FRBNY Blackbook

RESEARCH AND STATISTICS GROUP

FOMC Background Material

January 2007

CONFIDENTIAL(FR) Class II FOMC

FRBNY BLACKBOOK

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CONTENTS

EXHIBITS

1. Overview

Our point forecasts for inflation and output in 2007 and 2008 are essentially unchanged since the December Blackbook. However, developments over the inter-meeting period have raised our confidence in the central scenario on which these forecasts, as well as our recommended policy path, are based. Thus, we continue to recommend that the FFR target be held at its current level of 5.25% through 2007Q3, at which time it should begin to move in the direction of neutral. Furthermore, our increased confidence in the central scenario implies that we now see less probability that a need to deviate from this policy path will arise in the short run and that we now attach equal likelihood to both positive and negative deviations.

The Greenbook continues to see slightly weaker real growth and higher inflation going forward than we do, as well as a lower rate of potential output growth. The Desk's most recent primary dealer survey indicates that private sector inflation and output forecasts tend to locate somewhere between our forecast and the Greenbook's, though arguably what is most interesting about this comparison is the absence of large differences among these forecasts.

The policy paths underlying our forecast and that in the Greenbook remain similar to those of private sector forecasters and the implied path from markets: all imply a long period with an FFR of 5.25%. The Greenbook has a slightly higher policy rate in 2008 than we do, but the differences between the two policy paths are small compared to the differences between our assumptions on inflation persistence and potential growth.

Our central scenario embeds the following assumptions: (1) structural inflation persistence going forward will be consistent with what we have observed over the last 10 years (as opposed to over the last 40 years); (2) inflation expectations will remain around their current level; and (3) their current level is not significantly different from the implicit target of 1.5% for core PCE inflation. As we have indicated in the past, the

Greenbook forecast is predicated on a considerably more persistent process for inflation, as well as on inflation expectations being anchored at a level above 1.5% core PCE inflation. The Board staff assumptions imply that faster progress toward the implicit target relative to the current Greenbook forecast would require the emergence of a significant output gap.

We use two statistical models—the Underlying Inflation Gauge (UIG) and smoothed inflation model—to gauge the validity of the assumptions embedded in our central scenario. Because these models are estimated using data since 1993, they capture the inflation behavior over a period where it was less persistent than it was in the 1970s and 1980s. This period also saw inflation expectations anchored in the region of 1.75%. In terms of their ability to predict both the run-up in inflation above levels consistent with price stability, as well as the more recent moderation, the performance of these models has been reasonably impressive. Their output also generally accords with measures of implied inflation from financial markets. Since both models are now predicting that core PCE inflation will fall below 2% by the end of 2007, we have embedded this projection in our central scenario.

Neither of our alternative models pays special attention to behavior of service price inflation. However, we have both theoretical and practical reasons to expect that service price inflation might be substantially more persistent than goods price inflation; in our special topic *Service Price Inflation*, we devote some time to understanding the behavior of this component. This issue is of particular interest when we consider that much of the favorable inflation performance in the 1990s came from declining core goods prices and thus occurred despite little change in service price inflation. Similarly, while service price inflation has moderated lately, the low recent readings on inflation have mainly been attributable to declines in core goods prices, possibly the result of an inventory cycle. At the same time, however, with the recent decline in oil and other commodity prices there is less reason to worry about pass-through into services prices from rising energy and commodity prices; thus, the inflation outlook may withstand even a substantial rebound in goods price inflation.

The main uncertainty about the economy's potential growth rate stems from our uncertainty about future trend labor productivity. Both the Greenbook and our central forecast are based on the assumption that the weakness in labor productivity in 2006 is not an indication of a return to a lower productivity growth trend. We make similar assumptions about future trend productivity growth. However, our two forecasts disagree about the potential growth rate over the next few years, largely owing to different views on the growth in hours.

The Greenbook assumption that trend labor force growth is declining hinges on two assumptions: (1) female labor force participation will not rebound from its current levels and (2) the retirement patterns of the baby boom generation will match those of previous generations. Our central forecast does not adopt these assumptions and instead holds the participation rate near its current level over the forecast horizon.

The current strength of the labor market is increasingly harder to reconcile with Greenbook assumption about trend labor force participation. We believe that this issue is germane to the near-term evolution of monetary policy. If we take the assumption of a downward trend seriously, we need also to consider the possibility that labor markets are overheating and that policy may need to tighten further to achieve inflation goals. However, if the trend is closer to flat, the labor market may be operating near trend now or with some slack. In this case, the current stance of policy seems appropriate. Support for the latter view comes from the absence of obvious inflationary pressure from the labor market, suggesting that the observed inflation may have been related to more idiosyncratic and transitory factors.

Turning to recent developments outside the labor market, the slowing of the economy has been concentrated in housing and motor vehicle production. Despite the relative stability of fixed-rate mortgages over the period of policy firming, the housing sector in the last year has slowed, returning to levels of activity observed in the late 1990s. Our central forecast scenario assumes that the adjustment in housing activity has largely ended. While we expect a drag on GDP growth early in 2007 from the continuing decline in

housing completions, residential investment will be effectively neutral with respect to future real activity.

Our assumptions about the behavior of residential investment are based on factors such as the recent stabilization of MBA purchase index, home sales, and single-family starts. Most importantly, however, it is predicated on our central scenario view that the surge in residential investment from 2002 to 2005 did not represent a significant deviation from fundamentals. Furthermore, we did not attribute much of the strength in consumption over 2002 to 2005 to wealth effects, and we thus do not expect to see substantial spillovers from the adjustment that has taken place. We explore the risks associated with the behavior of this sector in our alternative scenarios.

Looking at the weakness in the motor vehicle sector, our view is that higher short-term interest rates, higher gasoline prices, and a fundamental change in sector strategy induced a fairly significant correction in motor vehicle production in 2006H2. As with housing, however, we see this correction as being in its final stages, particularly as the labor market remains robust and gasoline prices remain well below their summer peak.

With the exception of the marked decline in oil prices and the movement in energy futures curves, conditions in financial markets have not changed materially over the inter-meeting period. Although the yield curve remains inverted, it has flattened somewhat as policy expectations have firmed. Given the strength of recent data on real activity, the duration of this inversion, occurring as it has without other signals of impending weakness from other financial and non-financial indicators, remains a striking feature of financial markets. We are more confident that the yield curve inversion is an anomaly and have substantially lowered our weight on the *Over-Tightening* scenario.

Financial markets also seem to have high confidence in an economic outlook similar to our central scenario; implied volatilities on future policy rates are very low. In some ways, this agreement between our view and that of the markets is reassuring. However, neither the markets nor our outlook places significant probability on an FFR above 6% in

the next two years. This confidence that the FFR will not go much higher than 5.25% appears to be based on a view that the appropriate amount of monetary restraint is in place. This view is itself based on a surprising amount of confidence that the neutral rate is close to 4%. The special topic, "*How restrictive is the current monetary policy stance?"* addresses the issue of whether we are overconfident in our assessment of the neutral rate. If this confidence is misplaced and we are underestimating the neutral rate, there are significant implications for policy not captured by our current set of alternative scenarios and policy alternatives.

2. Recent Developments

U.S.

Summary. The economic releases during the inter-meeting period were largely consistent with our central outlook; therefore, they have led us to reduce the downside risks to real activity, maintain balanced inflation risks, and reduce the uncertainty about the outlook. Core inflation and alternative measures of underlying inflation continued to point to slowly moderating inflation. The monthly real activity indicators suggested fairly vigorous real GDP growth in Q4; in addition, there were some tentative signs that the corrections in housing and manufacturing may be nearing their respective ends. Labor market conditions remained generally solid. Manufacturing survey measures, which have converged, indicated tepid near-term growth in the sector and expectations for stronger activity going forward. Non-manufacturing survey measures continued to indicate solid growth. Measures of consumer confidence remained at levels consistent with solid consumption growth.

Inflation. Measures of underlying inflation slowed in November and December, consistent with our forecast of slowly moderating inflation as well as with the balanced risks around our outlook [Exhibits A-6 and A-7]. The 12-month change in the core PCE deflator was 2.2% in November, above the perceived comfort zone of the FOMC (as it has been since mid-2004), but down from the 2.4% peak in August. Changes at other

horizons also declined but remained at or above the top of the comfort zone [Exhibit A-7]. Core CPI inflation has displayed somewhat more moderation than core PCE inflation: its 12-month change in December was 2.6%, down from 2.9% in September. Changes at other horizons were within the 1.5-2.5% range of CPI inflation consistent with price stability. Most of the recent moderation in the core CPI has reflected a decline in core goods prices. In contrast, core services inflation has changed little and remains elevated: a renewed acceleration of services prices represents an upside risk to our inflation outlook (see the special topic *Service Price Inflation* for more discussion about the behavior of services inflation and its implications for the inflation outlook).

With energy prices rising some toward the end of 2006, overall inflation measures picked up modestly; however, the previous sharp declines led to a substantial moderation in Q4 overall [Exhibit A-6]. Consequently, the 12-month changes in the PCE deflator (1.9% in November) and the CPI (2.6% in December) are at or below the 12-month changes in the corresponding core measures.

Most alternative measures of underlying inflation continued to moderate, indicating that underlying inflation should continue to subside [Exhibits A-7 and A-8]. The FRBNY Smoothed Inflation measure and Underlying Inflation Gauge for both the PCE deflator and the CPI have declined significantly over recent months and are now at the top of their perceived comfort ranges. Trimmed mean PCE and CPI measures also have declined. The exception to this sanguine outlook is the median CPI measure, which continued to rise because of the stronger influence of tenant rent and owners' equivalent rent (both of which continue to rise strongly) in this measure; however, it generally has less predictive power for inflation than the other alternative measures. Financial market inflation expectations were relatively stable during the inter-meeting period. Household inflation expectations at short- and long-horizons were stable in December and early January, indicating that they remained contained.

Real activity. Monthly indicators of real activity suggest that real GDP growth in 2006Q4 may be 3½%, above our projection in the December Blackbook (1½%), the Q3 growth

rate (2%), and our estimate of the potential GDP growth rate (3%). These data have not affected our medium-term real activity outlook but do indicate less downside risk than at the time of the December Blackbook.

The monthly indicators suggest real personal consumption expenditures (PCE) rose at a robust pace in 2006Q4, possibly around 4½% (annual rate), and are a major factor behind the increase in our Q4 real GDP growth projection. Real PCE rose robustly in October and November. Auto sales rebounded some in December, but the Q4 average was about as expected. Retail sales were robust in December, indicating that non-auto goods consumption remained strong in the month. Consequently, we see little sign that the weakness in the housing market has spilled over to consumption. Aggregate income growth remained solid and appears sufficient to sustain consumption growth at a level consistent with our outlook.

The housing market displayed tentative signs that the severe correction of 2006 may be nearing an end. Housing starts and building permits appeared to stabilize in November and December, although at a level about 30% below the peak at the beginning of the year. These signs of stabilization must be considered tentative given the unseasonably warm weather during this period; it is possible that these activity indicators may fall again with the onset of more normal weather. Even with the signs of stabilization, residential construction is expected to be a drag on overall growth at least through the first half of 2007. Another sign that the housing market may be near its bottom is the stabilization of home sales over recent months. Mortgage purchase applications remained above their lows of the summer, suggesting stable to slightly firmer sales in coming months. Inventories-sales ratios have fallen from their summer peaks. Although they remain relatively high, the decline is consistent with the approach of a bottom. Home price appreciation remained positive and may be stabilizing. The four-quarter change in the Census constant-quality new home price index was about 3½% in Q4 (the one-quarter change also was positive), slightly above that of Q3. The weakness in median sales prices also appeared to moderate recently; however, the signs from median prices are more tentative because the mix of sales affects them.

Business activity and spending measures remained rather tepid, although signs of more severe weakness abated. Manufacturing production rebounded in December after declining in the previous two months, though it still fell in Q4 as a whole. Auto production rebounded in November and December (see the special topic *Recent Issues in Measuring Motor Vehicle Output* for more on the recent divergence in motor vehicle output as measured in the GDP accounts and in industrial production as well as the possibility that this divergence may lead to weaker measured motor vehicle output in the Q4 GDP accounts). Industry reports indicate that inventories in this sector appear to be more in line with sales, suggesting that much of the correction in this sector (which had been a weak sector during the slowdown in mid-year) may be over. Production in non-auto sectors also showed a bit more vigor in December, reducing concerns about spillovers from housing- and auto-related sectors. Aggregate inventories-sales ratios remained near their highest levels of the past year, suggesting that firms may continue to be cautious in accumulating inventories (as they had been in October and November), which could retard production growth. Equipment spending indicators remain tepid: the Q4 averages of shipments and orders for nondefense capital goods excluding aircraft were below their Q3 averages. Nonresidential construction spending continued to rise in October and November, albeit at a slower pace than during the summer. The IT sector remained strong: production growth remained vigorous and the 12-month change in the FRBNY Tech Pulse index remained near its recent strong (over 20%) levels.

Labor market. Labor market conditions remained generally solid. Aggregate hours growth was robust in Q4; its average was 2.2% (annual rate) above the Q3 average. Over Q4, the average change in nonfarm payrolls was 136,000 per month, near where it has been over the past two years. This growth occurred despite significant declines in construction and manufacturing employment. Temp employment has picked up moderately in recent months, suggesting that employment growth may remain fairly solid. The unemployment rate remained at a low 4.5% in December, even as the labor force participation rate increased to 66.4% (its highest level since June 2003). The employment-population ratio increased to 63.4%, its highest level since September 2001. Although initial claims for unemployment insurance have been more volatile in the last

few weeks, probably because of seasonal quirks associated with the holidays, their general trend still indicates fairly robust labor market conditions.

With tighter labor market conditions, average hourly earnings continued to show some acceleration in 2006: its 12-month change in December was 4.2%, the highest since December 2000. We received no new information on other measures of labor compensation (the Employment Cost Index and compensation per hour). Still, all measures indicate stronger compensation growth over the year as the labor market displayed greater tightness.

Surveys. The December Conference Board consumer confidence measure and the preliminary January Michigan consumer sentiment measure were near or above the top of their two-year ranges. They thus continue to be consistent with our outlook of solid consumption growth. Manufacturing survey indicators suggest tepid growth in the sector, with the various measures converging over the recent period. The ISM manufacturing index rose to a level modestly above 50 (typically considered the dividing line between manufacturing contraction and expansion) in December. Most regional manufacturing surveys provided similar signals, with a decline in our Empire State survey for January putting it in closer conformity with other surveys. The ISM non-manufacturing index fell slightly in December, but its level remained well within its prevailing range of the past two years and continued to indicate robust activity in the service sector.

Special Topic

Service Price Inflation

January 26, 2007
Jonathan McCarthy Redacted *and Richard Peach* Redacted

Core inflation can be decomposed into core (non-energy) services inflation and core (nonfood, non-energy) goods inflation; core services represent 71% of the core Consumer Price Index (CPI) while core goods represent 29% [Exhibit A-6(1)]. After three years of stability at fairly low rates, core services inflation rose sharply in the first half of 2006 and has remained elevated. This special topic discusses the behavior of services inflation and its implications for the inflation outlook.

With few exceptions, core services prices have increased faster than core goods prices over the past 40 years. Potential explanations for this difference are (1) the income elasticity of demand for services is higher than for goods; (2) productivity growth in the production of goods exceeds that of services; and (3) goods are more susceptible to import competition than are services.

The positive gap between core services and core goods inflation has been notably wider than historical norms in two instances in recent years. In 2002-03, the unusually large gap reflected declining core goods prices during those years. In contrast, the wider gap in 2006 reflected higher core services price inflation. This has raised concern about the overall inflation outlook as core services inflation historically has more persistent.

The persistence of service price inflation comes from two sources. First, because services are more easily differentiated and many are non-tradable, service producers generally face less competition than goods producers; therefore, theory suggests that service prices generally are "stickier" than goods prices. Second, the data collection and measurement procedures for many services prices induce persistence. For example, rents of sampled housing units in the CPI are collected once per six months. The six-month change is then converted into one-month changes, inducing persistence in rents.

It is thus important to determine the sources of the recent rise in and the continued elevated level of core services inflation. The primary factor for both was the rise and continued elevated level of tenant rent and owners' equivalent rent (OER) inflation during 2006. In contrast, although inflation of other core services rose during the first half of 2006, it remained within the narrow range (3-4%) that had prevailed since 2000. In the latter part of the year, inflation of other core services fell and is now at the lower end of this range.

We report the decomposition between core goods and core services because we see it as useful in understanding changes in overall core inflation. For example, the rise in core CPI inflation from 1% to 2½% between late 2003 and early 2005 was largely due to core goods prices; core services inflation was relatively stable. Although firmer U.S. demand was a factor in the increase in goods prices, other factors, such as the depreciation of the dollar starting in early 2002 and firmer global demand, also were important factors. Thus, we did not interpret that increase in core as signaling that the output gap had entirely closed.

The cause of the more recent increase in core inflation, from around 2% in late 2005 to around 2.8% in 2006Q3, was different because it was largely due to higher core services inflation. Because this coincided with the unemployment rate declining from 5% to 4½%, it can be interpreted as a signal that the economy may be operating at or above full employment.

In 2006Q4 the 12-month change in core CPI inflation fell slightly, but the 3-month change fell considerably more. Much of the latter decline was due to core goods prices, which fell 2.2% in 2006Q4. This sharp decline probably partly reflected an ongoing inventory correction and may not be sustained over our forecast horizon. Also contributing to the recent slowing was transportation services, which probably resulted from the pass-through of declining energy prices into airfares.

As far as the inflation outlook, one guiding assumption is that the trend rate of core goods inflation is around zero: the core good price levels of December 1996 and December 2006 were about equal. This implies that if core CPI inflation is to be stable around 2% (equivalent to the 1½% implicit target for core PCE inflation), core service inflation will have to be around 3%, which is about equal to the current 3-month change in core service prices but below the 12-month change.

Because it is unlikely that inflation of other core services will decline further (given it is near the bottom of prevailing ranges), a 3% pace of core services inflation is difficult to achieve without slower tenant rent and OER inflation. It is possible that this slowing could occur; there has been evidence of shifting of housing units from the owner to rental markets and rental vacancy rates have begun to increase again, both of which suggest future declines in rent inflation although it may take some time for this to be evident. However, there are upside risks: the unemployment rate remains low and growth of real disposable income has rebounded, which could support strong rent increases.

Special Topic

Recent Issues in Measuring Motor Vehicle Output

January 26, 2006
Charles Steindel Redacted

In the GDP accounts compiled by the Bureau of Economic Analysis (BEA), estimates of motor vehicle output may be constructed from data on sales, inventory accumulation, and foreign trade. The BEA estimated that real motor vehicle output rose 27.4% (annual rate) in 2006Q3, adding 0.7 percentage points to real GDP growth. In contrast, the Board's estimate of motor vehicle production in the Industrial Production (IP) data fell 16.9% (annual rate) in Q3 and 4.7% in Q4.

The Board staff regards their motor vehicle output measure as more accurate than BEA's. Therefore, they argue that reported GDP growth was artificially high in Q3. Also, because they anticipate that the Q3 divergence between the two motor vehicle output measures will be eliminated in Q4 and Q1, they expect motor vehicle output to subtract more than .5 percentage points from Q4 GDP growth and so reported Q4 GDP growth will be artificially low. Removing these purported distortions, the Board staff thus sees real growth as quite low in Q3 and (most likely) quite strong in Q4.

