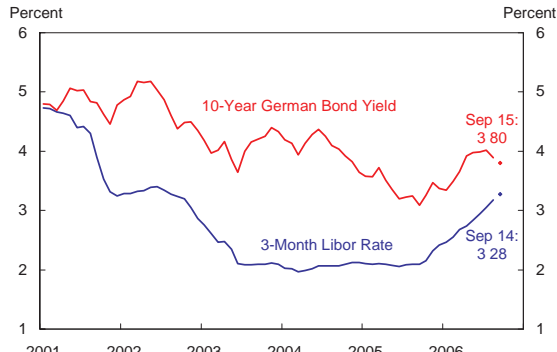
J.P. Morgan EMBI+ Sovereign Spread



B. Financial Markets

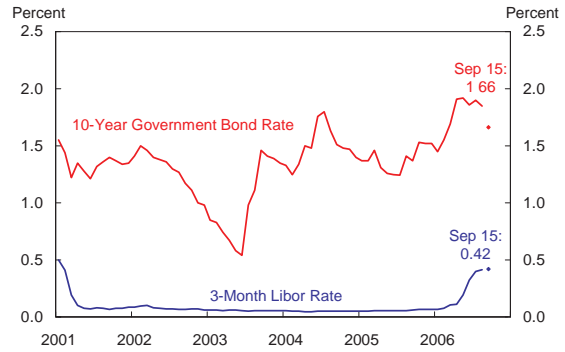
Exhibit B-10: Foreign Interest Rates

Euro Area Short-Term and Long-Term Interest Rates



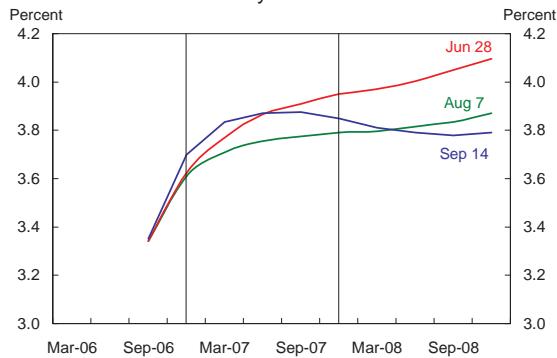
Source: BIS and Federal Reserve Board Note: Data are monthly averages.

Japan Short-Term and Long-Term Interest Rates



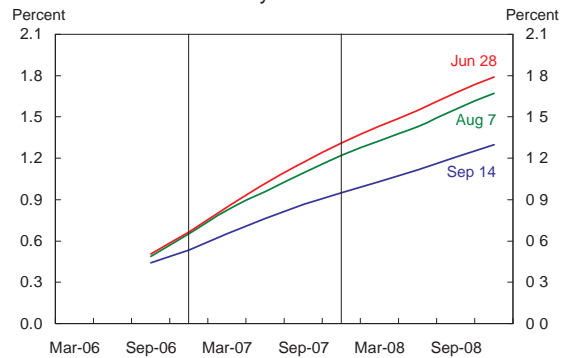
Source: Bloomberg and Federal Reserve Board Note: Data are monthly averages.

