Appendix 1: Materials used by Messrs. Wilcox, Elmendorf, and Reinhart
Material for Board Staff Presentation on:

Considerations Pertaining to the Establishment of a Specific, Numerical, Price-Related Objective for Monetary Policy

Divisions of Research & Statistics and Monetary Affairs

February 1, 2005
A Specific, Numerical, Price-Related Objective for Monetary Policy?

Key characteristics of a specific, numerical, price-related objective:

- Numerical rather than qualitative;
- Stated in terms of a particular published index; and
- Either inflation control or price-level control.

A premise of the paper:

- A price objective should be chosen to minimize the costs of deviations from price stability.
- The premise suggests that the objective should be defined with respect to the price index most closely related to such costs.
Exhibit 2

Potential Benefits and Costs of Adopting a Specific Price-Related Objective

Potential Benefits:
- Could help preserve the present commitment to price stability.
- Could better anchor long-run inflation expectations and thereby reduce the volatility of both inflation and real activity.
- Could improve public understanding of monetary policy.
- Could help focus policy debates within the FOMC.

Potential Costs:
- Could mislead the public into believing that emphasis had shifted toward the price objective.
- Could cause the FOMC inadvertently to place more emphasis on the price objective.
- Could diminish the FOMC's credibility when inflation differed from the stated objective.
- Could constrain future actions of the FOMC in an unhelpful manner.

Empirical Evidence:
- Little to no evidence regarding the likely influence on FOMC decision-making or the quality of communications with the public.
- Some hints from foreign experience that specific price objectives have helped anchor long-term inflation expectations.
- Disputed evidence that the reduced volatility of inflation and real output owes to improved conduct of U.S. monetary policy.
- Simulation-based evidence that better-anchored inflation expectations would reduce the volatility of inflation and real output.
Operational Issues Related to Specifying a Numerical Price-Related Objective

A checklist for policymakers:

- Which price index?
- The inflation rate or the price level?
- What average rate?
- Point objective or range?

For index, we favor consumer prices on the grounds of:

- Familiarity.
- Quality of measurement.
- Empirical result that inflation rates move together in the long run.

If an inflation objective, at what rate?

- Measurement bias: Nearly 1 percentage point for CPI; about ½ percentage point for PCE prices.
- Rationales for aiming for zero true inflation: Traditional costs of inflation.
- Rationales for aiming for positive true inflation: Downward nominal wage rigidity; zero lower bound on nominal interest rates.

Effect of zero lower bound under an updated Taylor rule:

<table>
<thead>
<tr>
<th>Target PCE inflation rate (measured rate, with bias-adjusted rate in parentheses)</th>
<th>½ (0)</th>
<th>1 ½ (1)</th>
<th>2 ½ (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraction of time with funds rate at zero</td>
<td>.16</td>
<td>.10</td>
<td>.06</td>
</tr>
<tr>
<td>Standard deviation of output gap*</td>
<td>2.53</td>
<td>2.31</td>
<td>2.21</td>
</tr>
<tr>
<td>Standard deviation of unemployment rate*</td>
<td>1.40</td>
<td>1.27</td>
<td>1.22</td>
</tr>
</tbody>
</table>

*measured in percentage points
Exhibit 4

Accuracy in Achieving an Inflation Objective

Imperfect controllability:

- Inflation is volatile, and monetary policy influences it only indirectly and with a lag.
- The FOMC could not hit a point objective precisely or guarantee a narrow range.