The Board and BEA estimates of motor vehicle output differ for the following reasons:

1. The Board measures the output of U.S. plants, while the BEA measures the value-added from the production and sale of motor vehicles in the U.S. The BEA thus adds merchandising and sales margins (including those on imported units and used cars) to the factory number.

2. The Board starts with direct collection of factory unit production, while BEA starts with industry reports on sales, imports and exports, and inventories. The inferred BEA factory production number can differ from the IP figure for a variety of reasons (including differences in seasonal adjustment factors).[1]

These two measures of motor vehicle output should therefore be expected to differ; the issue is that the Q3 gap was exceptionally large (Chart 1).

Another potential source of divergence has been advanced more recently. The BEA has introduced changes in its methods of estimating sales of light-weight trucks sold to businesses and the real value of inventory changes for these vehicles.

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[1] It has been argued that erroneous (or misleading) reports by Chrysler played a role in the wide Q3 gap, but more thorough analysis indicates that this factor had a relatively minor role.

It now uses the producer price index (PPI) for light-weight trucks, which is viewed as a price index for a constant-quality vehicle, to deflate nominal business sales and inventories data and convert them into constant dollars.

Unusual behavior in the light-truck PPI during the summer and fall then could have led to the divergence between the two motor vehicle production series; this price index dropped sharply in the summer and early fall before rebounding sharply more recently (Chart 2). Feeding the low mid-year prices into BEA's formula should have led to a drop in the light truck investment price deflator in Q3; in fact, it dropped 21.2% (annual rate). In turn, this could have inflated real truck output in Q3; likewise, if prices rebound in Q4, then real truck output could be lower than anticipated.

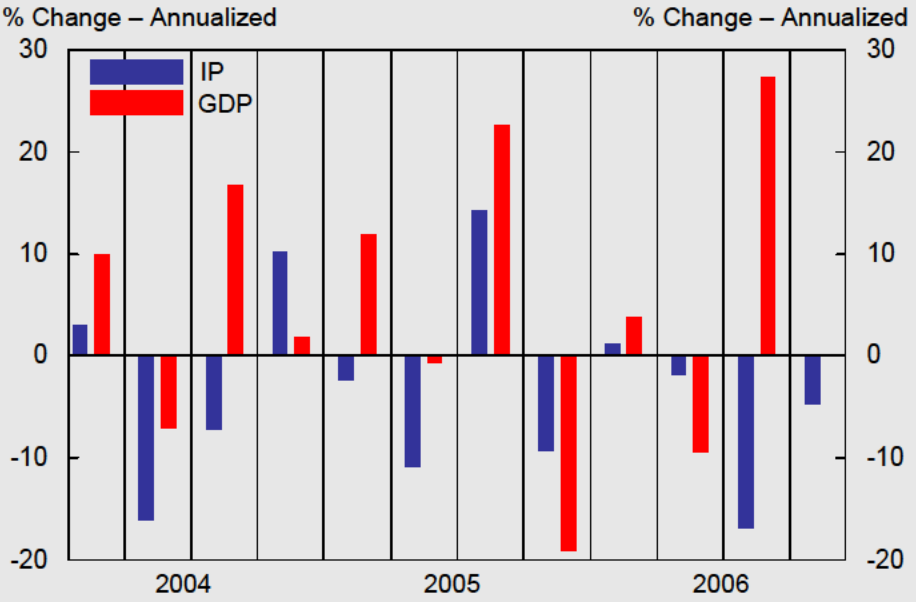
The PPI for light trucks has been much more volatile than the corresponding CPI series (used for computing the consumer portion of real light-weight truck sales), and it seems to be reasonable to be skeptical that the price measure is indicative of movements in the genuine wholesale cost of fixed-quality light-weight trucks.

Thus, the Board staff's argument that the Q3 GDP estimate of motor vehicle output, particularly the light-weight truck component, was distorted appears to be plausible. The BEA is taking the Board staff criticisms into account and is considering changes in its methodology.

We have not explicitly taken into account the possibility that the Q4 real GDP will be "artificially" depressed by motor vehicle output measures adjusting toward the path suggested by the IP data. However, there is the possibility that the headline Q4 GDP growth number could be held down for this reason.

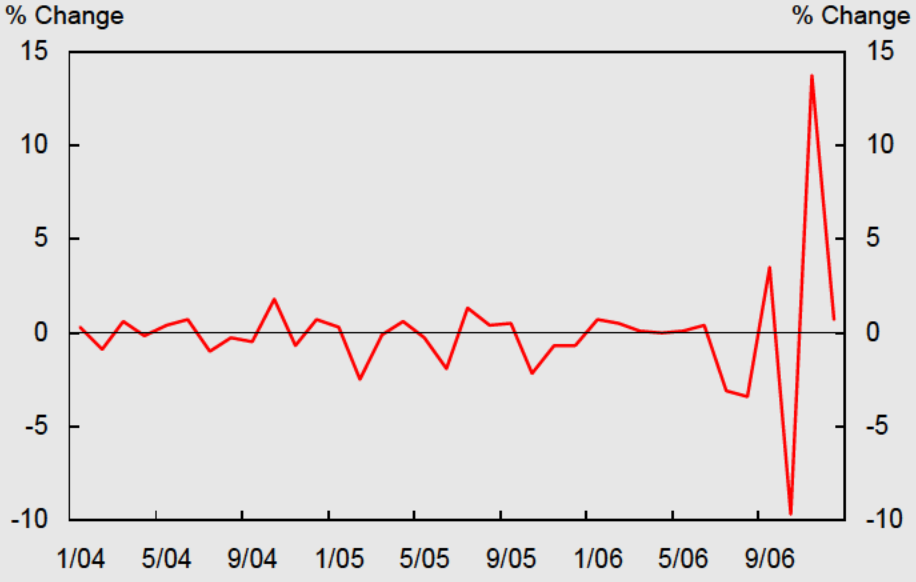
The direct policy implications of any possible statistical "distortions" from this source are zero. Although the quarterly path of GDP is affected by any such distortions, they have no effect on longer-horizon changes or on the medium-term outlook. The statistical distortions can have indirect effects on policy if they are not recognized and give policy makers an erroneous view of the strength of the economy.

Chart 1: Motor Vehicle Output Growth



Source: Federal Reserve Board and Bureau of Economic Analysis

Chart 2: PPI for Light-Weight Trucks



Source: Bureau of Labor Statistics

Global

The major foreign economies ended 2006 with generally positive readings on significant indicators. Real growth for Q4 in the euro area and Japan appeared to strengthen after weak Q3 results. China's growth in Q4 was slightly better than expected. The rest of emerging Asia continued to grow at a moderate pace, although a slowdown in export growth is a source of concern. Latin America, Mexico, and Brazil also ended last year on a strong note, while Argentina continued to do very well.

Industrial Countries. The euro area economy cooled somewhat in the second half of 2006 after growing rapidly in the first half. Recent monthly indicators remained generally favorable. Industrial production was a bit soft at the end of 2006, while business confidence indicators stopped increasing at the end of 2006, but are at high levels. A notable recent upswing was in exports, with 12 percent growth of foreign sales in November, up from about 8 percent growth in late summer and early fall. Another positive development was the 0.8 percentage point drop in the unemployment rate in the past year. Consumer prices were up 1.9 percent over the year in December, with core inflation steady at 1.6 percent, near its level over the past two years. A German tax increase in January will likely temporarily boost measured inflation.

Japanese data indicated that the economy improved in Q4, with industrial production up 5 percent over the year in November and the unemployment rate falling to 4 percent, near an eight-year low. Foreign demand is still playing a sizable role in supporting growth, lifting the trade surplus in November to its highest level since mid-2004. Business confidence remained robust, with the headline diffusion index of the Tankan survey reaching +25 in December. The reading showed broad-based strength, with plans for sustained investment against a backdrop of high capacity utilization. The exit from deflation remains tentative, with the overall consumer price index up only 0.3 percent over the year in November. The CPI excluding food and energy fell 0.2 percent.

The Canadian economy ended 2006 on a mostly positive note as consumer confidence improved and the unemployment rate fell to 6.1 percent in December. Less encouraging were data on exports, which were down over year-ago levels in November. U.K. GDP grew 3.2 percent in Q4, with strong retail sales and a fall in unemployment suggesting strong domestic demand going into 2007. Home prices increased 10 percent over the course of 2006 but showed some cooling toward the end of the year.

Emerging Economies. In China, real growth was 10.4 percent in 2006, a bit higher than expected. A gradual deceleration during the second half of 2006 was evident in most monthly data, including industrial production, money and credit, and investment spending. Money and credit growth strengthened late in the year, however, and the trade surplus surged over the course of the year. Last year's trade surplus reached $177 billion, up from $102 billion in 2005, and we project a further rise in 2007 to about $215 billion.

Growth in Mexico and Brazil gained strength in the final months of 2006 and entered 2007 on firm footing, while output growth in Argentina remained among the most robust in the region. In Mexico, the GDP proxy and fixed investment both grew solidly in October, while November production was up 5 percent over a year ago. Headline inflation ended 2006 slightly above the Bank of Mexico's target range, due in part to rising agricultural prices late in the year. Brazilian data for production and retail sales in Q4 indicated that the economy finally picked up some momentum at year end. Production in Argentina grew 10 percent (annual rate) from September to November.

Trade

The U.S. trade deficit narrowed in November to $58.2 billion, down from $58.8 billion in October. The driving force in the October and November trade releases was low demand for oil imports, caused by unseasonably mild weather and a drawing down of precautionary reserves of oil inventories following the close of a milder-than-expected hurricane season. While imports of energy-related industrial supplies also fell in Q4, demand for imports in other major categories such as capital goods, autos, and consumer

goods remained solid. Capital goods exports, particularly to the euro area and Asia, remained strong as well.

Over the past year, the real non-petroleum trade balance has been essentially stable; a sign that the overall balance may deteriorate little going forward. Real non-petroleum imports were up 6.5 percent from November 2005, with increases in all major categories: industrial supplies, capital goods, consumer goods, and autos. Real export growth was even more robust over the year at 11 percent, with strength in capital goods, including aircraft and machinery. Because of the high level of U.S. imports relative to exports, exports must grow at roughly twice the rate of imports just to maintain a stable deficit.

Financial

Domestic Markets. Since the last FOMC, financial market developments have been consistent with a firming in expected real activity and stable medium- and long-term inflation expectations.

Breakeven inflation rates continued to show remarkable stability, trading in a tight range of 2.30-2.41 percent at the 10-year horizon and 2.15-2.30 percent at the 5-year horizon [Exhibit B-2]. The TIPS curve shifted up by an average of 27 basis points, thus reversing the lower real yields observed in early December [Exhibit B-2]. The TIPS curve also flattened, with a spread between the 10-year and 2-year yields now -20 basis points.

The increase in real yields was accompanied by a marked increase in the Fed funds futures curve. Eurodollar futures now imply an FFR of 4.96 percent for February 2008, up 48 basis points over the inter-meeting period [Exhibit B-4]. The option-implied probability of an FFR of 5.25 percent following each of the January and March FOMC meetings is above 90 percent.

The nominal yield curve, while remaining inverted, flattened slightly as the 10-year yield increased from 4.52 to 4.88 percent [Exhibit B-1]. The overall shape of the yield curve is remarkably similar to that from the day before the October FOMC.

Implied volatility in Treasuries and equities remain extremely low by historical standards. The MOVE index, a weighted average of implied volatilities for 2-, 5-, 10-, and 30-year maturities, is trading at its lowest level since the beginning of 1988 [Exhibit B-5]. Equity implied volatility also is close to its all-time low of September 2006 [Exhibit B-7].

Economic derivatives indicate that the November advance retail sales were the most surprising data release during the inter-meeting period, coming in 3.4 standard deviations higher than expected [Exhibit B-3]. The largest change in yields in reaction to an economic release followed the strong December employment report. Overall, the direct reactions of yields and Fed funds futures to the major economic releases largely canceled each other out such that the evolution of rates can best be characterized as a slow drift.

Monetary Policy and Global Bond Markets. Global financial markets generally were calm during the period, despite potential threats from policy changes in some emerging markets, including Thailand, Korea, and China, aimed at influencing capital flows and the asymmetric effects of falling oil prices on oil importers and exporters. Asset price responses to these events were transient and locally contained.

Monetary policies in major areas evolved mostly as expected at the time of the last FOMC meeting. The exception was a surprising rate hike in the UK, where the central bank reacted to firming output growth and a rise in inflation toward its upper tolerance bound. As expected, the ECB held its policy rate steady on January 11th, after raising rates 25 basis points in December. The Bank looks set to raise rates again in March and at least once more before year-end, despite waning inflationary pressures and slowing growth. The euro yield curve steepened and rose between 20 and 30 basis points overall over the inter-meeting period [Exhibit B-10].

In Japan, moderate market turbulence preceded the Bank of Japan's January meeting, as the Bank relayed mixed signals about its intentions and was perceived as yielding to government pressure to keep rates unchanged. In any event, the Bank left rates unchanged in a 6-3 vote, contributing to a 10 basis point decline in short yields and a 10

basis points increase in long yields over the period. Looking ahead, a solid Q4 GDP release in February could tip the Bank to raise rates at its February 20-21st meeting.

Elsewhere, policy rates were hiked in December in Switzerland and Sweden, while the Bank of Canada faces an inverted yield curve after completing its tightening cycle. Tightening cycles have mostly ended in East Asia, except in Taiwan and China. China's central bank continues its effort to keep liquidity growth in check, easing restrictions on capital outflows and raising reserve requirements again earlier this month.

Breakeven rates from inflation linked-bonds in major areas were stable during the period and continue to point to higher real rates as the source of rising nominal yields. Emerging markets yield spreads continue to benefit from calm global markets and hover at historically low levels [Exhibit B-9].

Foreign Equity Markets. Equity markets were generally stronger, responding to continued robust earnings growth in Europe as well as to the postponement of tightening in Japan [Exhibit B-9]. European indices increased 3-4 percent, while Japanese indices, also supported by a weaker yen, rose 5-6 percent. Asian markets, especially the Shanghai market, were up sharply, benefiting from the impact of lower oil prices on regional economies. The Thai market was the exception, losing more than 10 percent over the period. Latin American equities followed global equity prices upward early in the period but weakened in January, as falling commodity prices hurt commodity exporters.

Exchange Rates and Capital Flows. The dollar strengthened broadly during the period, rising more than 2 percent in effective terms, in a reflection of an improved U.S. outlook. Option-implied volatility remained low [Exhibit B-9]. The dollar gained 4 percent on the yen, reaching its strongest level in 4 years, as the Bank of Japan kept interest rates on hold and the country's exit from deflation looked to be increasingly tentative. Gains against the euro were smaller (2 percent over the period) but still stand in sharp contrast with the strong appreciation of the euro in the previous period. The renminbi continued to appreciate (nearly one percent over the period), a trend that is expected to persist.

Falling oil prices shifted the relative contribution to global saving from oil-producing to oil-importing countries and benefited the currencies of the latter group. Accordingly, capital outflows from both Europe and Asia are expected to rise substantially in 2007. Reserve accumulation in Asian countries surged in 2006Q4, as local authorities resisted currency appreciation. Some emerging markets even introduced measures to limit net capital inflows, including the Thai central bank's notorious attempt to regulate inflows and Korea's lifting of restrictions on outflows. Elsewhere, Brazil continues to accumulate reserves rapidly, as it leans against the real's appreciation.

Energy Market Developments. WTI oil prices averaged $54 a barrel in the first two weeks of January, well below their December average of $62, and 28 percent below their July 2006 peak of $74. A seasonal softening of global oil demand and higher global oil supply are contributing to these developments, but current conditions seem insufficient to explain fully the decline in oil prices since last summer. Reduced speculative long positions (which are, essentially, bets on future oil prices) also may be playing a key role in current oil price movements.

For 2007, the International Energy Agency projects global oil demand to accelerate to 1.7 percent, with demand pressure from China continuing and faster demand growth expected in the United States and other emerging Asian countries. The former Soviet Union and Africa are projected to contribute to greater supply, while OPEC may attempt to maintain oil prices by cutting output in 2007.

Second District

Our Indexes of Coincident Economic Indicators for December suggest that economic activity continued to expand at a better than 3% annual rate in New York City but at a less than 1% pace in New York State and New Jersey [Exhibit E-1]. Looking ahead to the next nine months, our leading indexes now predict growth of slightly less than 2% (annual rate) in New York City and less than 1% in New York and New Jersey [Exhibit E-2]. As was the case nationally, a modest rebound in energy prices in late 2006

contributed to a slight pickup in local-area inflation in December. The 12-month change in metropolitan New York City's headline CPI was 3.3% in December, up from 2.6% in November. Meanwhile, 12-month change in the core CPI stood at 3.7% in December, about the same as in the prior two months. Both local inflation measures continued to run about a percentage point above their respective U.S. rates. Most of the gap between local and national inflation continued to be in the shelter component, which rose 6½% locally over the past 12 months compared with 4.2% nationally.

Labor Markets. The district's labor markets were steady but tight at year end. Private-sector employment in the New York-New Jersey region was virtually unchanged in December, as a dip in New York offset a pickup in New Jersey. Over the past year, private-sector job growth averaged 1.5% in New York City—despite modest declines in recent months—but well under 1% for the New York-New Jersey region overall [Exhibit E-3]. Despite some leveling off in payroll employment, jobless rates trended down in recent months. New Jersey's unemployment rate fell 0.3 percentage point to 4.2% in December, matching its cyclical low set in May 2005; while New York State's rate slipped 0.2 percentage point to 4.0%, matching its record low set two months earlier. New York City's rate posted a similar decline, slipping to 4.3%, very close to its recently recorded record low.

Real Estate. Commercial real estate markets tightened further in the fourth quarter, most notably in Manhattan. Lower Manhattan's vacancy rate fell to 8.4% at year end, its lowest level since right after the September 11th attack, down from 10.6% at the end of 2005 and from 9.1% at the end of Q3. Midtown's rate edged down to 6.4% (also a cyclical low), versus 7.8% a year earlier and 6.5% at the end of Q3. More notably, asking rents for Class A properties soared during 2006, ending the year with a gain of 31% in Midtown Manhattan and 42% in Lower Manhattan [Exhibit E-4]. Midtown asking rents now have eclipsed their previous peak in early 2001. Suburban markets, though far more subdued, also have strengthened over the past year, with rents rising 1-5% and vacancy rates drifting down in most areas.

Residential real estate and construction, however, showed further signs of softening in the final months of 2006. Multi-family housing permits weakened in November and were down roughly 15% from a year earlier, while single-family permits continued to soften, falling to their lowest levels in more than 10 years. Market conditions for existing homes were mixed but also generally soft. Single-family home sales across New York State weakened further in November, with the number of transactions slipping 14% from a year earlier and median selling prices falling 6%. The market for Manhattan co-ops and condos has been more mixed: although the price per square foot drifted down in the fourth quarter, the number of transactions rose substantially from a year earlier.