Three-Month Eurocurrency Futures Rates: Euro



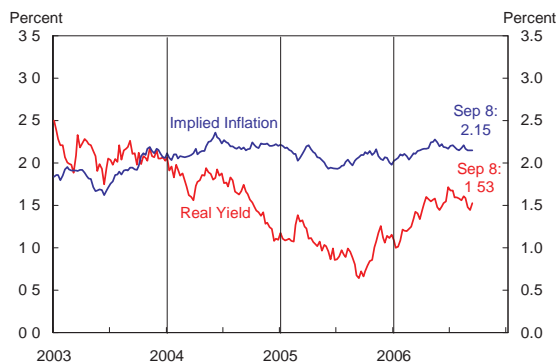
Source: Datastream

Three-Month Eurocurrency Futures Rates: Yen



Source: Datastream

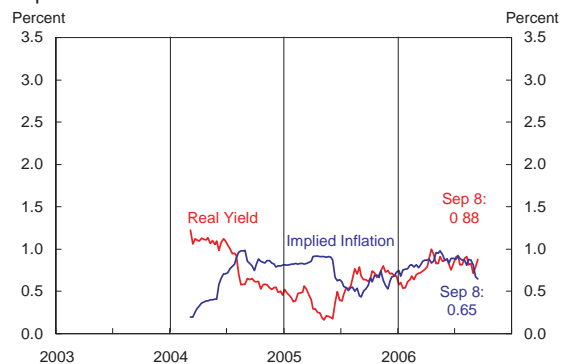
Euro Area Inflation-Linked Bonds



Source: Barclays

Note: OAT July 2012

Japanese Inflation-Linked Bonds



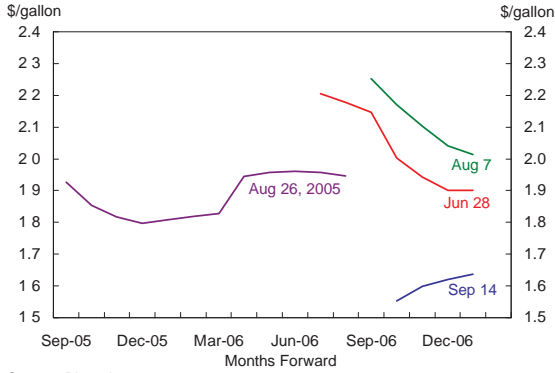
Source: Barclays

Note: JGB March 2014

B. Financial Markets

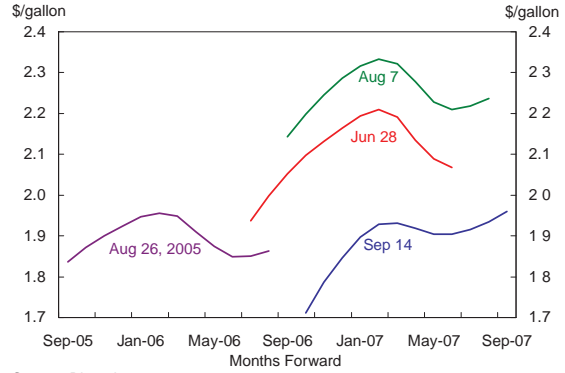
Exhibit B-11: Energy Futures

Gasoline Futures



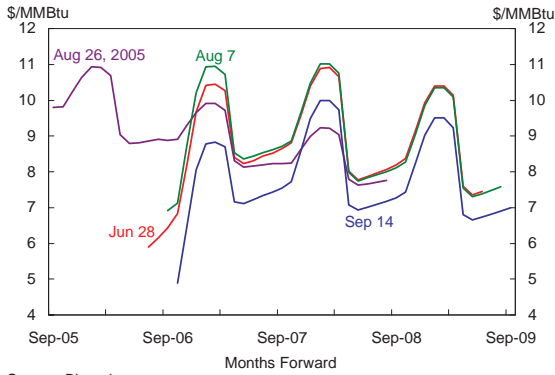
Source: Bloomberg

Heating Oil Futures



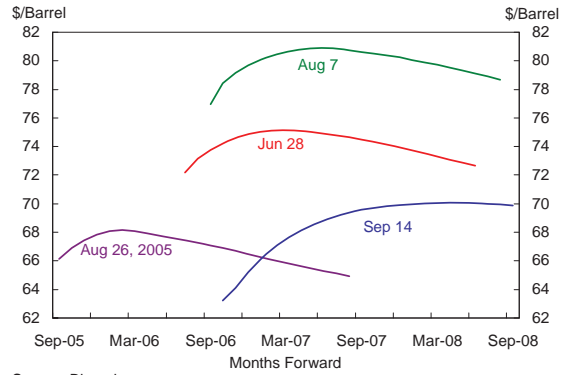
Source: Bloomberg

Natural Gas Futures



Source: Bloomberg

Crude Oil Futures



Source: Bloomberg

C. FRBNY Forecast Distributions

Background

The FRBNY forecast distributions are a generalization of techniques used at the Bank of England and other central banks to show future uncertainties and the balance of risks. The generalization allows for a dynamic balance of risks that is jointly assessed over inflation and output. There are two classes of shocks to current central projections that are of interest to central banks: supply shocks, which move inflation and output in opposite directions, and demand shocks, which move inflation and output in the same direction. We use a dynamic assessment of the risks that allows the probability of a deviation to build over time. We center long-run behavior at the implicit inflation target and potential growth rate and assume that, after a deviation into an alternative scenario, the economy eventually returns to this average long-run behavior. Although this is not a substitute for a dynamic model with an explicit transmission mechanism for monetary policy, it can have good properties in mimicking the behavior of an economy where the central bank has sufficient credibility to achieve its long-run inflation target while pursuing short-run stabilization policy.

Exhibit C-1: Risks

This exhibit shows the “balance of risks” for the individual alternative scenarios listed in Section 3 (“FRBNY Alternative Scenarios and Risks”) and the central scenario contained in the Bank’s forecast. Two measures of the balance of risks are shown. One is the probability of being in a particular scenario at a specific date. These scenarios are mutually exclusive, so the probabilities add up to one at any specific date. However, please note that two nonspecific scenarios representing general upside and downside risks to the FRBNY forecast are not pictured; thus, the values included the exhibit do not add up to exactly one.