Percent of time that PCE inflation averaged over four quarters could be held within ± 1 percentage point of desired rate:

<table>
<thead>
<tr>
<th>Volatility of economic shocks matters:</th>
<th>Total</th>
<th>Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Drawn from 1968 to 2004 experience</td>
<td>59</td>
<td>64</td>
</tr>
<tr>
<td>2. Drawn from 1984 to 2004 experience</td>
<td>68</td>
<td>73</td>
</tr>
</tbody>
</table>

*Expectations formation matters:*

- 3. VAR-based expectations with imperfect credibility | 68 | 73 |
- 4. VAR-based expectations with perfect credibility | 80 | 89 |

Summary:

- The FOMC could likely keep four-quarter total PCE inflation within a ± 1-percentage-point band about 3/4 to 4/5 of the time.
Exhibit 5

Governance Issues Related to the Specification of Price Stability

1. Is an explicit numerical specification of price stability helpful?

   NO
   - Continue the status quo.
   - At the margin, the FOMC could:
     - encourage participants to be more specific about preferences;
     - use the minutes, testimonies, and the MPR to provide additional guidance to the public.

   YES
   - Should the objective be made public?

   NO
   - Agreement on a private objective may facilitate internal communications, but
     - how can the FOMC justify keeping it secret?
     - how will the FOMC keep it secret?

   YES
   - Should the objective be decided by the Congress (by amending the Federal Reserve Act) or by the FOMC?

2. FOMC

3. CONGRESS

4. Is the FOMC:
   - comfortable in seeking amendment to the FRA?
   - confident that the Congress would pick an appropriate inflation objective?

   And will this lead to the creation of a numerical objective for output growth or employment as well?

5. As a group decision, similar to choosing a range for a monetary aggregate.

   As individual decisions, summarized by announcing the range and central tendency of participants' views.
Exhibit 6

Key Questions for Today’s Discussion

How do you define price stability?

- Is it known by inference about behavior of by a numerical specification?
- If the latter,
  - What price index do you prefer?
  - Should the objective be stated in terms of a path for the price level or as the rate of inflation?
  - What are the desired point estimates or ranges for the inflation objective?

What role should the price objective play in the Committee’s policy process?

- Alternative I: Maintain the status quo
  - Perhaps provide more information to the public over time as to your attitudes toward prevailing and prospective inflation
- Alternative II: Vote formally on a numerical inflation goal
- Alternative III: Survey participants as to the appropriate inflation objective
Appendix 2: Materials used by Mr. Kos
Current U.S. 3-Month Deposit Rates and Rates Implied by Traded Forward Rate Agreements
December 1, 2004 – January 31, 2005

LIBOR Fixing 3M Forward 6M Forward 9M Forward

2-Year Treasury Yield
December 1, 2004 – January 31, 2005

10-Year Treasury Yield
December 1, 2004 – January 31, 2005

Yield Spread Between 2-and 10-Year Treasury Notes
December 1, 2004 – January 31, 2005

Yield Spread Between 10- and 30-Year Treasury Notes
December 1, 2004 – January 31, 2005
Euro-Area 3-Month Deposit Rates and Rates Implied by Traded Forward Rate Agreements
December 1, 2004 – January 31, 2005

Euro-Dollar Currency Pair
December 1, 2004 – January 31, 2005

Dollar-Yen Currency Pair
December 1, 2004 – January 31, 2005

Dollar-Yuan Exchange Value Implied by the NDF Market
July 1, 2004 – January 31, 2005

Foreign Exchange Reserves of China & Japan
December 31, 2003 – December 31, 2004
Daily Intra-Day Standard Deviations of the Federal Funds Rate
1987 - 2004

Annual averages of daily values

Annual medians of daily values

Average Intraday Standard Deviation of Federal Funds Rates
(Maintenance Period Averages)
For Maintenance Periods Ending January 21, 2004 – January 19, 2005
Appendix 3: Materials used by Messrs. Slifman and Struckmeyer, and Ms. Johnson
Material for

Staff Presentation on the Economic Outlook

February 2, 2005

*Downgraded to Class II upon release of the February 2005 Monetary Policy Report.
Recent Indicators

Private Payroll Employment
Average monthly change, thousands

Manufacturing Industrial Production
Percent change, a.r.

Real PCE exc. Motor Vehicles*
Percent change, a.r.