Surveys and Other Business Activity. Regional business surveys signaled some weakening in the manufacturing sector. Our January survey of New York State manufacturers suggested some softening in general business conditions, along with a slight pickup in price pressures. Similarly, December surveys of purchasing managers in the Buffalo and Rochester areas indicated less robust conditions than in recent months, with the latter survey indicating some pickup in price pressures. Consumer surveys gave mixed signals in late 2006. The Conference Board's survey of Middle Atlantic region (NY, NJ, PA) residents showed confidence retreating in both November and December after reaching a cyclical high in October; Siena College's survey of New York State residents, however, showed confidence as it climbed for the fourth consecutive month, reached a cyclical high, both downstate and upstate, in December.

3. Outlook

FRBNY's Central Forecast

Three fundamental factors underlie 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. 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% (with 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 are little changed from those of the past few Blackbooks. Developments during the inter-meeting period generally have been consistent with these assumptions and have increased our confidence in the central forecast. Longer-term inflation expectations in financial markets and household surveys have been relatively stable, indicating that they remain contained. Furthermore, the decline in the various measures of underlying inflation during the second half of 2006, even as the unemployment rate fell slightly from an already low level, is consistent with contained expectations. The low unemployment rate, higher labor force participation, stronger compensation growth, and slightly above-average capacity utilization rates are consistent with little slack in resource utilization. The relative stability of financial markets and low implied volatilities suggest that term premia should remain low.

Regarding the assumed monetary policy path, our forecast is consistent with a Fed funds target rate of 5¼% through 2007Q3, after which it declines to 5% at the end of 2007 and to 4¾% by the end of 2008. This path is the same as that assumed in the last Blackbook and somewhat lower than that underlying the Greenbook forecast. It is about the same as the expected path implied by futures markets through 2007. The gap between our policy path and the market-implied path narrowed considerably during the inter-meeting period, as the market-implied path shifted up toward our path.

The oil price assumption for the central forecast is based on average futures prices in the two-week period ending January 19th. WTI prices are assumed to increase to $59.00 in 2007Q4 and to $60.75 in 2008Q4. The assumption for 2007Q4 in the December Blackbook was $67.50.

Inflation. The November and December inflation data were a little lower than we expected at the time of the last Blackbook, leading us to reduce our 2006Q4 projection for overall and core PCE inflation. The factors that contributed to this revision in our 2006Q4 projection—the sharp decline in energy prices and the small inventory overhang pushing down core goods prices—are expected to be transitory and have little effect on our medium-term outlook. Therefore, with little change in our medium-term real activity forecast of near-potential growth (implying that resource utilization will not become tighter) and assuming that inflation expectations remain contained, we have not changed our medium-term inflation forecast; this forecast has core PCE inflation slowing to 1.9% in 2007 (Q4/Q4) and 1.8% in 2008.

There are some near-term risks to this relatively benign forecast. Some of the recent softness in goods prices may be related to an ongoing inventory correction; if this correction is near its end (as we expect), goods prices may firm before there is a noticeable slowing of service price inflation. Still, there are signs that rent and OER inflation, the major factors behind the rise and the continued elevated level of services inflation, will begin to slow (see the special topic *Service Price Inflation* for more). Another important assumption behind this forecast is that the lower persistence of inflation since the early 1990s continues; the decline in core inflation in the latter part of 2006 is consistent with this assumption.

Real Activity. The November and December real activity data were firmer than we expected at the time of the December Blackbook; therefore, we have raised our projection for 2006Q4 real GDP growth from 1½% to 3½% (annual rate). Three factors were primary contributors to our higher projection: (1) more robust consumer spending; (2) an

improved trade balance from slower import growth and continued strong export growth; and (3) a surge in defense spending (60% annual rate). We see some of the effects from these factors as transitory; warm weather during Q4 may have contributed to the stronger consumption growth and weaker import growth, while the defense spending surge is not sustainable. At the same time, the effects of the housing correction on residential investment will persist into the first half of 2007. As such, we expect growth to slow some in the first half of the year. Even so, real growth should remain near potential in 2007 and 2008, with our expected growth rate at 3% (Q4/Q4) for each year (the 2007 forecast is slightly above that from the December Blackbook, reflecting somewhat more inventory investment after the correction in Q4). With growth near potential through the forecast horizon, we expect the unemployment rate to change little over 2007 and 2008. Low unemployment will help to support compensation growth near current rates, leading to a gradual rise in labor share (although we expect it to remain low compared to its historical average over the forecast horizon).

Three other key assumptions behind our central forecast for real activity deserve mention. First, we assume that most of the housing correction has already occurred and that residential investment will bottom out in the first half of 2007 and then remain flat at that lower level. This assumption also reflects our view that the surge in residential investment in 2002-05 did not represent a bubble in the housing market. The recent housing data—some stabilization of starts and permits at the year-end, stable sales during the second half of 2006, declines in inventories-sales ratios, and more robust mortgage applications—generally have been consistent with this assumption.

Second, we assume that any spillover effects from the housing-market slowdown into consumer spending will be relatively small. This assumption reflects our view that wealth effects from housing did not inordinately raise consumption growth during 2002-05. The fairly solid growth of consumption during mid-year as well as the apparent strong growth in Q4—even as housing activity fell, home price appreciation slowed, and home equity withdrawal dropped—is consistent with this assumption.

Third, we assume that most of the correction in domestic motor vehicle production has occurred, thus mitigating any spillovers to other industrial sectors. The rise in motor vehicle production in November and December as well as industry reports that inventories generally were in line with sales are consistent with this assumption. Still, all three assumptions represent downside risks to the forecast.

Global. The foreign outlook is unchanged since the last FOMC, with the weighted average of foreign GDP projected to increase 2.9 percent in 2007 (Q4/Q4), a deceleration from 3.4 percent in 2006. Faster growth in Japan for 2007 (2.0 percent) is more than offset by slower growth projections for the euro area (2.1 percent), China (9.0 percent), the Asian NIEs (4.4 percent) and Mexico (3.6 percent).

Upside risks: The forecast has not been materially affected by the lower oil price assumption because there was little apparent drag on the global economy from the run-up in oil prices. However, it is possible that growth in recent years would have been substantially better without the increases in energy prices, implying that the recent decline may yield a greater-than-expected boost to global growth.

In the euro area, continued strong export growth and considerable improvement in the labor market last year may keep the region growing above its potential rate through 2007. Consumption spending has been lackluster in recent years, so there is a possibility that it could revive more than currently projected. In China, soaring stock prices and record sterilization flows suggest that the efforts of authorities to combine gradual currency appreciation with stable and moderate liquidity growth may be losing effectiveness, and thus lead to faster-than-expected growth in 2007.

Downside risks: In the euro area, growth may be weaker than forecast if the ongoing rise in real rates to levels above those of recent years exerts a heavier-than-expected toll on demand. In Japan, the continued decline in the core CPI raises concerns that the Bank of Japan has been too aggressive in tightening monetary policy. It also is possible that

China's efforts to drain the economy's liquidity may go too far, causing more of a slowdown this year than we currently project.

Trade. The October and November trade deficits were smaller than we expected at the time of the December Blackbook; we thus have raised our projection for the net export contribution to Q4 real GDP growth from 0.0 to +0.8 percentage point. As we expect some of the factors underlying this shift to be reversed somewhat, we have decreased the 2007Q1 contribution from -0.2 to -0.5 percentage point. Two factors, both expected to be primarily transitory, contributed significantly to our revised Q4 projection: unusually low demand for oil imports and unexpected strength in capital goods exports to Europe. Unseasonably warm weather and a drawing down of precautionary reserves of oil inventories with the end of the hurricane season may have contributed to the weak demand for oil imports. Anticipation of a significant increase in the German VAT rate on January 1st, 2007 may have led to a surge in exports to the euro area. We expect to see some payback in both cases, and our forecast thus assumes higher oil imports and lower capital goods exports in 2007Q1.

For 2007 and 2008, our forecast projects that exports will continue to grow at a healthy rate while demand for non-oil imports remains moderate. We project net exports to contribute 0.2 percentage point to real GDP growth in 2006 before becoming a small drag (0.2 percentage point) in 2007 and 2008. The current account deficit is projected to be $861 billion, or 6.5 percent of GDP, for 2006. Over 2007, the deficit is projected to narrow to $846 billion, or 6.1 percent of GDP, primarily because of lower oil prices.

Upside risk (to trade deficit): A key uncertainty in the forecast is the projected path of oil prices. Based on oil futures, the forecast assumes that oil prices in 2007 will be below the path assumed in the December Blackbook, but oil futures prices are notoriously unreliable at predicting future spot prices. Geopolitical developments could push oil prices higher than currently anticipated, causing the current account deficit to be larger than expected.

Downside risk (to trade deficit): If the recent strength of our exports to the euro area reflects a more permanent decoupling of the business cycles in the euro area and the U.S. (instead of more transitory factors related to the German VAT increase), export growth to the euro area may be stronger than expected, causing the trade deficit to be smaller than currently forecast.

Comparison with Greenbook Forecasts

GDP and Inflation Forecast. The Greenbook continues to maintain a weaker real growth and higher inflation projection than in our forecast. Notwithstanding the upward revision to real growth in 2006, there are only a few notable changes in the Board staff outlook. One is a slightly more benign trajectory for core PCE inflation, which is now expected to fall to 2.2% in 2007 (2.3% in December) and 2.0% in 2008 (2.1% in December). They also have reduced their trajectory for overall PCE inflation in 2007 from 2.8% in December to 2.2%.

Despite the upward revisions to the labor force participation rate for 2007 and 2008 in the January Greenbook, the lower inflation trajectory stems not from greater slack in resource utilization, but from a lower trajectory for energy prices and a stronger trajectory for the dollar (lower import prices). In fact, many of the developments in the labor market outlook appear to run counter to a softer inflation outlook. In particular, expected job growth in 2007 has been revised upward, and the unemployment rate projection for 2007 and 2008 has been revised downward without any corresponding change in the NAIRU, with the result that unemployment is below the NAIRU in both years. Even so, the Board staff retains the view that resource utilization (rather than inflation expectations) is a primary driver of inflation dynamics.

The Greenbook assumes that the FFR remains at its current level of 5.25% through the end of 2008, rather than edging down to 5.0% during 2008, as was assumed in December. Because we have not changed our FFR assumption, the Greenbook FFR assumption now is 50 basis points above ours at the end of 2008.

Alternative Greenbook forecasting scenarios. As usual, most of the Greenbook alternative scenarios tend to have a larger impact on output and unemployment and a lesser impact on inflation relative to the baseline over the two-year horizon of the simulations. The most adverse inflation scenario is *Slower Productivity Growth with Stable Participation*, which has little effect on output, unemployment, and the FFR relative to the baseline. The driving force behind the deterioration in inflation under this scenario is more rapid growth in unit labor costs. Though potential growth is essentially unchanged in this scenario, the shift in the productivity-hours "mix" of potential toward more hours implies higher trend unit labor cost growth, which in turn raises inflationary pressures within the FRBUS model.

It is also the case that only one scenario, the *Buoyant Consumer*, generates a sizable deviation from the baseline path for the FFR target. This scenario pushes the FFR above 6.5 percent by the end of the forecast horizon; while that does little to prevent a significant increase in real growth or a decline in the unemployment rate to 4.3%, it does play a role in keeping the inflation trajectory close to the baseline (however, the Greenbook text notes that inflation would increase more noticeably if the simulation was extended beyond two years). Here again, it appears that the assumed trajectory for the dollar, which appreciates modestly, plays a sizable role in holding down inflation over the forecast horizon. It is interesting to note, in fact, that the *Weak Investment* scenario, one of the two weak aggregate demand scenarios, generates more inflation than does the *Buoyant Consumer*.

Foreign Outlook. Our forecast and that of the Board staff are quite similar for 2007. We both project growth of around 2.0 percent for the euro area and Japan. We also agree on the magnitude of the slowdown in China, expecting growth to decline from about 10 percent in 2006 to near 9.0 percent in 2007.

U.S. Trade. Our forecast does not differ from the Board staff's forecast in any significant way for 2007 and 2008. We both project a 0.2 percentage point drag from net exports for each year.

Comparison with Private Forecasters

Our near-term outlook for real growth and inflation is in rough accord with the projections of other forecasters. The exception is our estimate for 2006Q4 real GDP growth, which is substantially higher than any of the other forecasts; this is presumably due to the fact that our forecast is the most recent and hence reflects the recent favorable data on real activity. Two points about the comparison are worth emphasizing. First, the PSI model, which is driven purely by the data and includes no judgmental adjustments, predicts relatively weak growth in 2007Q1. Second, Macro Advisors, the only other forecast for core CPI inflation included, has a somewhat lower profile than we do.

FRBNY Alternative Scenarios and Risks

The increased confidence in our central forecast scenario has reduced the uncertainty around inflation and output outcomes in 2007 and 2008 [Exhibits C-1 and C-2]. We still see balanced risks around our central inflation forecast and downside risk to the output forecast. However, the generally firm real activity data over the inter-meeting period have led us to reduce substantially the downside risk to the output forecast: we assess the probability of the expansion continuing through the end of 2008 to be 87%, compared to 80% in December. The reduction in uncertainty around the inflation forecast has been milder, but we still have increased the probability of core PCE inflation below 2% at the end of 2007 to 51% from 49% in December.

This risk assessment is surprisingly benign and, as discussed in the policy alternatives section, implies a probability of less than 5% that the FFR will move above 6% in 2007. We have raised the generic upside risk (both inflation and output above the forecast) for 2007 to incorporate the possibility that Q4's surprising strength reflected demand pressures not captured by our existing alternative scenarios; however, it did not have a material effect on the risk assessment. If the stronger-than-anticipated (relative to the December Blackbook) output growth in Q4 continues into 2007, we will need to increase the weight on either an excess demand pressure scenario or the productivity boom

scenario. (The latter is similar to increasing the assumed potential growth rate in the central forecast scenario.)

Our increased confidence in the central forecast scenario is based on signs of stabilization in the housing market, a solid labor market, robust Q4 consumption expenditures, and two months of inflation releases close to our expectations. We have reduced the weight placed on the *Effects of Overheating* and *Over-tightening* scenarios. On the real side, both of these scenarios are inconsistent with the growth near potential in Q4 and the robust labor market. The impact of recent inflation data on the likelihood of these two scenarios was more mixed. The *Effects of Overheating* scenario is inconsistent with recent signs of moderation in inflation and the declines in most measures of underlying inflation. The *Over-tightening* scenario is consistent with lower inflation readings but implies a level of recession risk that did not materialize in most financial market indicators. Policy expectations firmed, corroborating the signal from other financial market indicators, including the stock market and credit spreads, that the recession risk did not increase in Q4. We interpret the data over the inter-meeting period as relatively neutral with respect to the productivity scenarios. The robust consumption data, along with the increase in real interest rates, has produced a small increase in the weight on the productivity boom scenario.

Quantifying the Risks. Given the decrease in downside risk to real activity and the increase in confidence in our central scenario explained above, we have altered the initial weights on our four main alternative scenarios as follows. The *Effects of Overheating* scenario now receives a lower initial weight of 7% (11% in December). For the *Over-tightening* scenario we have also greatly reduced the initial weight from 10% to 6%. The initial weight on the two productivity scenarios has changed little: that on the *Productivity Slowdown* remains 8%, and the weight on the *Productivity Boom* is raised slightly to 5% (4% in December). The initial weight on the central forecast scenario is now 71%, with 3% initial weight placed asymmetrically on generic upside demand risk (2%) and downside demand risk (1%). The implied dynamic balance of risks is shown in

Exhibit C-3, and the implications of the different scenarios for inflation and output are shown in Exhibits C-4 and C-5.

The FRBNY "confidence intervals" can be compared to those presented in the Greenbook. In general we have less confidence about developments in 2007 than the Board staff and a little more confidence than them in 2008. For example, the Greenbook has a 70% probability interval of width 1.0 percentage point (1.4 in December) for core PCE inflation in 2007, while our 70% interval has a width of 1.5 percentage points (1.6 in December). As in the last few cycles the 85th percentile of the two forecast distributions for 2007 is the same despite the difference between the point forecasts. The source of this phenomenon again is the difference in the level of persistence assumed in the two forecasts. Because the Board staff assumes more persistent inflation dynamics, the probability intervals around their shorter-horizon forecasts are narrower than those for the FRBNY forecasts but the intervals around their longer-horizon forecasts are wider.

To gauge the importance of the differences between our outlook and the Greenbook forecast we calculate the percentile of the baseline Greenbook forecasts for output and inflation within our forecast distributions. The results are shown in the table below, with December values appearing in parentheses. We are marginally more optimistic than the Board staff on output growth 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% (2.2% in December), while that for the Greenbook forecast is 2.9%. These substantive differences again stem from our assumption of a lower level of inflation persistence. The disparities between the two distributions are magnified for 2006 because of different assumptions about revisions and, more importantly, rounding error; our point forecasts for 2006 are within 0.1 percentage point of each other.

Table: Percentile of Greenbook Forecast in FRBNY Forecast Distribution

	Core PCE	Output
2006	74 (49)	68 (45)
2007	62 (63)	47 (48)
2008	60 (68)	51 (48)

4. Policy Alternatives

Our main forecast and risk assessment are consistent with holding the target FFR at 5.25% at the upcoming meeting. The path for the target FFR assumed in our central forecast is the same as it was in the October and December Blackbooks, with a 5.00% target at the end of 2007 and a 4.75% target at the end of 2008, but the evolution of our outlook for output and inflation now suggests that moves above this path are as likely as moves below the path over the next few meetings. Our central scenario path is now very close to the prescription of our baseline policy rule and the path priced into markets [Exhibits D-5 and D-6].

The uncertainty around this central scenario path has fallen since December, and we currently attach less than 10% probability to a FFR above 6% under any of our policy rules. Our current assessment of uncertainty is similar to that priced into markets, in which option-implied volatility on Eurodollar contracts has fallen to three-year lows. We see a number of reasons why our assessment of uncertainty around the future FFR could turn out to be incorrect. First, we could be mistaken about our level of confidence in the outlook. In earlier sections of the Blackbook, we have discussed in detail a number of areas within the outlook, including upside risk from service prices and the strength of demand, for which our assessment could prove incorrect. At the same time, we could be wrong about the stance of policy. The special topic *How Restrictive is the Current Monetary Policy Stance?* addresses the issue of whether we are overconfident about our assessment of the neutral rate. However, it is important to recall that implied volatilities on Eurodollar futures have been low compared to historical averages for some time and that there have been no large surprises (outcomes outside the 90% probability interval) to the realized FFR during this tightening cycle.

To provide a quantitative analysis of the germane policy alternatives, we examine in detail the prescriptions implied by three policy rules:

1. *Baseline Policy Rule (at near-term market expectations)*. Hold the FFR at 5.25% in January and send a neutral signal regarding future actions.

2. *Opportunistic Disinflation Rule (above near-term market expectation)*. Hold the FFR at 5.25% in January and send a neutral signal.

3. *Dove Rule (below near-term market expectations).* Hold the FFR at 5.25% in January but signal the possibility of rate cuts in response to signs of weakness in real activity.

The preamble to the Section D exhibits describes how the various rules react to incoming data.