For most scenarios, the second measure is the probability of being in a particular scenario at any time through 2009. For the central scenario, however, we show the probability of not deviating from this scenario at any time through 2009. Hence, one minus this latter

probability is the likelihood of deviating from the central scenario at some point over the forecast horizon, which is equal to the sum of the probabilities of the other scenarios, including the general upside and downside scenarios not pictured.

Exhibit C-2 & C-3: Alternative Scenarios

These exhibits take the balance of risks for each scenario and show their implications for GDP growth and core PCE inflation. They plot the expected path of four-quarter changes in the core PCE deflator [Exhibit C-2] and real GDP [Exhibit C-3] under the central scenario and the alternative scenarios. A path is defined as falling under an alternative scenario if it has at least one quarter in that scenario.

The over-tightening scenario assumes that output growth is substantially slower than the central forecast and inflation is sometimes lower. The overheating scenario assumes that for two quarters the economy grows more quickly than in the central forecast, with both inflation and output higher than in the central forecast. Then, the real economy slows dramatically, but inflation continues to be above the central forecast. For this cycle we have increased the probability that overheating was occurring before 2006Q2.

The productivity boom scenario assumes that inflation is below the forecast, while output growth is above. The productivity slump takes the reverse; inflation is above the forecast, while output growth is below.

Exhibit C-4 & C-5: Fan Charts

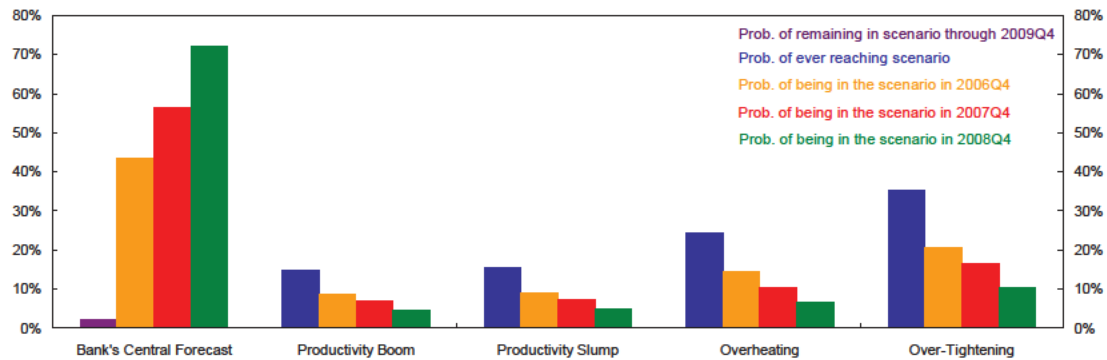
Fan charts are shown for the core PCE deflator [Exhibit C-4] and real GDP growth [Exhibit C-5]. These charts are constructed to represent the overall uncertainty contained in our main scenario and alternative scenarios. They combine the information contained in the previous exhibits with the additional uncertainty that we cannot predict perfectly the path of the economy, even if we knew which scenario were true. The amount of total uncertainty in the forecast distributions is calibrated to imply fundamental interest rate volatility lower than that given by the implied Eurodollar forward volatility curve averaged across possible policy rules from a market perspective (see the text for Exhibit D-4). In addition the expected value for each of the two forecast distributions is included

in the fan chart. These expected values are computed as averages over the realizations across all possible scenarios considered in Exhibit C-1. The difference between this profile and the central bank scenario is another measure of the balance of risks. If they are equal, the risks are balanced; if the expected value is above the central bank scenario, there is upside risk; if it is below, there is downside risk.

Source: MMS Function, FRBNY

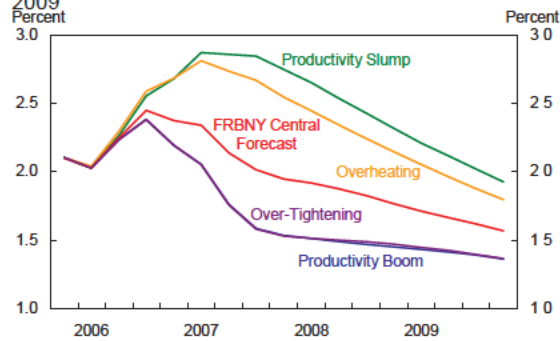
C. FRBNY Forecast Distributions

C-1: Risks



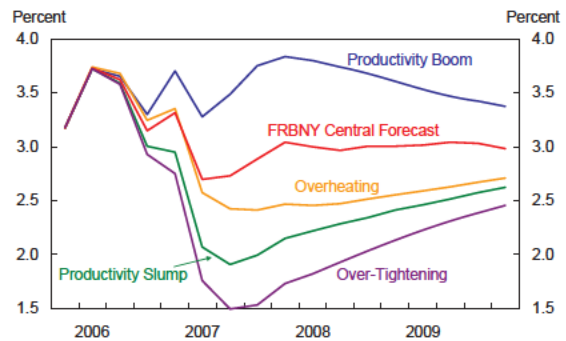
Source: MMS Function (FRBNY)