Sales of Light Vehicles
Millions of units, a.r.

Orders and Shipments of Nondefense Capital Goods*
3-month moving average

Real GDP
Percent change, a.r.

*In this and subsequent charts, NIPA series in 2004:Q4 are from the January Greenbook.

*Excluding aircraft.

<table>
<thead>
<tr>
<th>2004.Q4</th>
<th>Jan. GB</th>
<th>BEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Real GDP</td>
<td>3.5</td>
<td>3.1</td>
</tr>
<tr>
<td>2. Final sales</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>3. Inventories</td>
<td>.8</td>
<td>.4</td>
</tr>
</tbody>
</table>

Contributions (percentage points)
Overview

Key Background Factors

- **Monetary policy:** We assume a continuing withdrawal of monetary accommodation over the next two years. The federal funds rate reaches 3 percent in the fourth quarter of this year and 3-1/2 percent in the latter part of 2006 – a path quite similar to that implied by futures quotes.

- **Fiscal policy:** FIs expected to be neutral in 2005 and provide only a small positive impetus to GDP growth in 2006.

- **Oil prices:** We continue to be guided in our forecast by futures markets, which expect prices to drift down over the next two years.

- **Dollar:** The foreign exchange value of the dollar is expected to drift down.

- **Stock market:** Prices are assumed to rise 6-1/2 per cent per year, which would roughly maintain risk-adjusted parity with the yield on long-term bonds.

- **House prices:** The rate of increase is expected to slow from last year's torrid pace.

Real Gross Domestic Product

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GDP</td>
<td>3.8</td>
<td>3.9</td>
<td>3.6</td>
</tr>
<tr>
<td><em>Contribution from:</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Private consumption and fixed investment</td>
<td>4.1</td>
<td>3.4</td>
<td>3.5</td>
</tr>
<tr>
<td>3. Imports</td>
<td>-.14</td>
<td>-.8</td>
<td>-.12</td>
</tr>
<tr>
<td>4. Exports</td>
<td>.5</td>
<td>.9</td>
<td>.7</td>
</tr>
<tr>
<td>5. Government</td>
<td>.2</td>
<td>.6</td>
<td>.5</td>
</tr>
<tr>
<td>6. Inventory investment</td>
<td>.4</td>
<td>-.2</td>
<td>.1</td>
</tr>
</tbody>
</table>

Percent change, Q4/Q4
What Keeps Growth Above Potential Through 2006?

- **Monetary policy:** The real fed funds rate is projected to still be below its long-run average over the projection period and on the stimulative side of the short-run measures of r-star shown in the Bluebook.

- **Other financial market conditions:**
  - Nominal long-term rates are projected to be little changed, despite the assumed rise in short-term rates.
  - Corporate balance sheets are quite strong: Cash is abundant and interest expenses relative to cash flow are at low levels.
  - Defaults, delinquencies and risk spreads are quite low.
  - Banks continue to ease lending standards.

- **Oil prices:** Higher oil prices reduced GDP growth \( \frac{3}{4} \) percentage point in 2004. The negative effects wane to \(-\frac{1}{4} \) percentage point in 2005 as oil prices begin to recede; the projected decline in prices boosts GDP growth slightly in 2006.
Chart 4

**Household Sector**

**Real PCE and DPI**

- DPI (Red) and PCE (Blue) bars for years 2003 to 2006.
- Percent change, Q4/Q4:
  - 2003: 0%
  - 2004: 4%
  - 2005: 5%
  - 2006: 4%

**Financial Obligations Ratio**

- Percent of DPI:
  - 1980: 15%
  - 1985: 16%
  - 1990: 17%
  - 1995: 18%
  - 2000: 19%
  - 2005: 19%

**Household Net Worth to DPI**

- Ratio for years 1975 to 2005:
  - 1975: 3.5
  - 1980: 4.5
  - 1985: 5.5
  - 1990: 6.5
  - 1995: 5.5
  - 2000: 4.5
  - 2005: 4.5
- *OFHEO Repeat Sales Price Index.