The *Opportunistic Disinflation* rule is designed to provide the profile of an FFR path for a policymaker who wants to signal a more aggressive stance on inflation. Under this rule the policymaker raises the FFR in accordance with the *Baseline* rule but lowers the FFR more slowly than the *Baseline* rule prescribes, which keeps the real rate higher for a longer period at the end of the tightening cycle. The *Dove* rule, meanwhile, generates the profile of an FFR path for a policymaker who wants to signal a stronger reaction to weakness in real activity. 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 outcomes under our alternative scenarios, as well as the probabilities we attach to those scenarios. The exhibit 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 maintains the FFR at 5.25% through the middle of 2008 and then slowly lowers it to 4.75%. The effectiveness of such a policy path depends on 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 likely would 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. A more hawkish policy rule would place considerably more probability on the FFR exceeding 6% in 2007 than the *Opportunistic Disinflation* rule.

The *Dove* rule implies a lower FFR than that currently priced into the markets over the whole forecast horizon. The primary source of this gap is the *Over-Tightening* scenario's large negative output gap; if the *Dove* rule is evaluated using only paths for output and inflation expected under the central forecast scenario, it produces a path very close to that derived from markets.

As indicated above, the *Baseline* rule produces a very similar prescription to the policy path underlying our central forecast scenario; its prescription is consistent with holding the FFR at 5.25% through 2007Q3. It then indicates that the policymaker should move toward the neutral rate (4 to 4.25%) by gradually cutting rates. As in the December Blackbook, the median value of the FFR under this rule is above the expected value, indicating some negative skewness; however, this gap only becomes significant in late 2008. The source of this difference is a 5% probability of an episode of weak growth with low inflation rates producing an FFR of 1% in late 2008. In the December Blackbook we placed an identical probability on this event occurring one year earlier, at the end of 2007. The decline in probability for this bad outcome one year out primarily reflects the reduction in our downside risk to real activity, and the resultant decrease the probability of the *Over-Tightening* scenario, over the inter-meeting period.

Exhibit D-2 and Exhibit D-3 show, respectively, the nominal and real FFR implied by our four alternative scenarios under the *Baseline* rule. Most scenarios, including our central forecast scenario, imply paths above that currently priced into markets. The *Over-Tightening* scenario is the only one that produces a path below the market path.

Exhibit D-4 shows the results 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 paths derived from the 1.5% target and the 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. Looking forward, we find that the path implied by the policy rule using the 1.5% inflation target is closer to the implied market path than is the rule with the 2.0% target.

This exhibit also includes the implications of averaging our three policy rules, with the weights chosen so that the average matches the market-implied expected path as closely as possible. Currently, the average generated in this manner matches the market quite closely throughout the forecast period.

Exhibit D-5 uses a probabilistic metric to compare the market-implied FFR distribution in 2007Q4 with those implied by our policy rules. It compares the implied distributions of FFR from the three rules and the average across rules with the distribution currently priced into markets. As in October and December, the combination of our forecast distributions and the *Opportunistic Disinflation* rule implies a higher level for the FFR than is priced into markets for 2007Q4. In contrast, the *Baseline* rule's prescription is now even closer to the market expectation for that quarter. In Exhibit D-6, it is evident, as mentioned above, that the strong skewness seen in the December Blackbook's distribution of the *Baseline* rule prescriptions for 2007Q4 has disappeared with the decreased weight on the *Over-tightening* scenario.

Special Topic

How Restrictive is the Current Monetary Policy Stance?

January 26, 2007
Simon Potter Redacted

After a long period of consecutive 25 basis point increases in the FFR it appears that the FFR probably will remain around 5.25% for some time. With the output gap around zero and inflation slightly above the "comfort zone" but expected to moderate, the current situation can be characterized as benign. In fact, the assessments of both the markets and us imply that the probability of a FFR above 6% in the next two years is less than 10%. This low probability is consistent with views that the current policy stance is somewhat restrictive.

During the tightening cycle that began in June 2004, there were no large surprises at short horizons, reflecting the relatively clear communications of the short-term policy path. However, the tightening over longer horizons was surprising to markets: the cumulative increase in the FFR was close to the 95th percentile of the market-implied distribution for possible tightening. For example, at the end of 2004 markets expected an FFR of around 3.5% in the summer of 2006 and attached a 5% probability to a FFR above 5%.

We see two main sources to the upward surprise at longer horizons as the FOMC tightened: an unexpected acceleration in inflation and a re-evaluation of the neutral rate. In late 2004 views on the neutral policy rate ranged from 3.0% to 5.5%. In the next 18 months developments in financial markets and the performance of output and inflation made it clear that the neutral rate was unlikely to be below 4.0%. At the same rate, the behavior of long rates, which did not increase substantially as the FFR increased, made it difficult to believe that the neutral rate was above 4.5%.

In this special topic, we examine the implications of our current assumption that the neutral rate is between 4.0% and 4.25% with the equilibrium real rate between 2.50% and 2.75% (based on an implicit 1.5% PCE inflation target). This assumption drives the low probability of a future FFR above 6%.

As noted above, in addition to observed inflation and output outcomes, we use information from financial markets to inform our view of the neutral policy rate. In particular, we take the level of the nominal 4-5 year forward rate as an upper bound on the neutral rate. Given our assumptions on inflation persistence and central bank credibility, we expect output to be at potential and inflation near the implicit target at the 4-5 year horizon. Thus, we believe the nominal 4-5 year forward rate is approximately equal

equilibrium real rate plus expected inflation and a non-negative term premium.

The 4 to-5 year nominal forward rate is currently near 4.7% with the real forward rate around 2.4%. Both rates have increased around 25 basis points since the last FOMC and are back to the levels observed before the real activity scare of late fall 2006. The Board staff's assumption of a 40 basis point wedge between the PCE deflator and the CPI implies an upper bound on the equilibrium real rate of 2.8%.

Under this view of the equilibrium real rate, monetary policy is currently restrictive (Exhibit D-3). This contention is essentially the same as the claim that "monetary policy is restrictive because the yield curve is inverted." Both versions of the argument are based on the assumption that term premia remain non-negative, despite their apparent recent decline. Our central forecast scenario relies on the standard benign explanation for this drop, which credits the increased stability of the real economy and the greater credibility of central banks.

That this explanation may not be true is a risk that is not captured in our outlook and alternative scenarios. It is possible that the fall in term premia is related to market failures elsewhere rather than a change in U.S. economic fundamentals. These market failures have induced a large demand for U.S. financial assets, distorting the prices of these assets, which may lead to negative term premia. If that occurred, the 4-5 year nominal forward rate might a **lower bound** rather an upper bound on the neutral rate. This assumption would put a lower bound on the neutral rate of 4.3%. Furthermore, financial conditions in the U.S. would then have been accommodative for some time, and monetary policy might have to be set well above the higher estimate of neutral to counteract these financial conditions.

It is unlikely that we will be able to resolve the uncertainty over the source of the drop in term premia in the next year. However, the current divergence between the signal given by the yield curve and the behavior of other financial market indicators suggests that some weight should be placed on this less benign interpretation of the fall in term premia and thus the scenario that monetary policy is not suitably restrictive at this time.

Over the last two years, the *Overheating* scenario has been the only avenue through which our policy recommendations have reflected a weight on the less benign interpretation. However, even this scenario did not assume any increase in the neutral rate above 4.3%. With the change in the

Overheating scenario to the *Effects of Overheating* scenario, we are effectively placing zero weight on the less benign interpretation in our policy recommendations. This zero weight makes sense from a Bayesian decision-making framework given the way the U.S. economy has shaken off various large shocks in the last few years (stock market fall, 9/11, corporate scandals, oil price increase, Katrina) and sustained well-contained inflation expectations. However, from a robust control perspective, we would want to take this possibility into account.

We have no simple way to determine the precise robust monetary policy that reacts properly to the less benign interpretation. However, such a policy would react to incoming data differently than currently prescribed in our policy rules. In particular, suppose that in the first half of 2007 we experience higher-than-expected real activity and underlying inflation data that cannot be explained by a new shock. Then, in addition to the standard policy rule response to deviations of inflation from target and output from potential, we should start to increase the neutral rate assumed in our policy rules both prospectively and retrospectively. This change would imply a large (50 basis points or more) increase in the FFR above the standard prescription, a larger increase than that currently priced into markets.

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), a smoothed measure, and an UIG measure (the latter two calculated in similar manners as the corresponding CPI measures). 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 levels of the two UIGs are designed to map into the level of the CPI and of the PCE deflator.

A. Forecast Details

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

	Real GDP			Chain Type GDP Price Index			PCE Deflator			Core PCE			Unemployment Rate		
	Oct06	Dec06	Jan07	Oct06	Dec06	Jan07	Oct06	Dec06	Jan07	Oct06	Dec06	Jan07	Oct06	Dec06	Jan07
2006 Q1	*5.6*	*5.6*	*5.6*	*3.2*	*3.3*	*3.3*	*2.0*	*2.0*	*2.0*	*2.1*	*2.1*	*2.0*	*4.7*	*4.7*	*4.7*
2006 Q2	*2.6*	*2.6*	*2.6*	*3.3*	*3.3*	*3.3*	*4.0*	*4.0*	*4.0*	*2.8*	*2.8*	*2.7*	*4.6*	*4.6*	*4.6*
2006 Q3	1.3	*2.2*	*2.0*	2.0	*1.8*	*1.9*	2.5	*2.4*	*2.4*	2.3	*2.2*	*2.1*	4.7	*4.7*	*4.7*
2006 Q4	2.0	1.5	3.5	3.1	1.3	2.5	2.0	-0.5	-0.8	2.2	2.5	2.1	4.8	4.5	*4.5*
2007 Q1	2.9	2.5	2.5	2.0	2.3	3.2	2.1	2.2	2.2	2.0	2.0	2.2	4.8	4.6	4.6
2007 Q2	2.9	3.2	3.0	1.9	2.0	1.9	2.1	2.2	2.2	1.9	1.9	1.9	4.8	4.6	4.6
2007 Q3	3.2	3.3	3.3	2.1	2.2	2.1	2.1	2.1	2.1	1.9	1.9	1.8	4.8	4.6	4.6
2007 Q4	2.7	2.8	3.2	1.8	1.8	1.9	2.1	2.1	2.1	1.8	1.9	1.8	4.8	4.6	4.6
2008 Q1	2.8	3.0	3.0	2.2	2.1	2.0	2.1	2.1	2.1	1.8	1.9	1.9	4.8	4.6	4.6
2008 Q2	3.1	3.0	3.0	2.4	2.4	2.3	2.1	2.1	2.1	1.7	1.9	1.9	4.8	4.6	4.6
2008 Q3	3.2	3.2	3.0	2.2	2.2	2.2	2.0	2.0	2.0	1.7	1.8	1.8	4.8	4.6	4.6
2008 Q4	2.8	2.9	3.0	1.9	1.9	2.1	2.0	2.1	2.0	1.7	1.8	1.8	4.8	4.6	4.6
2004 Q4 to 2005 Q4	*3.1*	*3.1*	*3.1*	*3.1*	*3.1*	*3.1*	*3.1*	*3.1*	*3.1*	*2.1*	*2.1*	*2.1*	*-0.5*	*-0.5*	*-0.4*
2005 Q4 to 2006 Q4	2.9	3.0	3.4	2.9	2.4	2.7	2.6	2.0	1.9	2.3	2.4	2.3	-0.1	-0.4	*-0.5*
2006 Q4 to 2007 Q4	3.0	2.9	3.0	2.0	2.1	2.3	2.1	2.2	2.2	1.9	1.9	1.9	0.0	0.1	0.1
2007 Q4 to 2008 Q4	3.0	3.0	3.0	2.2	2.1	2.2	2.0	2.1	2.1	1.7	1.8	1.8	0.0	0.0	0.0

Notes: Columns reflect he 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	
	Dec	Jan	Dec	Jan	Dec	Jan	Dec	Jan	Dec	Jan	Dec	Jan
REAL GDP (Q4/Q4)	3.0	3.4	2.9	3.0	3.0	3.0	2.9	3.3	2.2	2.3	2.5	2.5
GROWTH CONTRIBUTIONS (Q4/Q4)												
FINAL SALES TO DOMESTIC PURCHASERS	3.0	3.3	3.1	3.0	3.2	3.2	2.7	3.1	2.2	2.3	2.7	2.9
CONSUMPTION	2.3	2.6	2.1	2.1	2.1	2.1	2.3	2.6	1.7	1.9	1.8	1.9
BFI	0.9	0.8	0.8	0.7	0.6	0.6	0.8	0.7	0.4	0.5	0.4	0.5
STRUCTURES	0.4	0.4	0.2	0.2	0.2	0.2	0.4	0.4	0.1	0.2	0.0	0.0
EQUIPMENT & SOFTWARE	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4
RESIDENTIAL INVESTMENT	-0.8	-0.8	-0.3	-0.3	0.0	0.1	-0.9	-0.8	-0.4	-0.5	0.1	0.1
GOVERNMENT	0.6	0.7	0.6	0.5	0.5	0.4	0.5	0.6	0.5	0.4	0.4	0.4
FEDERAL	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1
STATE & LOCAL	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3
INVENTORY INVESTMENT	-0.1	-0.2	0.0	0.2	0.0	-0.2	-0.1	-0.2	0.1	0.1	0.0	0.0
NET EXPORTS	0.0	0.2	-0.1	-0.2	-0.2	-0.1	0.2	0.3	-0.1	-0.2	-0.2	-0.3
INFLATION/PRODUCTIVITY/WAGES (Q4/Q4)												
GDP DEFLATOR	2.4	2.7	2.1	2.3	2.1	2.2	2.5	2.6	2.6	2.6	2.4	2.3
PCE	2.0	1.9	2.2	2.2	2.1	2.1	2.0	1.9	2.8	2.2	2.1	2.1
CORE PCE	2.4	2.3	1.9	1.9	1.8	1.8	2.4	2.3	2.3	2.2	2.1	2.0
COMPENSATION PER HOUR	4.9	4.7	4.6	4.7	4.7	4.7	4.9	4.9	5.1	4.9	5.0	4.9
OUTPUT PER HOUR	1.5	1.9	2.5	2.5	2.5	2.5	1.2	1.5	2.6	2.4	2.7	2.6
UNIT LABOR COSTS	3.4	2.8	2.1	2.2	2.2	2.2	3.6	3.3	2.4	2.4	2.3	2.2
EMPLOYMENT VARIABLES												
UNEMPLOYMENT RATE (Q4 LEVEL)	4.5	4.5	4.6	4.6	4.6	4.6	4.5	4.5	5.0	4.8	5.1	4.9
PARTICIPATION RATE (Q4 LEVEL)	66.3	66.3	66.3	66.4	66.3	66.4	66.2	66.3	65.8	66.0	65.6	65.7
NONFARM PAYROLL EMPLOYMENT (Q4/Q4 CHANGE)												
TOTAL, IN THOUSANDS	1699	1890	1246	1191	1367	1252	1800	1900	900	1000	700	700
AVERAGE PER MONTH, IN THOUSANDS	142	158	104	99	114	104	150	158	75	83	58	58
FINANCIAL MARKET VARIABLES												
FED FUNDS RATE (PERCENT)	5.25	5.25	5.00	5.00	4.75	4.75	5.25	5.25	5.25	5.25	5.00	5.25
BAA BOND YIELD (PERCENT)	6.3	6.3	6.8	6.8	6.8	6.8	6.3	6.4	6.7	6.7	6.7	6.7
EFFECTIVE EXCHANGE RATE (Q4/Q4 % CHANGE)	-6.9	-6.6	-1.7	-1.5	-1.6	-1.7	-4.2	-4.1	-1.3	-0.3	-0.8	-0.9

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	Q4/Q4 %CHANGE/Q4 LEVEL/ANNUAL AVERAGE 2005	2006	2007	2008
REAL GDP AND COMPONENTS (% Change, AR)																
GDP	*5.6*	*2.6*	*2.0*	3.5	2.5	3.0	3.3	3.2	3.0	3.0	3.0	3.0	*3.1*	3.4	3.0	3.0
CHANGE IN INVENTORIES (GROWTH CONTRIBUTION) 1\	*0.0*	*0.4*	*0.1*	-1.1	0.5	-0.1	0.0	0.3	0.0	-0.2	-0.4	0.1	*-0.1*	-0.2	0.2	-0.2
DOMESTIC PRIVATE PURCHASES	*5.3*	*2.0*	*2.0*	2.6	2.9	2.8	3.1	3.4	3.3	2.8	2.6	3.1	*3.1*	3.0	3.0	2.9
CONSUMPTION EXPENDITURES	*4.8*	*2.6*	*2.8*	4.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	*2.9*	3.7	3.0	3.0
BUSINESS FIXED INVESTMENT	*13.7*	*4.4*	*10.0*	3.1	7.3	7.3	7.0	6.7	5.7	5.7	5.4	5.4	*5.6*	7.7	7.1	5.5
RESIDENTIAL INVESTMENT	*-0.3*	*-11.1*	*-18.6*	-17.0	-15.0	-4.6	-0.7	0.0	3.0	3.0	3.0	3.0	*9.0*	-12.0	-5.3	3.0
NET EXPORTS (GROWTH CONTRIBUTION) 1\	*0.0*	*0.4*	*-0.2*	0.8	-0.5	0.1	0.0	-0.3	-0.4	0.0	0.3	-0.2	*-0.1*	0.2	-0.2	-0.1
EXPORTS	*14.0*	*6.2*	*6.8*	13.8	6.9	7.3	6.2	5.9	6.9	6.6	9.4	7.4	*6.7*	10.1	6.6	7.6
IMPORTS	*9.1*	*1.4*	*5.6*	4.3	8.0	4.5	4.0	6.2	7.4	4.4	4.7	6.6	*5.2*	5.1	5.7	5.8
FEDERAL GOVERNMENT	*8.8*	*-4.5*	*1.3*	15.5	3.0	1.5	2.0	2.0	5.0	0.5	1.0	1.5	*2.1*	5.0	2.1	2.0
STATE & LOCAL GOVERNMENTS	*2.7*	*4.1*	*1.9*	3.1	3.0	3.0	3.0	3.0	2.5	2.5	2.5	2.5	*0.8*	2.9	3.0	2.5
INTEREST RATE ASSUMPTIONS (%)																
FEDERAL FUNDS RATE (TARGET)	*4.43*	*4.90*	*5.25*	*5.25*	5.25	5.25	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*	*4.6*	4.7	4.8	4.9	5.0	5.0	5.0	5.0	5.0	*4.5*	4.6	5.0	5.0
BAA BOND YIELD	*6.3*	*6.7*	*6.6*	*6.3*	6.4	6.5	6.6	6.8	6.8	6.8	6.8	6.8	*6.3*	6.3	6.8	6.8
INCOME (% Change, AR)																
PERSONAL INCOME	*9.4*	*3.2*	*5.9*	7.0	5.9	5.2	6.5	4.6	6.1	5.9	6.6	4.8	*4.6*	6.4	5.6	5.9
REAL PERSONAL DISPOSABLE INCOME	*4.6*	*-1.5*	*4.1*	7.3	4.1	3.4	6.2	2.3	4.0	3.7	4.5	2.7	*0.3*	3.6	4.0	3.7
PERSONAL SAVING RATE (% OF DPI)	*-0.3*	*-1.4*	*-1.2*	-0.5	-0.2	-0.2	0.5	0.4	0.6	0.7	0.9	0.8	*-0.4*	-0.8	0.1	0.7
CORPORATE PROFITS BEFORE TAXES	*60.8*	*5.9*	*16.4*	0.6	1.4	3.0	1.2	0.7	-1.7	1.2	0.6	0.3	*12.8*	18.8	1.6	0.1
PRICES & PRODUCTIVITY (% Change, AR)																
GDP IMPLICIT DEFLATOR	*3.3*	*3.3*	*1.9*	2.5	3.2	1.9	2.1	1.9	2.0	2.3	2.2	2.1	*3.1*	2.7	2.3	2.2
PERSONAL CONSUMPTION EXPENDITURES	*2.0*	*4.0*	*2.4*	-0.8	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	*3.1*	1.9	2.2	2.1
CORE PERSONAL CONSUMPTION EXPENDITURES	*2.0*	*2.7*	*2.1*	2.1	2.2	1.9	1.8	1.8	1.9	1.9	1.8	1.8	*2.1*	2.3	1.9	1.8
CONSUMER PRICE INDEX	*2.2*	*5.0*	*2.9*	*-2.2*	2.6	2.6	2.4	2.4	2.3	2.3	2.3	2.3	*3.7*	2.0	2.5	2.3
CORE CONSUMER PRICE INDEX	*2.4*	*3.5*	*3.0*	*1.8*	2.3	2.5	2.4	2.3	2.2	2.2	2.2	2.2	*2.1*	2.7	2.4	2.2
COMPENSATION PER HOUR (NONFARM BUSINESS)	*13.7*	*-1.2*	*2.6*	4.2	6.4	4.1	4.0	4.2	6.1	4.4	4.4	4.1	*4.1*	4.7	4.7	4.7
OUTPUT PER HOUR (NONFARM BUSINESS)	*4.3*	*1.2*	*0.2*	1.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	*2.5*	1.9	2.5	2.5
UNIT LABOR COST (NONFARM BUSINESS)	*9.4*	*-2.4*	*2.3*	2.3	3.9	1.6	1.5	1.7	3.6	1.9	1.9	1.6	*1.6*	2.8	2.2	2.2
REAL ACTIVITY																
CAPACITY UTILIZATION (MANUFACTURING, %)	*80.1*	*80.6*	*81.0*	*80.2*	80.4	80.7	80.9	81.2	81.3	81.4	81.4	81.5	*78.9*	*80.5*	80.8	81.4
CIVILIAN UNEMP RATE (%) 2 \	*4.7*	*4.6*	*4.7*	*4.5*	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	*4.9*	*4.5*	4.6	4.6
PRIVATE HOUSING STARTS (THOUS, AR)	*2123*	*1873*	*1714*	*1564*	1600	1600	1625	1675	1700	1700	1700	1700	*2073*	*1819*	1625	1700
LIGHT VEHICLE SALES (MIL UNITS, AR) 3 \	*16.9*	*16.3*	*16.6*	*16.3*	16.5	16.4	16.5	16.5	16.5	16.6	16.6	16.6	*16.9*	*16.5*	16.5	16.6
FEDERAL SURPLUS/DEFICIT (Unified Basis, Bil$, NSA) 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*	*-247.8*	-258.3	-234.9