C-2: Alternative Scenarios of Core PCE Inflation through 2009



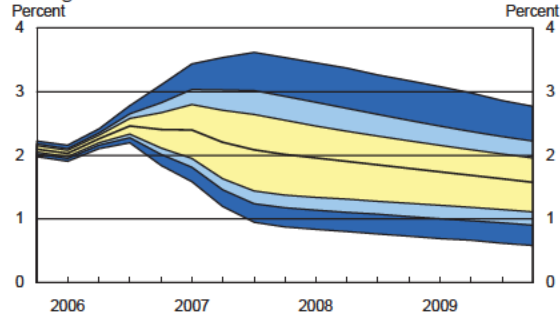
Source: MMS Function (FRBNY)

C-3: Alternative Scenarios of GDP Change through 2009



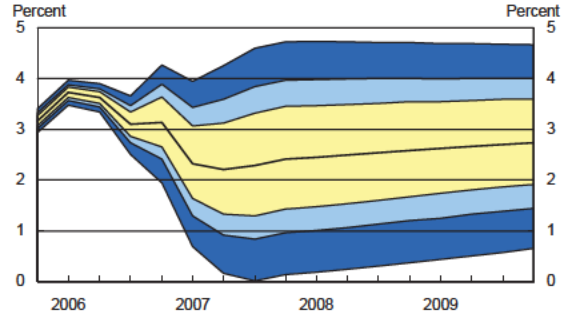
Source: MMS Function (FRBNY)

C-4: Four-Quarter Core PCE Inflation Forecast through 2009



Note: The probability interval shows the 50, 75, and 90 percent chance that the four quarter change in Core PCE will be within the respective range. The thick black line represents the expected value of the forecast.
Source: MMS Function (FRBNY)

C-5: Four-Quarter GDP Growth Forecast through 2009



Note: The probability interval shows the 50, 75, and 90 percent chance that the four quarter change in Core PCE will be within the respective range. The thick black line represents the expected value of the forecast.
Source: MMS Function (FRBNY)

D. FRBNY Fed Funds Rate Projections

The exhibits in this section are constructed using the baseline specification of the policy rule detailed below, two modifications of the baseline policy rule, the Bank forecast distribution, and information from Fed Funds futures and Eurodollar futures. The policy rules convert the uncertainty over future inflation and output into uncertainty about future values of the Fed Funds rate. This allows us to use information from financial markets to calibrate the type and level of uncertainty.

In all specifications the policy rate responds to deviation of inflation from target and output from potential GDP and incorporates some degree of inertia. We draw the future paths of these deviations from the forecast distribution of inflation and output. (We specify an implicit inflation target of 1.5% and assume potential output growth is 3%.)

Policy Rule – Baseline Specification:

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

$$\rho = 0.8$$

$$i_{2006Q2} = 4.9$$

$$i^* = 4.125$$

$$\pi^* = 1.5$$

$$\varphi_\pi = 1.5$$

$$\varphi_x = 0.5$$

$$\pi_t : \text{Core PCE 4 Q average}$$

$$x_t : \text{Output Gap using 3\% potential growth rate}$$

Source: MMS function, FRBNY

For the next quarter we amend the prescription of the baseline policy rule to capture some of the discreteness in the movement of the FFR. We translate the prescription of the baseline rule using the following table:

| Baseline Policy Rule Prescription | Average FFR in 2006Q4 |
|-----------------------------------|-----------------------|
| $r^* < 3.00$ | r^* |
| $3.00 < r^* < 3.75$ | 4.0 |
| $3.75 < r^* < 4.00$ | 4.5 |
| $4.00 < r^* < 4.25$ | 4.75 |
| $4.25 < r^* < 4.5$ | 4.75 |
| $4.5 < r^* < 4.75$ | 4.75 |
| $4.75 < r^* < 5.00$ | 5.0 |
| $5.0 < r^* < 5.25$ | 5.25 |
| $5.25 < r^* < 5.5$ | 5.25 |
| $5.5 < r^* < 5.75$ | 5.5 |
| $5.75 < r^* < 6$ | 5.5 |
| $r^* > 6$ | r^* |