**House Prices**

- Real estate slump scenario:
  - 1975: 10
  - 1980: 20
  - 1985: 10
  - 1990: 0
  - 1995: -10
  - 2000: 0
  - 2005: 10
- *OFHEO Repeat Sales Price Index.

**Single-family Housing Starts**

- Millions of units, a.r.:
  - 1975: 0.5
  - 1980: 1.5
  - 1985: 2.0
  - 1990: 2.0
  - 1995: 1.5
  - 2000: 1.0
  - 2005: 0.5

**Weighted Average Mortgage Rate**

- Percent:
  - 1975: 0%
  - 1980: 5%
  - 1985: 10%
  - 1990: 15%
  - 1995: 20%
  - 2000: 15%
  - 2005: 10%
- *Weighted average of 30-year fixed-rate mortgage and 1-year adjustable-rate mortgage.
**Business Sector**

**Equipment and Software exc. Transportation**

- **High-tech**
- **Other**

<table>
<thead>
<tr>
<th>Year</th>
<th>1993-2004</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent change, a.r.</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>

**Capacity Utilization Rate**

- **Manufacturing**
  - **1972-2003 average**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>65</td>
<td>70</td>
<td>75</td>
<td>80</td>
<td>85</td>
<td>90</td>
<td>90</td>
</tr>
</tbody>
</table>

**Rate of Return on Capital for Nonfinancial Corporate Business**

*Nonfinancial corporate profits with IVA and CADJ plus interest, divided by nonfinancial stock of fixed assets.*

**Reserve Bank Queries on Capital Spending Plans**

(Percent)

<table>
<thead>
<tr>
<th>Plan to increase spending over next 6 to 12 months</th>
<th>Jan 2004</th>
<th>Jan 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>51.7</td>
<td>47.3</td>
</tr>
</tbody>
</table>

*Reasons cited for increase:*  
- Expected sales growth: 53.6 | 47.7  
- Replace IT equip.: 41.1 | 39.9  
- Replace other equip.: 42.3 | 41.5  

*Percent of respondents planning to increase spending.*

**Equipment and Software**

- **GB baseline**
- **No pothole scenario**

<table>
<thead>
<tr>
<th>Year</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent change, Q4/Q4</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
</tbody>
</table>

**Price Index for Desktop Computers**

- **Production process improvements**
- **Technological improvements**

<table>
<thead>
<tr>
<th>Year</th>
<th>1994-2002</th>
<th>2003</th>
<th>2004*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent change, a.r.</td>
<td>15</td>
<td>0</td>
<td>-15</td>
</tr>
</tbody>
</table>

*First three quarters (latest data available).*

Source: Staff estimates.
Chart 8

Recent Price Developments

Consumer Prices

12-month percent change

PCE Energy Prices

Percent change, a.r.

PCE Food Prices

Core PCE Prices

12-month percent change

Core PCE Components

12-month percent change

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core PCE</td>
<td>1.7</td>
<td>1.1</td>
<td>1.5</td>
</tr>
<tr>
<td>Market based</td>
<td>1.4</td>
<td>1.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Goods</td>
<td>-1.6</td>
<td>-2.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Services</td>
<td>3.0</td>
<td>2.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Nonmarket based</td>
<td>3.6</td>
<td>1.3</td>
<td>0.5</td>
</tr>
</tbody>
</table>

PPI-Intermediate Materials less Food and Energy

Percent change, a.r.
Chart 9

Inflation Outlook

PCE Prices

Percent change, Q4/Q4

2002 2003 2004 2005 2006

Core PCE Prices

Percent change, Q4/Q4

2002 2003 2004 2005 2006

Core Non-fuel Import Prices

Four-quarter percent change

2002 2003 2004 2005 2006

Price Markup over Trend Unit Labor Costs

Ratio

2002 2003 2004 2005 2006

Alternative Projections of Core PCE Prices

Percent change, Q4/Q4

2002 2003 2004 2005 2006

Higher inflation scenario

Higher inflation

Lower inflation

70% Confidence interval
Financial Developments
(Monthly data)