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***	***2.6***	***2.0***	**3.5**	**2.5**	**3.0**	**3.3**	**3.2**	**3.0**	**3.0**	**3.0**	**3.0**	***3.1***	**3.4**	**3.0**	**3.0**
Contributions to GDP growth:																
FINAL SALES TO DOMESTIC PURCHASERS	***5.7***	***1.7***	***2.1***	**3.8**	**2.5**	**3.0**	**3.2**	**3.2**	**3.4**	**3.1**	**3.1**	**3.2**	***3.4***	**3.3**	**3.0**	**3.2**
CONSUMPTION EXPENDITURES	*3.4*	*1.8*	*2.0*	3.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	*2.0*	2.6	2.1	2.1
BUSINESS FIXED INVESTMENT	*1.4*	*0.5*	*1.0*	0.3	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.6	*0.6*	0.8	0.7	0.6
RESIDENTIAL INVESTMENT	*0.0*	*-0.7*	*-1.2*	-1.0	-0.9	-0.2	0.0	0.0	0.1	0.1	0.1	0.1	*0.5*	-0.8	-0.3	0.1
FEDERAL GOVERNMENT	*0.6*	*-0.3*	*0.1*	1.0	0.2	0.1	0.1	0.1	0.3	0.0	0.1	0.1	*0.1*	0.3	0.2	0.1
STATE & LOCAL GOVERNMENTS	*0.3*	*0.5*	*0.2*	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	*0.1*	0.4	0.4	0.3
NET EXPORTS	***0.0***	***0.4***	***-0.2***	**0.8**	**-0.5**	**0.1**	**0.0**	**-0.3**	**-0.4**	**0.0**	**0.3**	**-0.2**	***-0.1***	**0.2**	**-0.2**	**-0.1**
EXPORTS	*1.4*	*0.7*	*0.7*	1.5	0.8	0.8	0.7	0.7	0.8	0.8	1.1	0.9	*0.7*	1.1	0.8	0.9
IMPORTS	*-1.5*	*-0.2*	*-0.9*	-0.7	-1.3	-0.7	-0.7	-1.0	-1.2	-0.7	-0.8	-1.1	*-0.8*	-0.8	-0.9	-1.0
CHANGE IN INVENTORIES	***0.0***	***0.4***	***0.1***	**-1.1**	**0.5**	**-0.1**	**0.0**	**0.3**	**0.0**	**-0.2**	**-0.4**	**0.1**	***-0.1***	**-0.2**	**0.2**	**-0.2**

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

A. Forecast Details

Exhibit A-5: Alternative GDP and Inflation Forecasts

GDP

		2006-Q4		2007-Q1		2007-Q2	
	Release Date	Prev*	Jan	Prev*	Jan	Prev*	Jan
FRBNY	1/26/2007	1.5	3.5	2.5	2.5	3.2	3.0
PSI Model	1/23/2007	2.1	1.6	2.3	1.8	--	--
Blue Chip	1/10/2007	1.9	2.3	2.4	2.3	2.6	2.5
Median SPF	11/13/2006	2.9	2.5	2.9	2.7	2.7	2.9
Macro Advisers	1/7/2007	1.4	2.2	2.3	2.3	3.1	3.3

CPI

		2006-Q4		2007-Q1		2007-Q2	
	Release Date	Prev*	Jan	Prev*	Jan	Prev*	Jan
FRBNY	1/26/2007	-1.1	-2.2	2.9	2.6	2.6	2.6
Blue Chip	1/10/2007	-1.7	-2.2	2.7	2.7	2.7	2.6
Median SPF	11/13/2006	2.8	-0.3	2.7	2.8	2.5	2.6
Macro Advisers	1/7/2007	-2.1	-2.4	2.8	2.7	2.8	2.3

CORE CPI

		2006-Q4		2007-Q1		2007-Q2	
	Release Date	Prev*	Jan	Prev*	Jan	Prev*	Jan
FRBNY	1/26/2007	2.3	1.8	2.7	2.3	2.5	2.5
Macro Advisers	1/7/2007	2.2	1.8	2.5	2.2	2.5	2.3

Notes: Previous release of SPF is August and of all others is December.

A. Forecast Details

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

	Annualized Percent Change Over Indicated Interval					Weights (December 2005)	
	24 Month	12 Month	6 Month	3 Month	1 Month	Total	Core
Consumer Price Index	3.0	2.6	0.5	0.2	6.7	100.0	
Energy	9.8	3.1	-13.4	-11.2	72.0	8.7	
All Items Ex Energy	2.3	2.5	2.0	1.2	1.2		
Food	2.3	2.2	2.3	1.0	0.0	13.9	
Food Away From Home	3.2	3.2	3.0	3.4	3.6	6.0	
All Items Ex Food and Energy	2.4	2.6	2.0	1.4	2.3	77.4	100.0
Core Chain-Weight CPI (NSA)	2.0	2.3	0.9	-0.4	-2.1		
Core Goods	0.0	-0.1	-1.4	-2.8	0.0	22.3	28.8
Apparel	0.0	1.0	-0.2	-1.7	7.3	3.8	4.9
Medical Care Commodities	3.9	3.5	3.0	2.3	1.1	1.5	1.9
Durable Goods	-1.0	-1.4	-2.4	-3.8	-3.1	11.6	15.0
New Vehicles	-0.7	-0.9	-2.2	-4.0	-2.6	5.2	6.7
Used Vehicles	-0.4	-2.2	-7.4	-12.9	-9.2	1.8	2.3
Core Services	3.3	3.7	3.4	2.9	2.4	55.1	71.2
Rent of Primary Residence	3.7	4.4	4.9	5.2	5.9	5.8	7.5
Owners' Equivalent Rent	3.4	4.3	4.0	4.1	3.5	23.4	30.3
Lodging Away from Home	3.7	4.1	3.7	3.5	5.4	2.6	3.4
Medical Care Services	4.3	4.1	3.9	3.8	2.7	4.8	6.2
Transportation Services	2.0	1.4	0.3	-1.9	0.0	5.7	7.4

A. Forecast Details

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

	Annualized Percent Change Over Indicated Interval				
	24 Month	12 Month	6 Month	3 Month	1 Month
PCE Deflator	2.4	1.9	0.4	-2.1	0.1
Market Based PCE Deflator	2.2	1.6	-0.2	-3.0	-0.3
Durable Goods	-1.3	-1.4	-2.1	-3.5	-4.4
Motor Vehicles and Parts	0.4	-0.1	-1.4	-3.6	-8.0
Nondurable Goods	2.0	0.9	-4.2	-11.7	-4.1
Clothing and Shoes	-0.9	-0.2	-1.3	-1.8	-5.2
Services	3.3	3.0	3.2	3.4	3.1
Housing	3.5	4.3	4.3	4.3	4.6
Transportation	3.4	1.9	1.2	-1.3	-2.6
Medical Care	3.2	2.9	3.7	4.1	3.8
PCE Deflator Ex Food and Energy	2.1	2.2	2.1	1.8	0.5
Market Based Core PCE Deflator	1.8	1.9	1.7	1.5	0.1
Personal Business Services-Market Based	2.5	2.8	3.0	9.1	-1.2
Personal Business Services-Not Market Based	2.4	2.2	2.1	3.8	0.2

A. Forecast Details

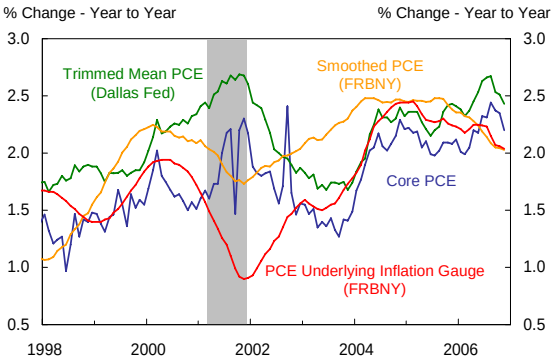
Exhibit A-6: Reference Table 3 - PRODUCER PRICE DATA AS OF DECEMBER 2006

	Annualized Percent Change Over Indicated Interval				
	24 Month	**12 Month**	**6 Month**	**3 Month**	**1 Month**
Finished Goods	3.3	1.2	0.1	5.1	11.8
Finished Consumer Goods	3.9	0.8	-0.5	5.9	15.5
Finished Consumer Goods Ex Food	4.7	0.5	-2.9	6.4	12.9
Nondurables Ex Food	6.3	0.0	-4.2	7.3	17.2
Durables	0.6	1.7	1.0	3.5	1.8
Capital Equipment	1.8	2.4	1.9	3.0	2.5
Electronic Computers (NSA)	-23.0	-22.8	-21.0	-13.0	-7.8
Communication and Related Equipment (NSA)	-0.1	0.5	0.2	-0.8	1.2
Finished Goods Ex Food and Energy	1.8	2.0	1.3	2.3	2.3
Finished Consumer Goods Ex Food and Energy	1.7	1.8	0.7	1.7	1.4
Intermediate Materials	5.7	2.8	-1.2	0.2	6.0
Intermediate Materials Ex Food and Energy	4.7	4.7	1.3	-1.4	-0.7
Crude Materials	8.6	-2.4	17.6	28.6	40.6
Crude Materials Ex Food and Energy	10.7	16.8	-3.4	0.8	12.1

A. Forecast Details

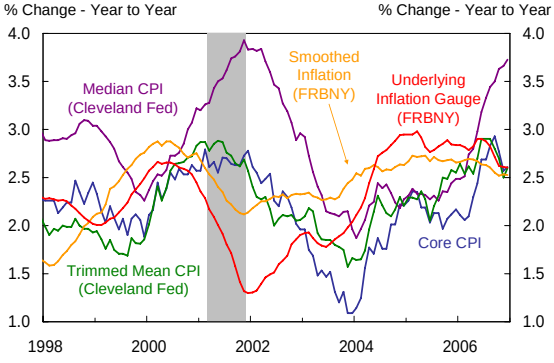
Exhibit A-7: Measures of Trend Inflation

Alternative Measures of PCE Inflation



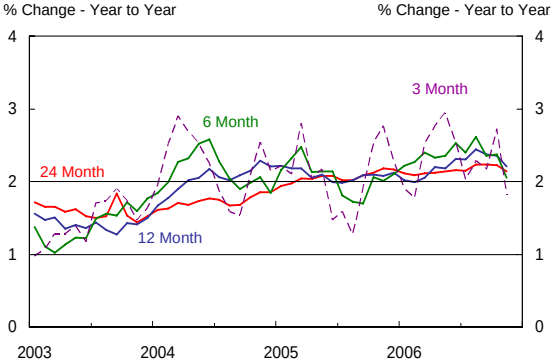
Source: Bureau of Economic Analysis, Dallas Fed, and FRBNY

Alternative Measures of CPI Inflation



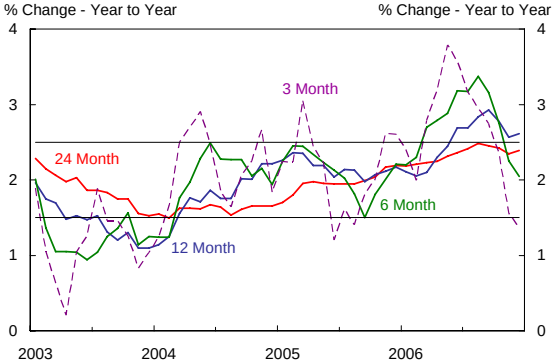
Source: Bureau of Labor Statistics, Cleveland Fed, and FRBNY

Core PCE over Various Horizons



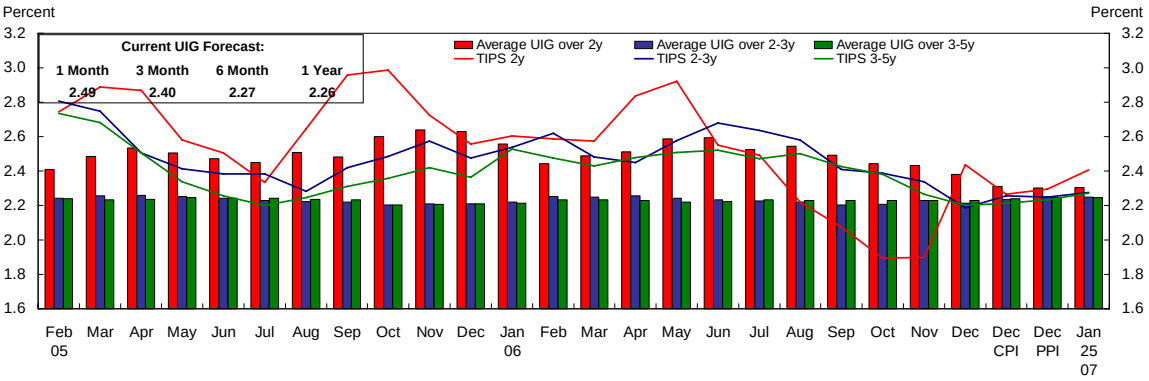
Source: Bureau of Economic Analysis

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)

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. Implied Inflation

The top two charts in this exhibit plot the time series of carry-adjusted implied CPI inflation over the past 12 months, 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 and 2-3 year horizons; the right chart displays data over the 4-5 and 5-10 year horizons. The middle left chart plots the 10-year breakeven inflation rate (not carry-adjusted) over the inter-meeting period using intraday data, while the middle right chart shows the carry-adjusted TIPS yield curve for 2- to 10-year maturities. The bottom chart plots the carry-adjusted breakeven rates for the 2- to 10-year horizons.
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 the policy rate 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 June 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 easing at the next meeting (allowing for a time-invariant term premium risk adjustment). The last three charts plot the implied probabilities of various policy rates following the next three 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 bottom left 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. The last chart plots the MOVE (Merrill Lynch Option Volatility Estimate) index, an average of 1-month implied volatilities from 2-year, 5-year, 10-year, and 30-year Treasury options.
Source: CME; Datastream; CM Function, FRBNY; Bloomberg

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-right 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-left 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 June 30th curve offers a slightly longer-term point of reference. 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

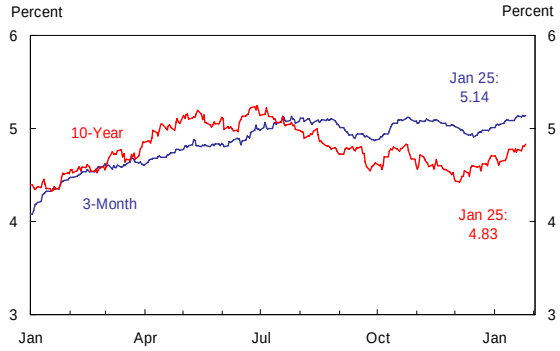
durations. For example, the 4-5 year forward rate is computed from the 4- and 5-year implied inflation values. The 5-10 year forward rate uses the 5-year implied inflation value and the implied inflation rate on the most recently issued 10-year TIPS.