The two modifications of this amended baseline rule that we use this cycle are labeled *Opportunistic Disinflation* and *Dove*. The *Opportunistic Disinflation* rule reacts more strongly to inflation data above the upper bound of the implicit target range (taken to be 2%) than the baseline policy rule. It lowers the policy rate more slowly than the baseline prescription if inflation is slowing but still above the target range. For the *Opportunistic Disinflation* rule, we follow the prescription of the baseline policy rule if the four-quarter average of core PCE inflation in the last quarter is below 2%. If the four-quarter average through the last quarter is above 2%, then we compare this value to the four-quarter average through the current quarter. If the value for this quarter is higher than the value for the last quarter, then the prescription of the baseline rule is followed. However, if the four-quarter average declines when compared to its value in the previous quarter, then last quarter's value is substituted for the current quarter value in the baseline policy rule. This rule is followed for the horizon of the forecast.

The *Dove* policy rule amends the baseline rule by reacting much more strongly to deviations of output below potential. If the output gap is negative then the response to deviations of inflation from target and output below potential are equal and set to 1. Thus,

the rule does not satisfy the Taylor Principle when output falls below potential. This rule is followed for the horizon of the forecast.

Exhibit D-1: Nominal Fed Funds Rate Under Different Policy Rules

Exhibit D-1 shows the expected path of the FFR under the three rules described, together with the most recent implied market path from Exhibit B-4. The paths under each rule are constructed by first evaluating the policy rule at each of the draws from the forecast distribution of output and inflation and then averaging them to produce an expected path under that particular rule.

Exhibit D-2 & D-3: Nominal and Real Fed Funds Rate Under Baseline in Alternative Scenarios

In these exhibits, we focus on the baseline policy rule and evaluate it under the Bank's central projection, as well as under the alternative scenarios of a productivity slowdown, a productivity boom, overheating and over-tightening. Each path is obtained by evaluating the baseline policy rule at each of the draws from a forecast distribution of output and inflation under that particular scenario and averaging them to produce an expected path. The baseline rule is also evaluated using the Bank's central forecast. Exhibit D-2 presents the implications for the nominal FFR. Exhibit D-3 presents the implications for the average ex-post real rate. This real rate is calculated by subtracting the four-quarter lagged change of core PCE inflation from the path of the nominal rate.

Exhibit D-4: Baseline Policy Rule with Different Inflation Targets

This exhibit shows the effect of different inflation targets and gives a measure of how the recent actual path of the FFR has differed from the prescription of our policy rule. This is implemented by running the baseline policy rule with two different inflation targets. First, we use the 1.5% target typically used by the baseline policy rule; then, we calculate the expected nominal rate using a 2.0% target, while also increasing the neutral rate by 50bp. Neither simulation uses the information about the 13 most recent increases in the FFR. Thus, these two policy rule paths are conditioned on the average FFR in 2004Q4 of 1.9%. The market implied path and the average, however, use the actual value of the FFR to date. The implied market path then uses the current FF futures values, while the

average takes the mean over the three rules evaluated during this cycle, using weights of 0.4 (*Baseline*), 0.5 (*Dove*) and 0.1 (*Opportunistic Disinflation*).

Exhibit D-5: Comparison between Market Expectations and FRBNY Expectations of the Federal Funds Rate

In this exhibit, we report two metrics for measuring the distance between the market-implied path and the FRBNY implied path in 2007Q3.

1. We take the expected value of each of our policy rules and calculate its corresponding percentile in the market's implied distribution.
2. We take the expected value of the market implied path and calculate its percentile in the distribution for each of our policy rules.

There are many other sources for differences between the two paths. One important consideration is the adjustment for risk in constructing the market path. We use an adjustment from the Board that is constant over time; there is some evidence, however, that the adjustment varies over time. Furthermore, the market faces uncertainty over the policies and targets used by the FOMC. We can attempt to capture this uncertainty, but again, it may vary over time.