Nominal Exchange Rates
Foreign currency/U.S. dollar
Index, Jan. 2002 = 100

Three-Month Interest Rates

Term Structure of Three-Month Euro Futures
January 27, 2004
June 29, 2004
February 1, 2005

Term Structure of Three-Month Yen Futures
January 27, 2004
June 29, 2004
February 1, 2005

Ten-Year Interest Rates

Broad Stock Price Indexes
Index, Jan. 2002 = 100

*Trade-weighted average against major currencies.

(Actual data and graphs are shown in the image.)
## Foreign Outlook

### Foreign Real GDP*

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total Foreign</td>
<td>2.6</td>
<td>3.1</td>
<td>3.0</td>
<td>3.3</td>
<td>3.4</td>
<td>3.3</td>
</tr>
<tr>
<td>2. Industrial Countries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.9</td>
<td>2.0</td>
<td>2.1</td>
<td>2.4</td>
<td>2.5</td>
<td>2.4</td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Japan</td>
<td>0.2</td>
<td>1.0</td>
<td>1.2</td>
<td>1.4</td>
<td>1.6</td>
<td>1.8</td>
</tr>
<tr>
<td>4. Euro Area</td>
<td>1.1</td>
<td>1.4</td>
<td>1.4</td>
<td>1.5</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>5. United Kingdom</td>
<td>1.8</td>
<td>3.0</td>
<td>2.1</td>
<td>2.6</td>
<td>2.6</td>
<td>2.2</td>
</tr>
<tr>
<td>6. Canada</td>
<td>3.2</td>
<td>2.2</td>
<td>2.6</td>
<td>2.9</td>
<td>3.2</td>
<td>3.0</td>
</tr>
<tr>
<td>7. Emerging Economies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. China</td>
<td>10.1</td>
<td>11.2</td>
<td>7.1</td>
<td>7.1</td>
<td>7.1</td>
<td>7.5</td>
</tr>
<tr>
<td>9. Emerging Asia exc. China</td>
<td>3.2</td>
<td>3.9</td>
<td>4.2</td>
<td>4.6</td>
<td>4.4</td>
<td>4.2</td>
</tr>
<tr>
<td>10. Mexico</td>
<td>2.6</td>
<td>4.0</td>
<td>4.0</td>
<td>4.1</td>
<td>4.2</td>
<td>4.3</td>
</tr>
<tr>
<td>11. South America</td>
<td>4.1</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
<td>3.7</td>
<td>3.6</td>
</tr>
</tbody>
</table>

---

* Aggregates weighted by shares of U.S. exports.

** Year is Q4/Q4; half year is Q4/Q2; quarters are percent change from previous quarter.
* The series shown are the EMBI+ Brazil sub-index, the EMBI Global Thailand sub-index, and the Indonesian Yankee Bond Spread.

**Industrial Production**

<table>
<thead>
<tr>
<th>Country</th>
<th>Index, Jan. 2003 = 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>130</td>
</tr>
<tr>
<td>Korea</td>
<td>115</td>
</tr>
<tr>
<td>Thailand</td>
<td>105</td>
</tr>
</tbody>
</table>

**Exports**

<table>
<thead>
<tr>
<th>Country</th>
<th>Index, Jan. 2003 = 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>170</td>
</tr>
<tr>
<td>Korea</td>
<td>150</td>
</tr>
<tr>
<td>Thailand</td>
<td>130</td>
</tr>
</tbody>
</table>