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

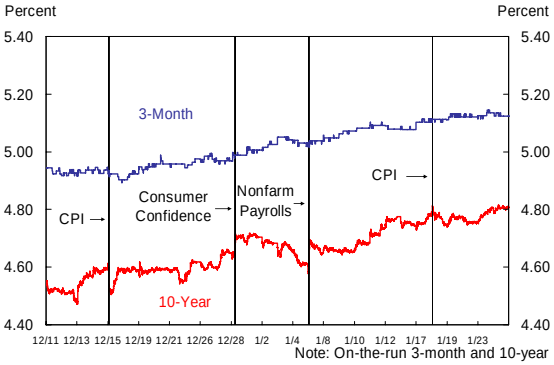
Short- and Long-Term Rates



Source: Bloomberg

Note: Yields of on-the-run securities

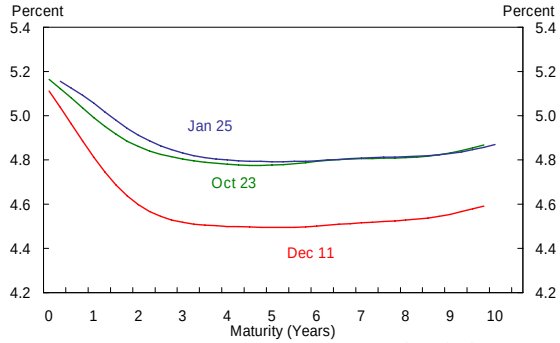
Short- and Long-Term Rates (Intraday)



Source: Bloomberg

Note: On-the-run 3-month and 10-year yield, 8 am to 4 pm

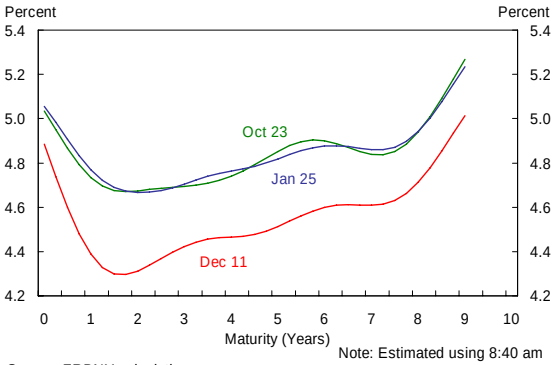
Yield Curves



Source: FRBNY calculations

Note: Estimated using 8:40 am quotes of off-the-run securities

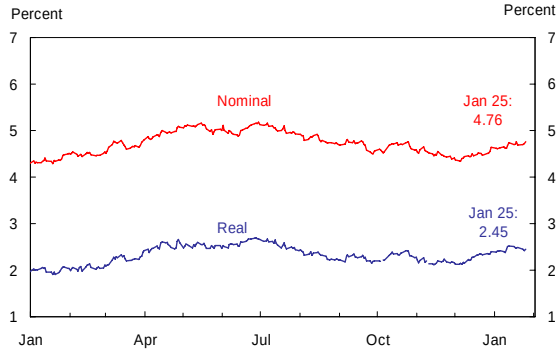
Yield Curves: Implied One-Year Forward Rates



Source: FRBNY calculations

Note: Estimated using 8:40 am quotes of off-the-run securities

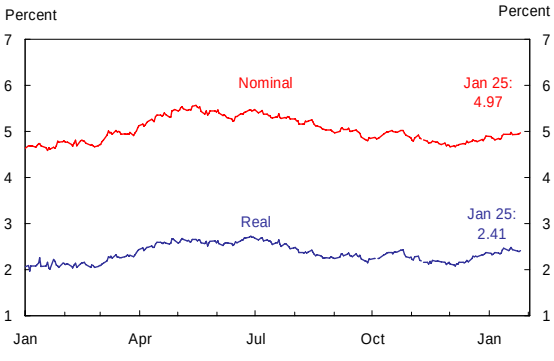
4-5 Year Forward Rates



Source: FRBNY calculations

Note: 8:40 am quotes

5-10 Year Forward Rates



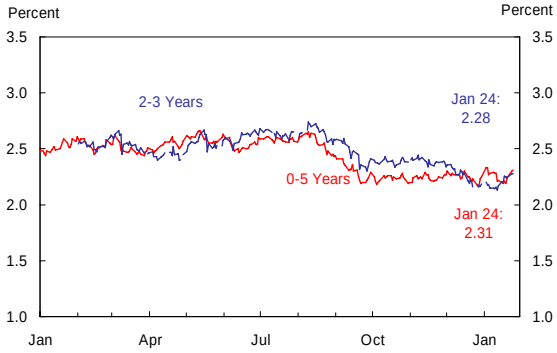
Source: FRBNY calculations

Note: 8:40 am quotes

B. Financial Markets

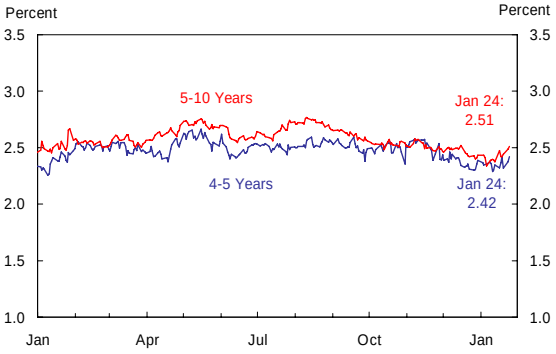
Exhibit B-2:
Implied Inflation

TIPS Implied Inflation: 2-3, 0-5 Year Horizon



Source: Federal Reserve Board

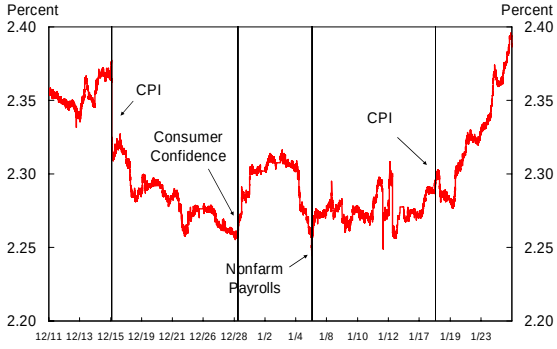
TIPS Implied Inflation: 4-5, 5-10 Year Horizons



Source: FRBNY calculations

Note: 8:40 am quotes

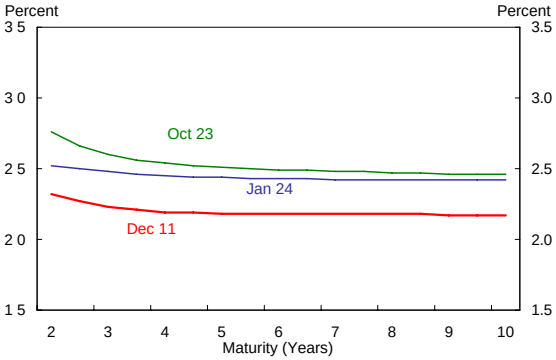
10-Year Breakeven Inflation Rate (Intraday)



Source: Bloomberg

Note: Calculated as difference between on-the-run 0-year Treasury and 10-year TIPS yield. 8 am to 4 pm.

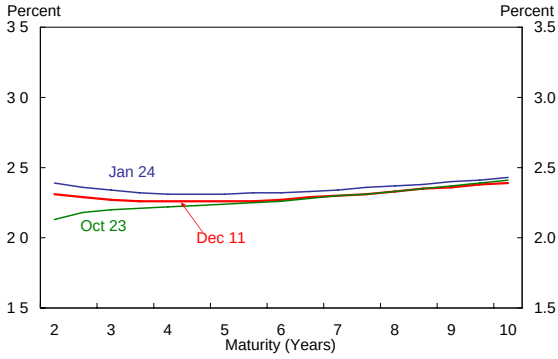
TIPS Curve



Source: Federal Reserve Board

Note: Carry-adjusted

Breakeven Curve



Source: Federal Reserve Board

Note: Carry-adjusted

B. Financial Markets

Exhibit B-3:
Economic Releases

Economic Releases

Market reaction to macro releases, market expectations using economic derivatives

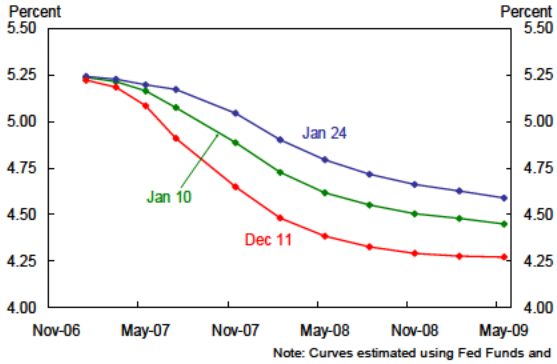
							Yield Change (bps)		
Release Type	Release Date	Survey Forecast	Actual Release	Market Expectation	Surprise	Surprise (σ's)	March FF Futures	Ten Year	Ten Year Breakeven
Initial Jobless Claims, 1000s	1/25	310	325	310	15	0.9	0	1	1
Core CPI, %	1/18	208.1	208.1	208.1	0	0	1	1	1
Initial Jobless Claims, 1000s	1/18	314	290	315	-25	-1.7	1	1	1
Retail Sales Less Autos, %	1/12	0.5	1.0	0.4	0.6	1.3	1	3	3
Initial Jobless Claims, 1000s	1/11	320	299	319	-20.0	-1.4	0	0	0
Change in Nonfarm Payrolls, 1000s	1/5	100	167	78	89	1.1	4	10	2
Initial Jobless Claims, 1000s	1/4	320	329	319	10	0.7	0	-1	-1
Core CPI, %	12/15	208.0	207.7	208.0	-0.3	-1.7	-4	-9	-6
Retail Sales Less Autos, %	12/13	0.3	1.1	0.17	0.93	3.4	4	5	1

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

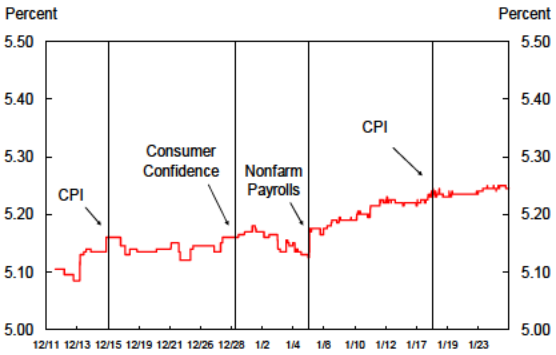
Expected Fed Funds



Source: Federal Reserve Board

Note: Curves estimated using Fed Funds and Eurodollar futures.

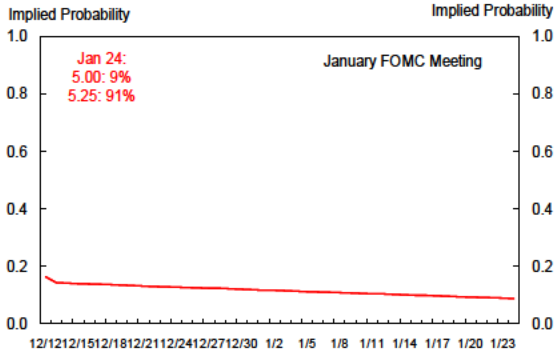
Implied June Fed Funds Rate (Intraday)



Source: Bloomberg

Note: Calculated using Eurodollar futures

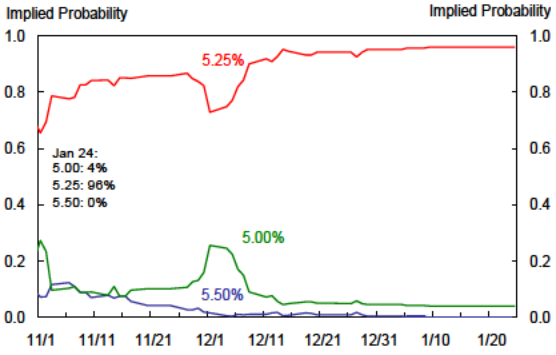
Probability of 5.00 Target vs. 5.25 Target



Source: FRBNY calculations

Note: Estimated using Fed Funds futures

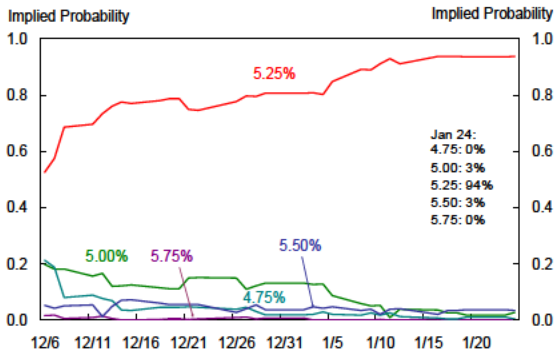
January 2007 FOMC



Source: Cleveland FRB

Note: Estimated using options on Fed Funds futures

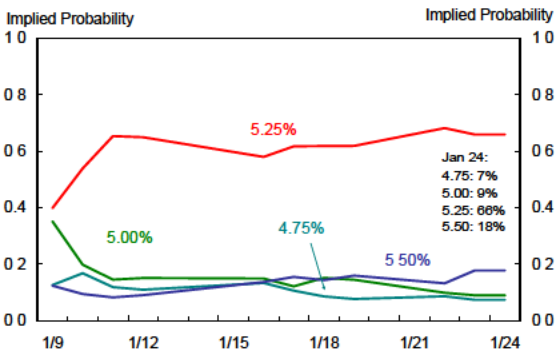
March 2007 FOMC



Source: Cleveland FRB

Note: Estimated using options on Fed Funds futures

June 2007 FOMC



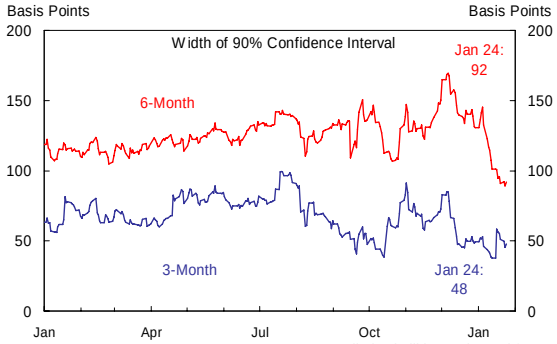
Source: Cleveland FRB

Note: Estimated using options on Fed Funds futures

B. Financial Markets

Exhibit B-5:
Policy Uncertainty I

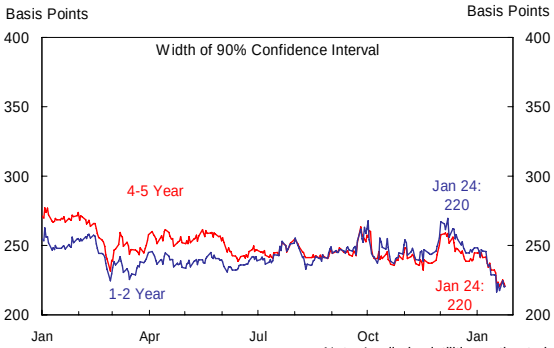
Interest Rate Volatility: Short-Term



Source: Datastream and FRBNY calculations

Note: Implied volatilities estimated from Eurodollar futures options

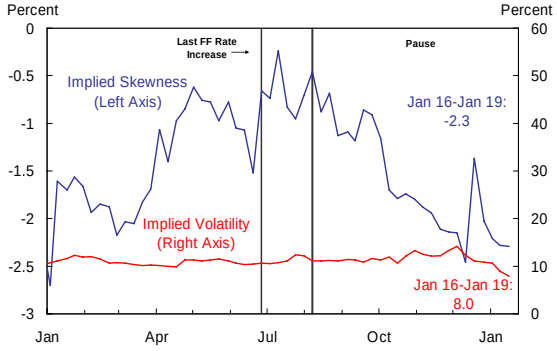
Interest Rate Volatility: Long-Term



Source: FRBNY calculations

Note: Implied volatilities estimated from swaptions

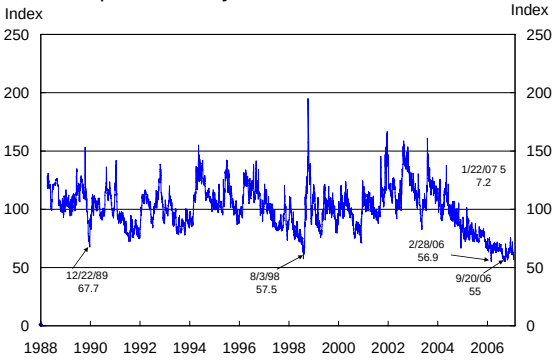
Implied Skewness and Volatility



Source: CME and FRBNY calculations

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

MOVE Implied Volatility Index since 4/4/1988

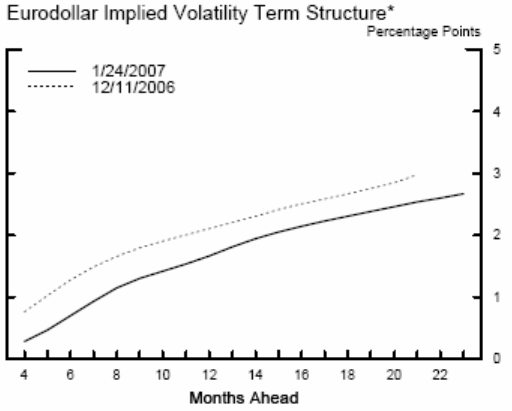


Source: Merrill Lynch, Bloomberg

B. Financial Markets

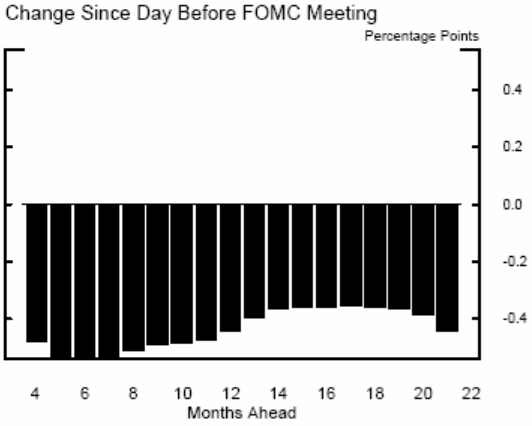
Exhibit B-6:
Policy Uncertainty II

Eurodollar Implied Volatility Term Structure*

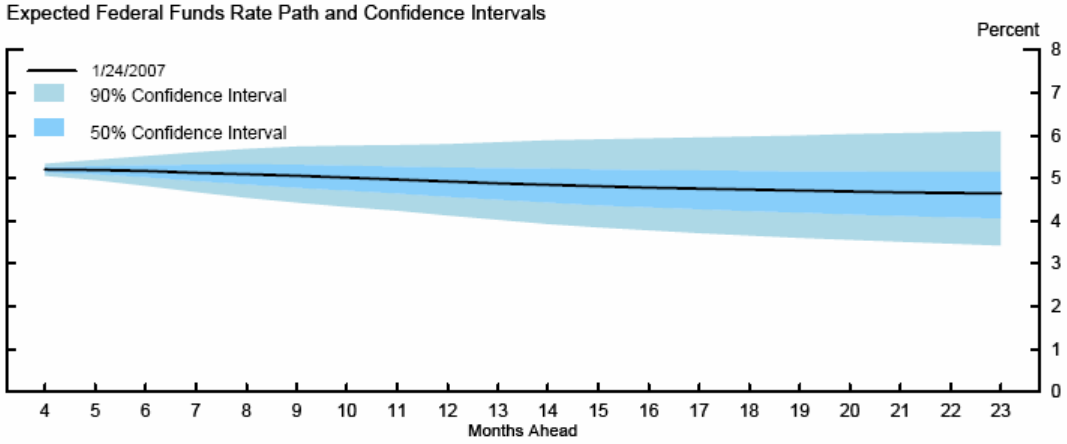


*Width of a 90 percent confidence interval computed from the term structures for the expected federal funds rate and implied volatility.