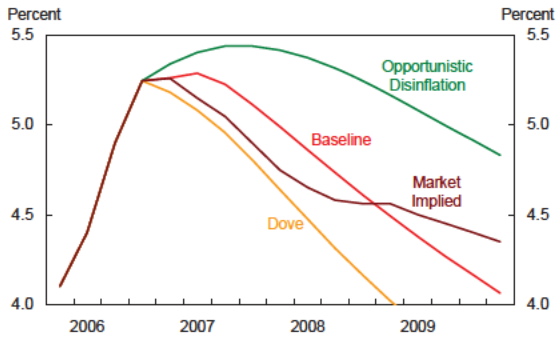
Exhibit D-6: Federal Funds Rate Distributions

In this exhibit we examine the distribution of the FFR under the three different policy rules through the third quarter of 2007. We also include the market distribution by assuming it has a normal distribution centered at the market path from Exhibit B-5 with a standard deviation derived from the data in Exhibit B-6. The distribution is represented by a boxplot to allow for a more direct comparison of the implications of different policy rules. The box represents the 50% probability interval (25th to 75th percentile), the line in the box the median, and the tails the 90% probability interval (5th to 95th percentile).

Source: MMS Function, FRBNY

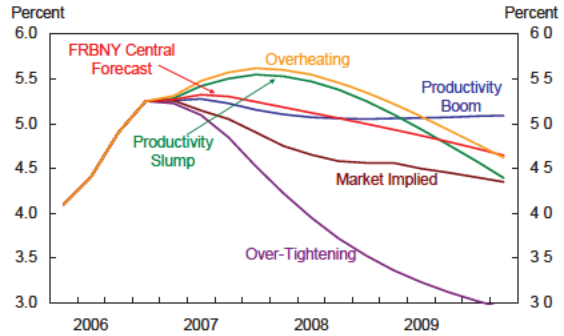
D. FRBNY Fed Funds Rate Projections

D-1: Nominal FFR under Different Policy Rules



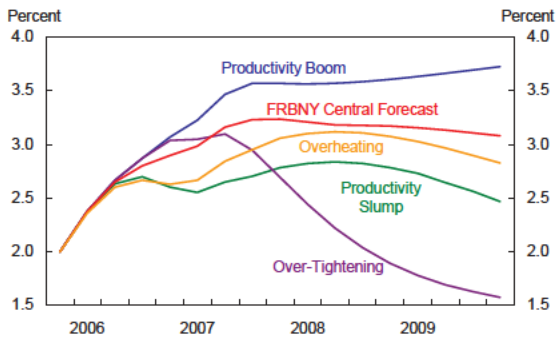
Source: MMS Function (FRBNY)

D-2: Nominal FFR under "Baseline" in Alternative Scenarios



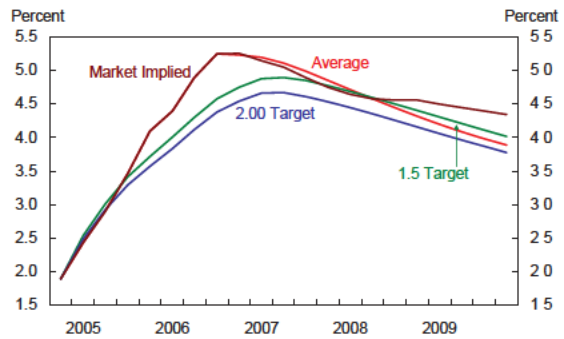
Source: MMS Function (FRBNY)

D-3: Real FFR under "Baseline" in Alternative Scenarios



Source: MMS Function (FRBNY)

D-4: Baseline Policy Rule with Different Inflation Targets



Source: MMS Function (FRBNY)