**Stock Price Indexes**

<table>
<thead>
<tr>
<th>Country</th>
<th>Index, Jan. 4, 2002 = 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>175</td>
</tr>
<tr>
<td>Korea</td>
<td>150</td>
</tr>
<tr>
<td>Singapore</td>
<td>125</td>
</tr>
</tbody>
</table>

**Weekly Spreads**

<table>
<thead>
<tr>
<th>Country</th>
<th>Basis points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>250</td>
</tr>
<tr>
<td>Thailand</td>
<td>75</td>
</tr>
<tr>
<td>Indonesia</td>
<td>50</td>
</tr>
</tbody>
</table>
Trade in Goods and Services

<table>
<thead>
<tr>
<th>Q3</th>
<th>O-N**</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Balance</td>
<td>-621</td>
<td>-698</td>
</tr>
</tbody>
</table>

Imports:
- 2. G & S 1780 1858 78
- 3. Cons. Gds. 365 386 21
- 4. Machinery 180 182 2
- 5. Ind. Sup.* 241 244 3
- 6. Oil 180 220 40
- 7. Other 814 826 12

Exports:
- 8. G & S 1158 1160 2
- 9. Machinery 169 165 -4
- 10. Ind. Sup. 190 195 5
- 11. Other 799 800 1

* Excludes oil.
** Average of October and November data.
Chart 14

External Sector

Real Export Growth

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Goods and services</td>
<td>6.1</td>
<td>4.9</td>
<td>8.7</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Percentage point contribution:

2. Services | 1.2 | 1.4 | 2.0 | 1.8 |
3. Goods of which | 4.9 | 3.5 | 6.6 | 5.4 |
4. Core* | 3.0 | 3.5 | 5.1 | 3.9 |

*Excludes computers and semiconductors.

Real Import Growth

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Goods and services</td>
<td>4.9</td>
<td>9.3</td>
<td>5.2</td>
<td>7.6</td>
</tr>
</tbody>
</table>

Percentage point contribution:

2. Services | 0.6 | 0.3 | 0.6 | 0.7 |
3. Goods of which | 4.2 | 9.0 | 4.6 | 6.9 |
4. Core* | 3.3 | 6.7 | 4.5 | 5.6 |

*Excludes computers, semiconductors, and oil.

Contributions to U.S. GDP Growth

Exports | Imports

External Balances

<table>
<thead>
<tr>
<th></th>
<th>Billions of dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade balance</td>
<td></td>
</tr>
<tr>
<td>Current account balance</td>
<td></td>
</tr>
</tbody>
</table>

Simulation Results

<table>
<thead>
<tr>
<th></th>
<th>2004Q4</th>
<th>2006Q4</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade balance</td>
<td>-689</td>
<td>-720</td>
<td>-31</td>
</tr>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weaker dollar</td>
<td>-689</td>
<td>-689</td>
<td>0</td>
</tr>
<tr>
<td>Current account balance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>-774</td>
<td>-881</td>
<td>-107</td>
</tr>
<tr>
<td>Weaker dollar</td>
<td>-774</td>
<td>-863</td>
<td>-89</td>
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</tbody>
</table>
**ECONOMIC PROJECTIONS FOR 2005**

<table>
<thead>
<tr>
<th>FOMC</th>
<th>Range</th>
<th>Central Tendency</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage change, Q4 to Q4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal GDP</td>
<td>5 to 6</td>
<td>5½ to 5¼</td>
<td>5.4</td>
</tr>
<tr>
<td>July 2004</td>
<td>(4¾ to 6½)</td>
<td>(5¼ to 6)</td>
<td>(5.0)</td>
</tr>
<tr>
<td>Real GDP</td>
<td>3½ to 4</td>
<td>3¼ to 4</td>
<td>3.9</td>
</tr>
<tr>
<td>July 2004</td>
<td>(3½ to 4)</td>
<td>(3½ to 4)</td>
<td>(3.6)</td>
</tr>
<tr>
<td>Core PCE Prices</td>
<td>1½ to 2</td>
<td>1½ to 1¾</td>
<td>1.6</td>
</tr>
<tr>
<td>July 2004</td>
<td>(1½ to 2½)</td>
<td>(1½ to 2)</td>
<td>(1.6)</td>
</tr>
</tbody>
</table>

| Unemployment rate | 5 to 5½     | 5¼               | 5.3   |
| July 2004         | (5 to 5½)   | (5 to 5¼)        | (5.3) |

Central tendencies calculated by dropping high and low three from ranges.