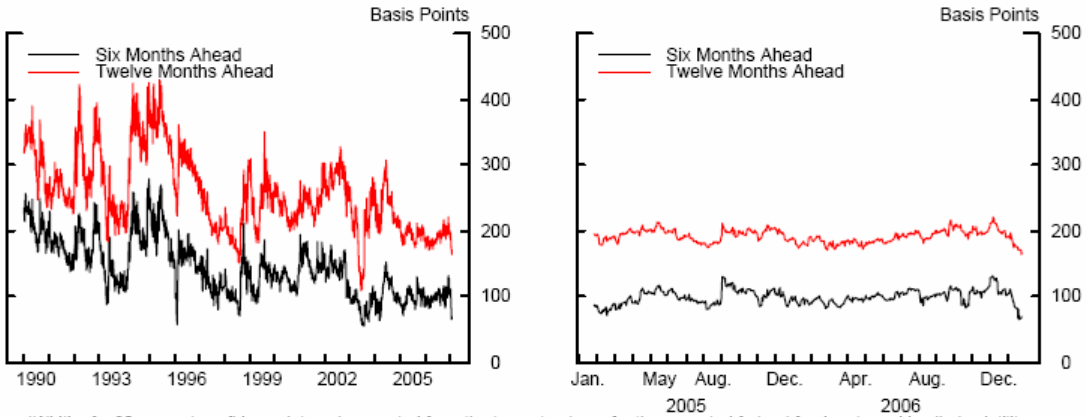
Change Since Day Before FOMC Meeting



Expected Federal Funds Rate Path and Confidence Intervals



Eurodollar Implied Volatility at Selected Maturities*

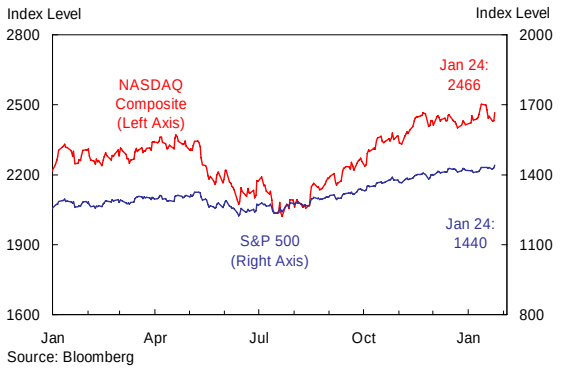


*Width of a 90 percent confidence interval computed from the term structures for the expected federal funds rate and implied volatility.

B. Financial Markets

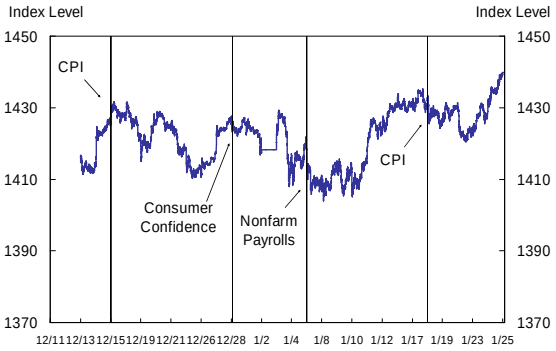
Exhibit B-7:
Equity Markets

Performance



Source: Bloomberg

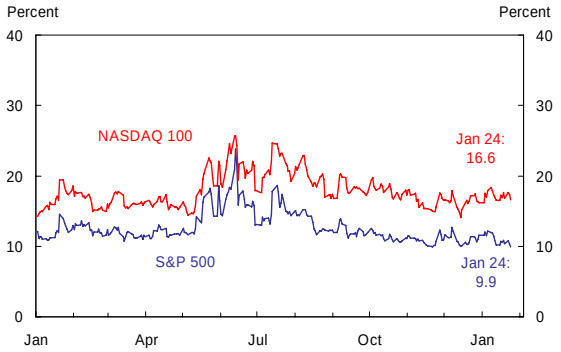
S&P 500 (Intraday)



Source: Bloomberg

Note: Data between 9:30 am and 4:00 pm

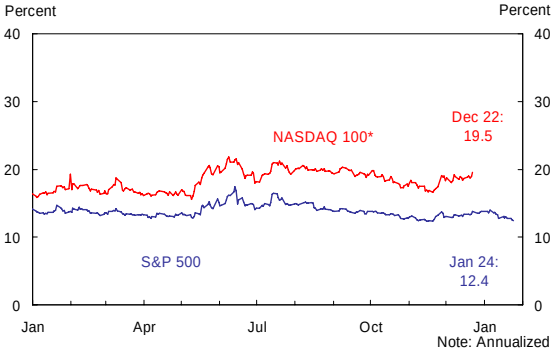
Implied Volatility: 1 Month



Source: CBOE

Note: Annualized

Implied Volatility: 12 Months



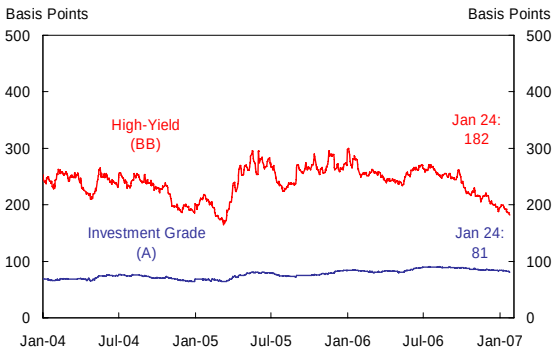
Note: Annualized

Source: OptionMetrics

*Data only available through 12/06

Exhibit B-8:
Corporate Credit Risk

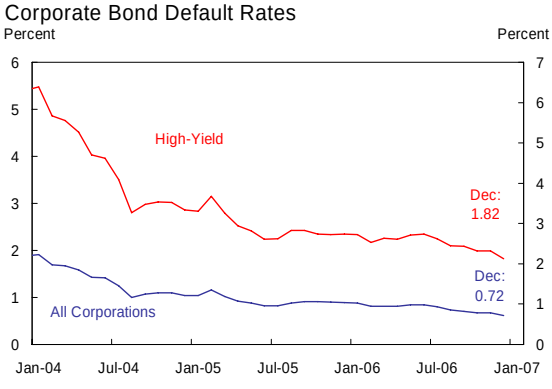
Corporate Credit Spreads



Source: Merrill Lynch

Note: Option-adjusted spreads

Corporate Bond Default Rates



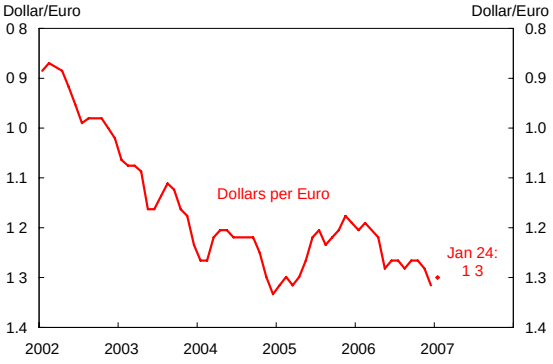
Source: Moody's

Note: Past 12 months, U.S. corporates

B. Financial Markets

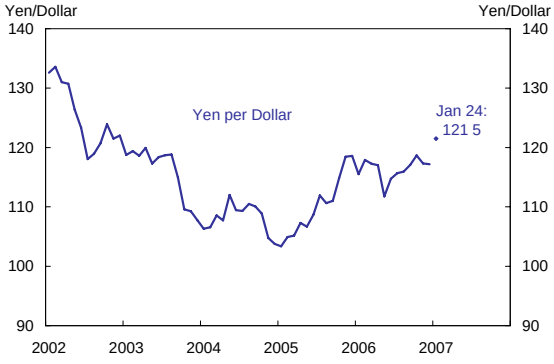
Exhibit B-9:
Exchange Rates, Foreign Equity, and Bond Spreads

Euro-Dollar Exchange Rate



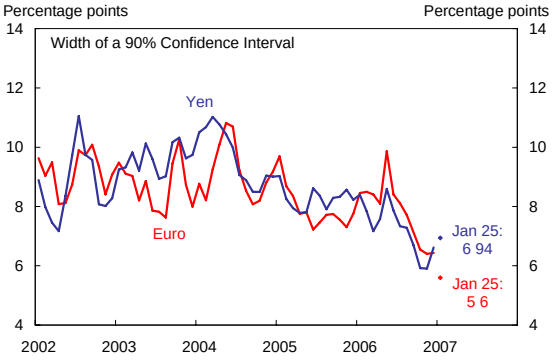
Source: BIS
Note: Data are monthly averages

Yen-Dollar Exchange Rate



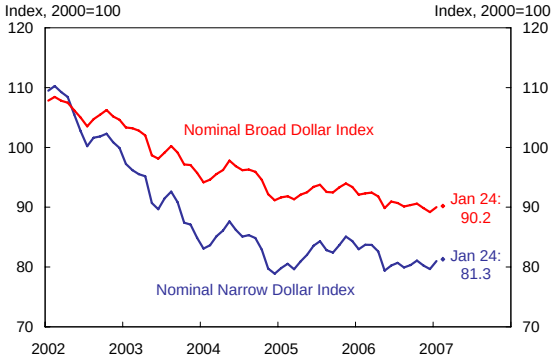
Source: BIS
Note: Data are monthly averages

Euro and Yen One-Month Implied FX Option Volatility



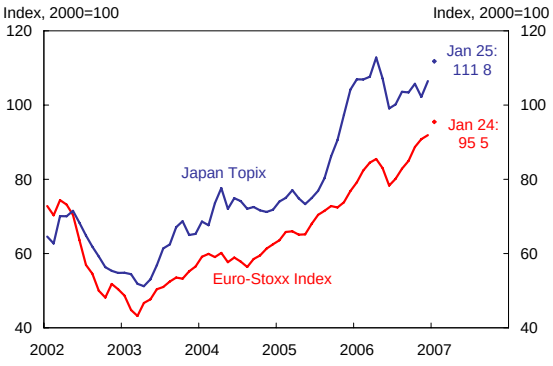
Source: Reuters
Note: Data are monthly averages

Nominal Effective Exchange Rates



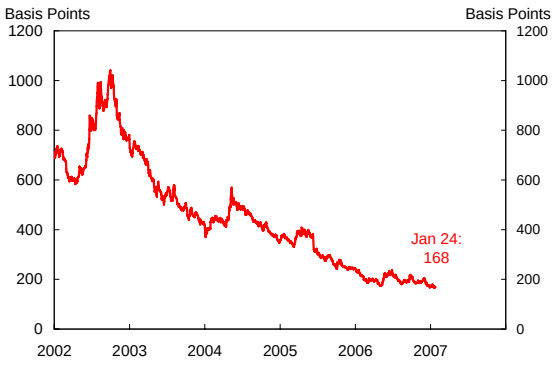
Source: Federal Reserve Board
Note: Data are monthly averages

Euro Area and Japan Equity Indices



Source: BIS and Bloomberg
Note: Data are monthly averages

J.P. Morgan EMBI+ Sovereign Spread

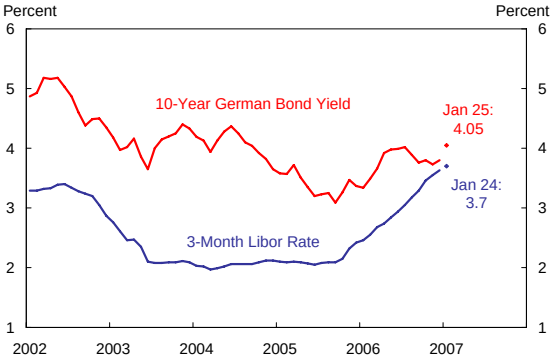


Source: Bloomberg
Note: Data are daily observations

B. Financial Markets

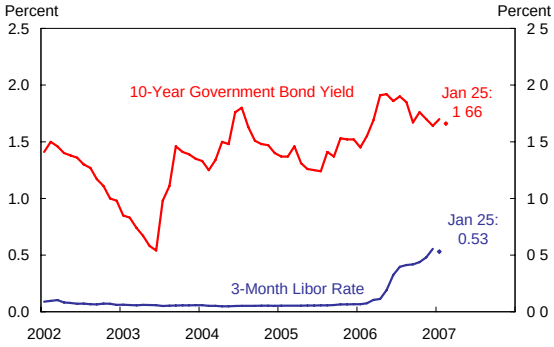
Exhibit B-10:
Foreign Interest Rates

Euro Area Short-Term and Long-Term Interest Rates



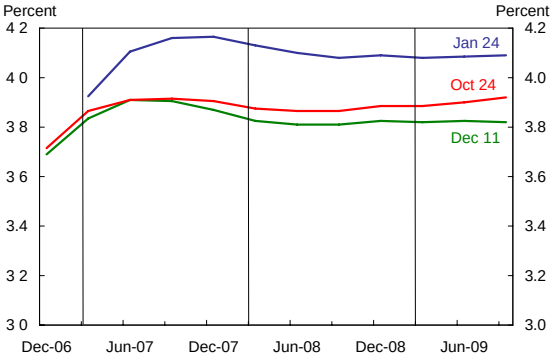
Source: BIS and Federal Reserve Board Note: Data are monthly averages

Japan Short-Term and Long-Term Interest Rates



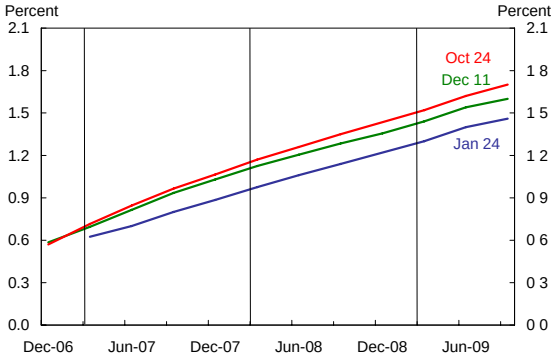
Source: Bloomberg and Federal Reserve Board Note: Data are monthly averages

Three-Month Eurocurrency Futures Rates: Euro



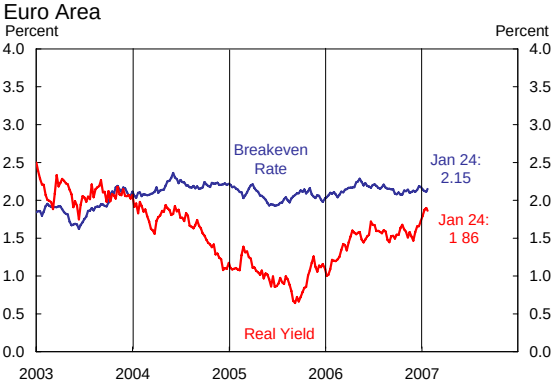
Source: Datastream

Three-Month Eurocurrency Futures Rates: Yen



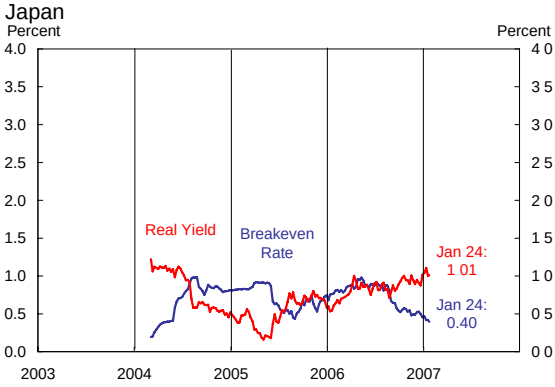
Source: Datastream

Euro Area



Source: Barclays Note: OAT July 2012

Japan

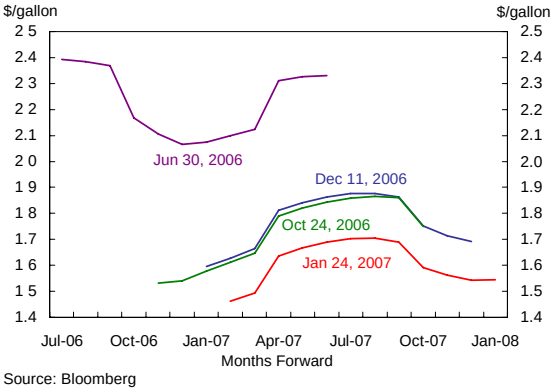


Source: Barclays Note: JGB March 2014

B. Financial Markets

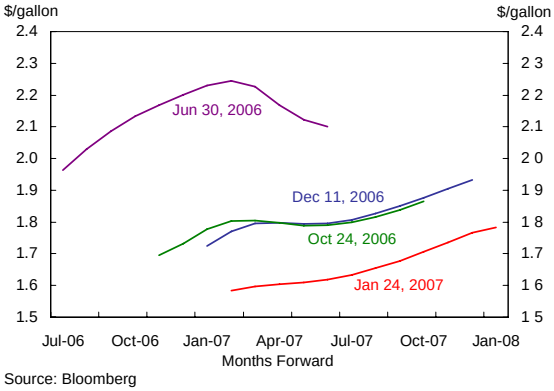
Exhibit B-11:
Energy Futures

Gasoline Futures



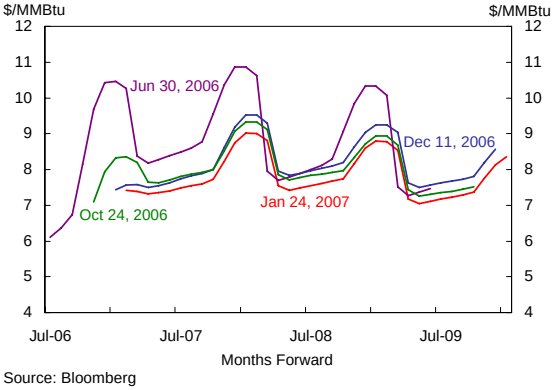
Source: Bloomberg

Heating Oil Futures



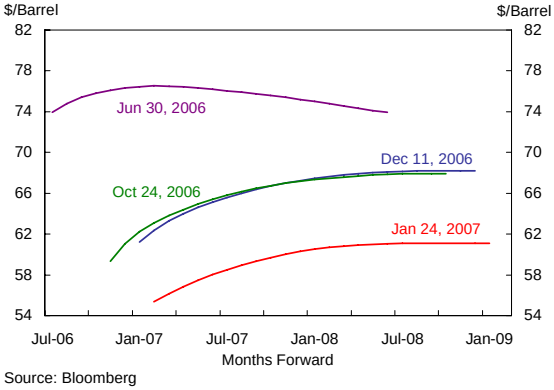
Source: Bloomberg

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: a dynamic assessment allows for the probability of a deviation to the central scenario 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.

There are two classes of shocks to 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 associate different configurations of shocks with 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 to be 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. In the current cycle, we have recast the *Overheating* scenario as an *Effects of Overheating* scenario because we believe that the initial impact of this scenario (excess growth in output) would have already passed, if it had occurred.

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 next offer a qualitative description of the current scenarios.

FRBNY 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 prompted us to reduce 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. We see two alternatives to this projection.

FRBNY Alternative 1. Productivity Boom. The developments in the labor market and the sustained strength of labor productivity growth in the first half of this decade 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.

FRBNY Alternative 2. Productivity Slowdown. It is possible that the upswing in productivity that began in the mid-1990s will not be sustained. Furthermore, the increases in the level and volatility of energy and commodity prices could result in lower productivity growth, as apparently was the case in the 1970s.

FRBNY Alternative 3: Effects of 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 rise in inflation above implicit targets and 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 second form of this scenario (described in the special topic *The Free Lunch* in the May 2006 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 (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 the "true" (i.e., the rate that would prevail without such inflows) equilibrium rate for a significant period of time.

FRBNY Alternative 4: 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 that have already subsided. As a result, policy could be more restrictive than the central bank thinks, with the result that the economy will slow significantly below potential.

The precise implications for inflation and output of the various scenarios are as follows:

1. *Productivity Boom*: inflation below central forecast, output above central forecast.
2. *Productivity Slump*: inflation above central forecast, output below central forecast.
3. *Effects of Overheating*: inflation above central forecast, output slightly below central forecast
4. *Over-Tightening*: inflation below central forecast, output far below central forecast.