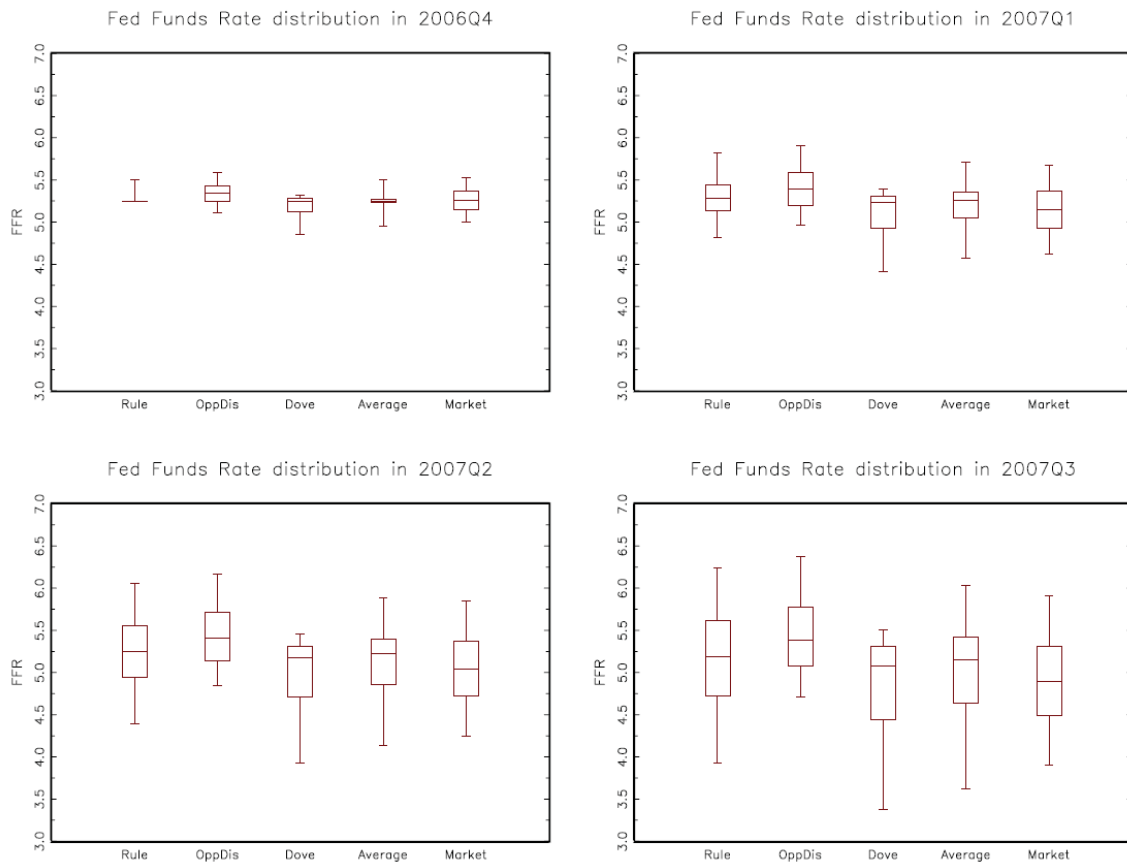
D. FRBNY Fed Funds Rate Projections

Exhibit D-5:
Comparison between Market Expectations and FRBNY
Expectations of the Federal Funds Rate

| | Percentile of FRBNY Expectation in Market Distribution | Percentile of Market Expectation in FRBNY Distribution |
|---------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| <i>Baseline</i> | 64 | 34 |
| <i>Dove</i> | 43 | 42 |
| <i>Opportunistic Disinflation</i> | 81 | 13 |
| <i>Average</i> | 55 | 36 |

Note: "Average" weights baseline at .50, dove at .40, and opportunistic disinflation at .10.

Exhibit D-6: Fed Funds Rate Distributions



E. Regional Charts

Exhibit E-1. FRBNY's Index of Coincident Economic Indicators

The chart in this exhibit shows our monthly coincident indices for New York, New Jersey, and New York City since 1999. The indices are a composite of four economic indicators: payroll employment, unemployment rate, average weekly hours in manufacturing, and real wage & salary earnings.

More details on the methodology and construction of these indexes can be found at http://www.ny.frb.org/research/regional_economy/coincident_summary.html

Source: MaRS Function, FRBNY

Exhibit E-2. FRBNY's Index of Leading Economic Indicators

This chart shows the growth in our monthly leading indices for New York, New Jersey, and New York City since 1999. The growth in the index for a given month represents a forecast of the growth in the coincident index nine months ahead. The components used in these three indices differ slightly from index to index but include: housing permits, stock prices, the national leading index, and the lagged coincident index.

[NOTE: This index is not released publicly.]

More details on the methodology and construction of these indexes can be found at: http://www.ny.frb.org/research/regional_economy/coincident_summary.html

Source: MaRS Function, FRBNY

Exhibit E-3. Private-Sector Job Growth: U.S. and the Region

This chart shows the 12-month growth rate of private-sector employment for New York-New Jersey (combined), New York City, and the U.S. (bars) from 1996 to present.

Source: Bureau of Labor Statistics

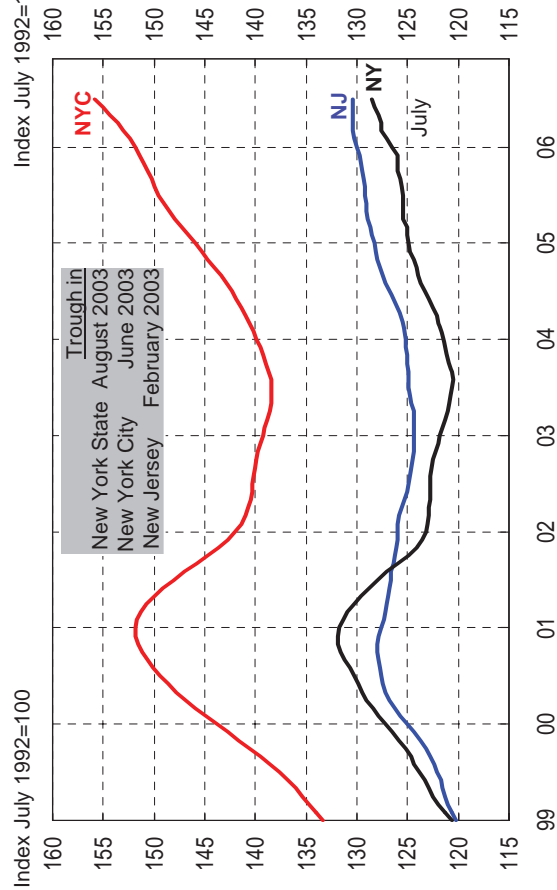
Exhibit E-4. Employment-Population Ratios: U.S. and the Region