**ECONOMIC PROJECTIONS FOR 2006**

<table>
<thead>
<tr>
<th>FOMC</th>
<th>Range</th>
<th>Central Tendency</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage change, Q4 to Q4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal GDP</td>
<td>5 to 5¼</td>
<td>5 to 5½</td>
<td>5.3</td>
</tr>
<tr>
<td>Real GDP</td>
<td>3¼ to 3¾</td>
<td>3½</td>
<td>3.6</td>
</tr>
<tr>
<td>Core PCE Prices</td>
<td>1½ to 2</td>
<td>1½ to 1¾</td>
<td>1.4</td>
</tr>
</tbody>
</table>

| Unemployment rate | 5 to 5¼     | 5 to 5¼          | 5.1   |

| Unemployment rate | 5 to 5¼     | 5 to 5¼          | 5.1   |
Appendix 4: Materials used by Mr. Olson
<table>
<thead>
<tr>
<th>Seasonal Factors (Out of 100 percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Insured Commercial Banks</strong></td>
</tr>
<tr>
<td><strong>1Q</strong></td>
</tr>
<tr>
<td>NPA Ratio</td>
</tr>
<tr>
<td>Net Charge-off Ratio</td>
</tr>
<tr>
<td>Prov to Avg Loans</td>
</tr>
<tr>
<td><strong>Banks LT $1 billion</strong></td>
</tr>
<tr>
<td><strong>1Q</strong></td>
</tr>
<tr>
<td>NPA Ratio</td>
</tr>
<tr>
<td>Net Charge-off Ratio</td>
</tr>
<tr>
<td>Prov to Avg Loans</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Key Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>NPA Ratio</td>
</tr>
<tr>
<td>Net Charge-off Ratio</td>
</tr>
<tr>
<td>Prov to Avg Loans</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>NPA Ratio</td>
</tr>
<tr>
<td>Net Charge-off Ratio</td>
</tr>
<tr>
<td>Prov to Avg Loans</td>
</tr>
</tbody>
</table>
Appendix 5: Materials used by Mr. Reinhart
Material for
FOMC Briefing on Monetary Policy Alternatives

Vincent R. Reinhart
February 2, 2005
Exhibit 1
The Case for Tightening 25 Basis Points

Expected Federal Funds Rate

Unemployment Rate

Core PCE Inflation

Corporate and Sovereign Bond Spreads*

Asset Prices and Monetary Policy

- Asset price misalignments are hard to identify with confidence.
- Appropriate monetary policy is not clear.
- Other instruments may be better suited to dealing with such problems.

Values from Policy Rules and Futures Markets

An explanatory note is provided in Chart 9 of the Bluebook.

*Spreads over yields on comparable maturity Treasuries.
Exhibit 2
When Will You Stop Tightening?

Market Participants Assume:

- Policy will be tightened 25 bps at every meeting.
- Until this tightening cycle ends.
- They are uncertain as to when tightening will end.

Cumulative Probability of First FOMC Meeting Without Tightening

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.25</td>
<td>0.50</td>
<td>0.75</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

Median Path for Policy

Range of Estimated Equilibrium Real Rates

- Range of model-based estimates
- Actual real federal funds rate
- 70 percent confidence band
- 90 percent confidence band
- Greenbook-consistent measure

An explanatory note is provided in Chart 8 of the Bluebook.
Exhibit 3

Assessing the Risk Assessment

From the FOMC Statement released December 14th

The Committee perceives the upside and downside risks to the attainment of both sustainable growth and price stability for the next few quarters to be roughly equal. With underlying inflation expected to be relatively low, the Committee believes that policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation to maintain price stability.