Exhibit C-1 & C-2: Fan Charts

Fan charts are shown for the core PCE deflator [Exhibit C-1] and real GDP growth [Exhibit C-2]. These charts are constructed to represent the overall uncertainty contained in our main scenario and alternative scenarios. They combine the information contained in the Exhibit C-3 with the additional uncertainty that we cannot predict perfectly the path of the economy, even if we know which scenario is true. The total amount of 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 the forecast distribution and the Bank's central forecast are included in each fan chart. The expected values are computed as averages over the realizations across all possible scenarios considered in Exhibit C-3. The difference between the expected value profile and the Bank's central forecast is a measure of the balance of risks. If they are equal, the risks are balanced; if the expected value is above the Bank's central scenario, there is upside risk; if it is below, there is downside risk.
Source: MMS Function, FRBNY

Exhibit C-3: Risks

This exhibit shows another measure of the balance of risks for the individual alternative scenarios listed above 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

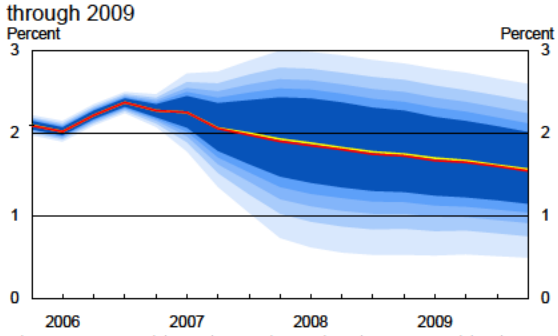
forecast horizon, which is equal to the sum of the probabilities of the other scenarios, including the general upside and downside scenarios not pictured.

Exhibit C-4 & C-5: Alternative Scenarios

These exhibits show the implications of each scenario for GDP growth and core PCE inflation. They plot the expected path of four-quarter changes in the core PCE deflator [Exhibit C-4] and real GDP [Exhibit C-5] 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.

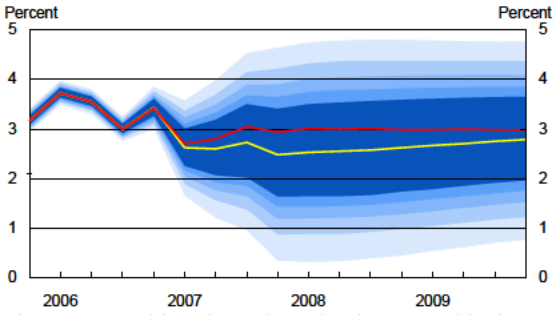
C. FRBNY Forecast Distributions

C-1: Four-Quarter Core PCE Inflation Forecast through 2009



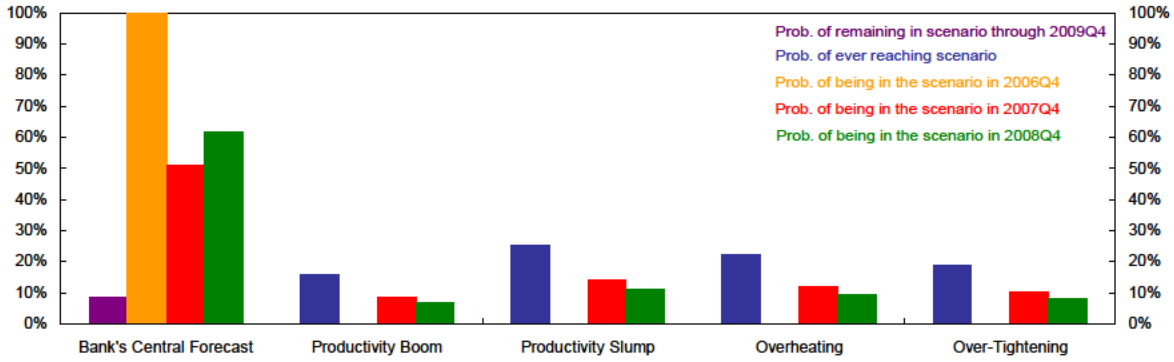
Note The yellow line represents the expected value of the forecast, while the red line represents the actual FRBNY forecast. The shading represents the 50, 60, 70, 80 and 90 percent chance the four-quarter change in the core PCE will be within the respective range.
Source: MMS Function (FRBNY)

C-2: Four-Quarter GDP Growth Forecast through 2009



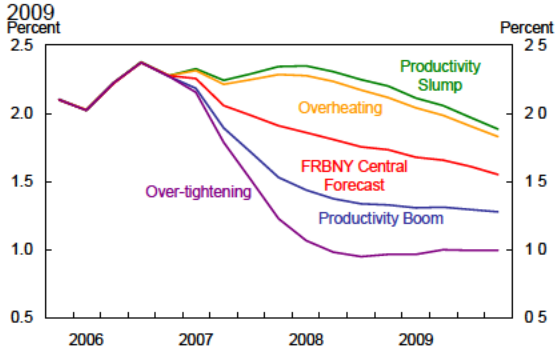
Note The yellow line represents the expected value of the forecast, while the red line represents the actual FRBNY forecast. The shading represents the 50, 60, 70, 80 and 90 percent chance the four-quarter change in GDP growth will be within the respective range.
Source: MMS Function (FRBNY)

C-3: Risks



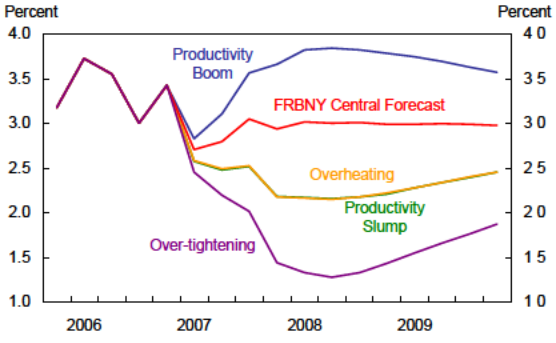
Source: MMS Function (FRBNY)

C-4: Alternative Scenarios of Core PCE Inflation through 2009



Source: MMS Function (FRBNY)

C-5: Alternative Scenarios of GDP Change through 2009



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:

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

$$\rho = 0.8$$

$$i_{2006Q2} = 4.9$$

$$i^* = 4.125$$

$$\pi^* = 1.5$$

$$\varphi_\pi = 1.5$$

$$\varphi_x = 0.5$$

π_t : Core PCE 4 Q average

x_t : 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 2007Q1
r* < 3.00	r*
3.00 < r* < 3.75	4.00
3.75 < r* < 4.00	4.50
4.00 < r* < 4.25 4.25 < r* < 4.50 4.50 < r* < 4.75	4.75
4.75 < r* < 5.00	5.00
5.00 < r* < 5.25 5.25 < r* < 5.50	5.25
5.50 < r* < 5.75 5.75 < r* < 6.00	5.50
r* > 6.00	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*, *effects of 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 FFR futures values, while the average takes the mean over the three rules evaluated during this cycle, using weights of 0.60 (*Baseline*), 0.10 *(Dove*) and 0.30 (*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 2007Q4.

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.

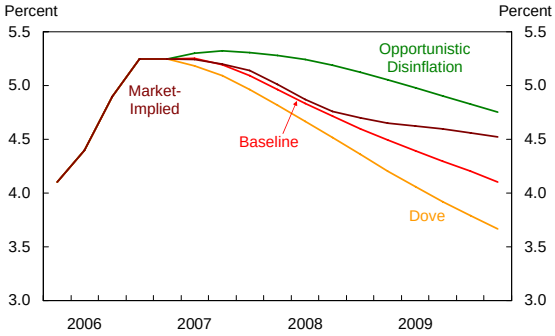
There are many other sources for differences between the two paths. One important consideration is the adjustment for risk in constructing the market path. We use an adjustment from the Board that is constant over time; there is some evidence, however, that the adjustment varies over time. Furthermore, 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 fourth 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 box plot to allow for a more direct comparison of the implications of different policy rules. The box represents the 50% probability interval (25^{th} to 75^{th} percentile), the line in the box the median, and the tails the 90% probability interval (5^{th} to 95^{th} percentile).
Source: MMS Function, FRBNY

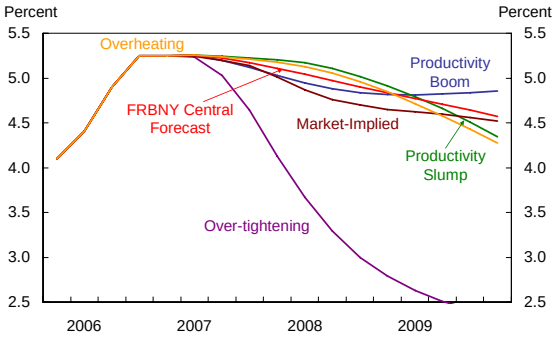
D. FRBNY Fed Funds Rate Projections

D-1: Nominal FFR under Different Policy Rules



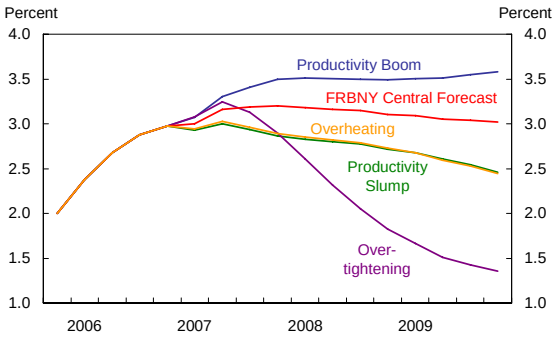
Source: MMS Function (FRBNY)

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



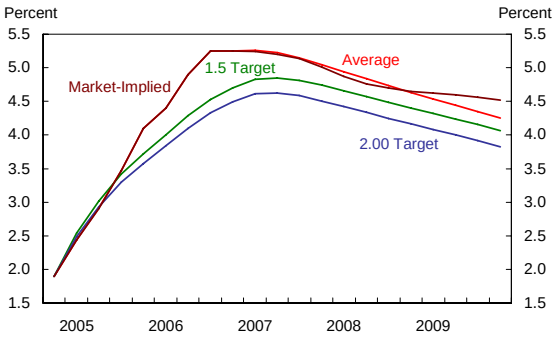
Source: MMS Function (FRBNY)

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)

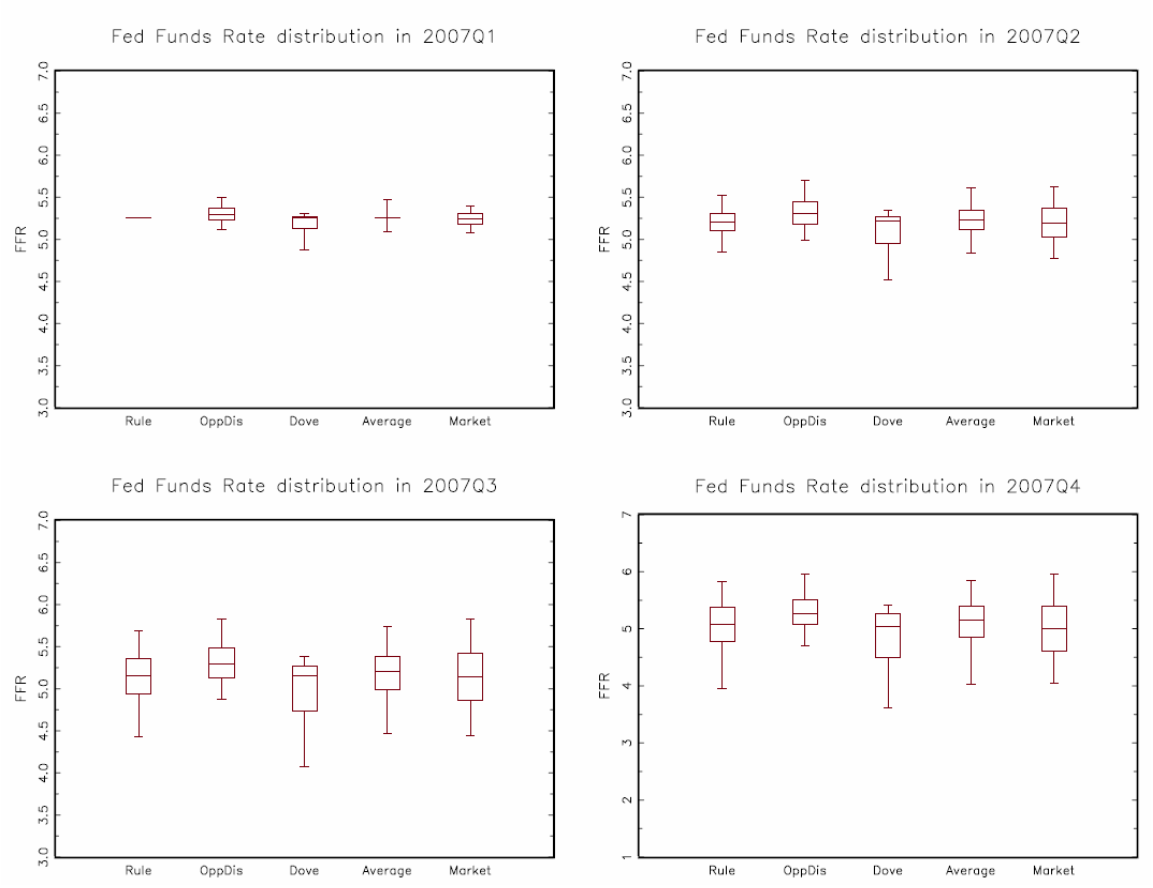
D. FRBNY Fed Funds Rate Projections

Exhibit D-5: Comparison between Market Expectations and FRBNY Expectations of the Federal Funds Rate: 2007Q4

	Percentile of FRBNY Expectation in Market Distribution	Percentile of Market Expectation in FRBNY Distribution
Baseline	48 (58)	43 (25)
Dove	37 (47)	48 (44)
Opportunistic Disinflation	68 (78)	19 (9)
Average	52 (56)	36 (31)

Note: "Average" weights baseline at .60, dove at .10, and opportunistic disinflation at .30. Numbers in parentheses represent data from the last Blackbook, with "Average" weighting baseline at .40, dove at .50 and opportunistic disinflation at .10.

Exhibit D-6: Fed Funds Rate Distribution



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

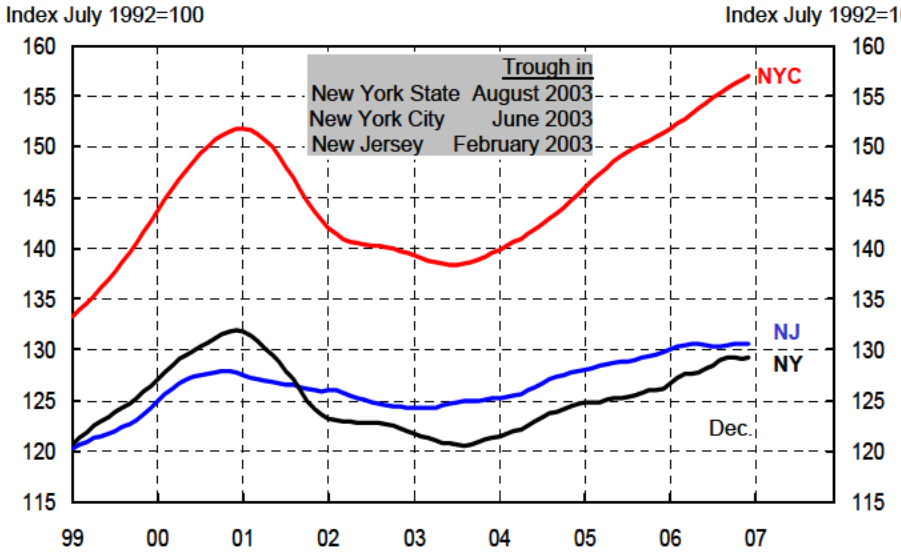
Exhibit E-4. Office vacancy rates and asking rents

This chart shows quarterly vacancy rates and asking rents for office space in Midtown Manhattan and Downtown Manhattan from 1999 to present. Vacancy rate represents the

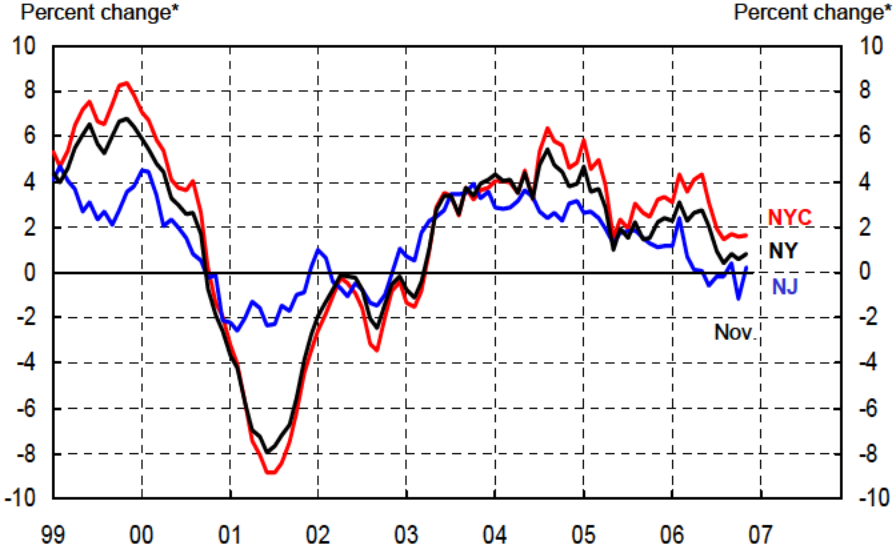
percentage of all office space available at the end of the quarter, while the asking rent represents the listed rent (yearly) per square foot on Class A office space.
Source: Cushman & Wakefield

E. Regional Charts

E1: INDEX OF COINCIDENT ECONOMIC INDICATORS

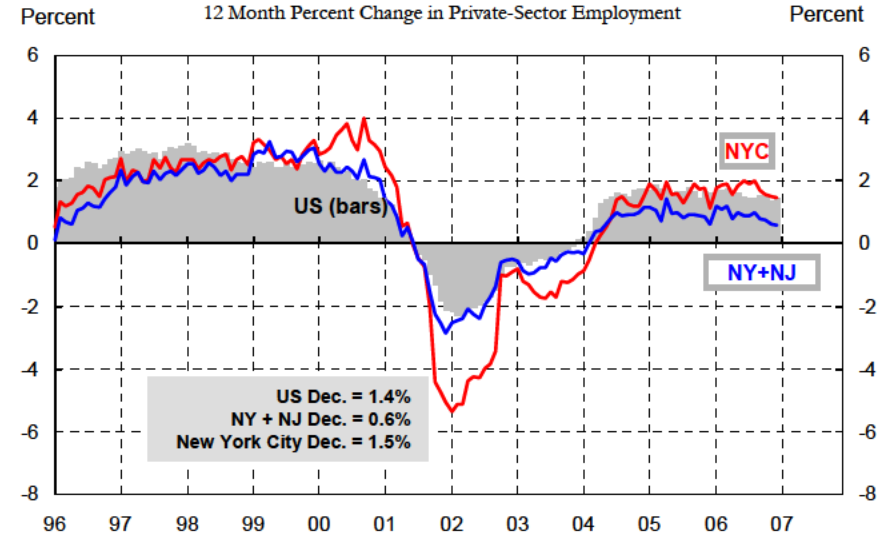


E2: INDEX OF LEADING ECONOMIC INDICATORS



** 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: OFFICE VACANCY RATES & ASKING RENTS