This chart shows the monthly employment-population ratio for New York, New Jersey, New York City, and the U.S. from 1996 to present.

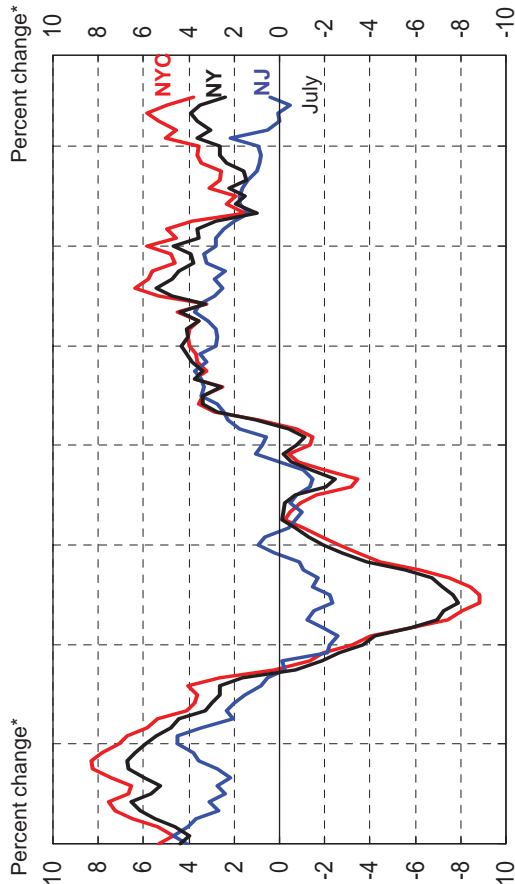
Source: Bureau of Labor Statistics, New York State Department of Labor, and the New Jersey Department of Labor

E. Regional Charts

E1: INDEX OF COINCIDENT ECONOMIC INDICATORS

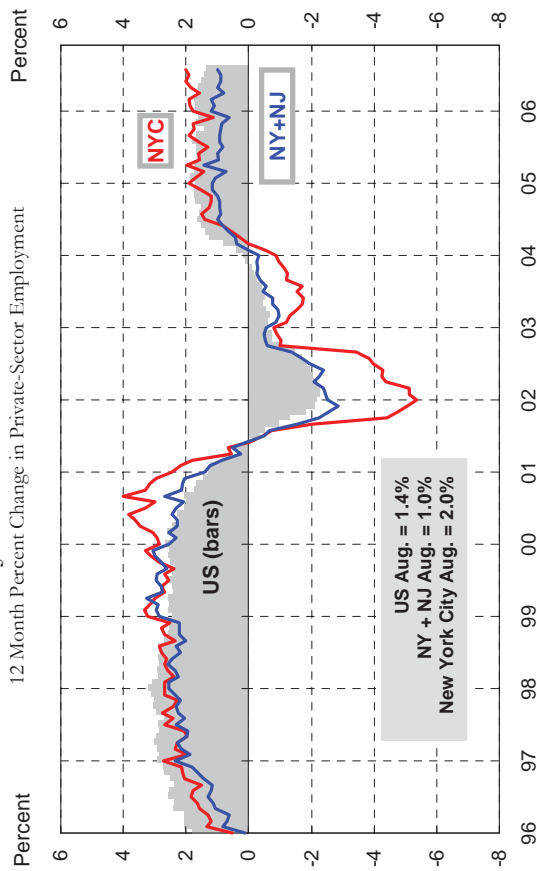


E2: INDEX OF LEADING ECONOMIC INDICATORS



*Percent change represents the forecasted growth in the Coincident Index, over the next 9 months, at an annual rate.

E3: PRIVATE-SECTOR JOB GROWTH: U.S. AND THE REGION



E4: EMPLOYMENT POPULATION RATIOS: U.S. AND THE REGION