Three alternatives

1. Get out of the business of hinting—either obliquely or directly—about future actions by dropping the entire paragraph.

2. Revive the first sentence assessing risks by basing it on the assumption of an unchanged stance of policy for the next few quarters and couching it in terms of probabilities, not risks.

3. Rely on the gradual evolution of the latter part of the paragraph to convey a sense of the future path of interest rates.
<table>
<thead>
<tr>
<th><strong>Policy Decision</strong></th>
<th><strong>December FOMC</strong></th>
<th><strong>Alternative A</strong></th>
<th><strong>Alternative B</strong></th>
<th><strong>Alternative C</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Federal Open Market Committee decided today to raise its target for the federal funds rate by 25 basis points to 2¼ percent.</td>
<td>The Federal Open Market Committee decided today to keep its target for the federal funds rate at 2¼ percent. The Committee’s policy actions since mid-2004 have materially reduced the degree of monetary policy accommodation.</td>
<td>The Federal Open Market Committee decided today to raise its target for the federal funds rate by 25 basis points to 2½ percent.</td>
<td>The Federal Open Market Committee decided today to raise its target for the federal funds rate by 50 basis points to 2½ percent.</td>
</tr>
<tr>
<td>2.</td>
<td>The Committee believes that, even after this action, the stance of monetary policy remains accommodative and, coupled with robust underlying growth in productivity, is providing ongoing support to economic activity.</td>
<td>The Committee believes that the stance of monetary policy remains somewhat accommodative and, coupled with robust underlying growth in productivity, is providing ongoing support to economic activity.</td>
<td>[Unchanged from December statement]</td>
<td>The Committee believes that the stance of monetary policy remains accommodative and, coupled with robust the underlying growth in productivity, is providing ongoing support to economic activity.</td>
</tr>
<tr>
<td>3. Rationale</td>
<td>Output appears to be growing at a moderate pace despite the earlier rise in energy prices, and labor market conditions continue to improve gradually.</td>
<td>Output appears to be growing at a moderate pace despite the earlier rise in energy prices, and labor market conditions seem to be improving gradually.</td>
<td>Output appears to be growing at a moderate pace despite the earlier rise in energy prices, and labor market conditions continue to improve gradually.</td>
<td>Output appears to be growing at a moderate pace despite the earlier rise in energy prices, and labor market conditions continue to improve gradually.</td>
</tr>
<tr>
<td>4. Rationale</td>
<td>Inflation and longer-term inflation expectations remain well contained.</td>
<td>[Unchanged from December statement]</td>
<td>[Unchanged from December statement]</td>
<td>Inflation and longer-term inflation expectations remain well contained, but rising business costs have the potential to put upward pressure on prices.</td>
</tr>
<tr>
<td>5. Assessment of Risk</td>
<td>The Committee perceives the upside and downside risks to the attainment of both sustainable growth and price stability for the next few quarters to be roughly equal.</td>
<td>[Unchanged from December statement]</td>
<td>[Unchanged from December statement]</td>
<td>[Unchanged from December statement]</td>
</tr>
<tr>
<td>6. Assessment of Risk</td>
<td>With underlying inflation expected to be relatively low, the Committee believes that policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation to maintain price stability.</td>
<td>With underlying inflation expected to be relatively low, the Committee believes that policy accommodation can be removed at a pace that is likely to be measured. Nonetheless, the Committee will respond to changes in economic prospects as needed to fulfill its obligation to promote price stability and sustainable growth.</td>
<td>[Unchanged from December statement]</td>
<td>[None]</td>
</tr>
</tbody>
</table>