APPENDIX 1

Charts used by Mr. Fisher.
October 1, 1999 to January 31, 2000
Treasury Yields

Percent

6.80
6.70
6.60
6.50
6.40
6.30
6.20
6.10
6.00
5.90
5.80
5.70

10/1
10/15
10/29
11/12
11/26
12/10
12/24
1/7
1/21

10/1
10/15
10/29
11/12
11/26
12/10
12/24
1/7
1/21
1999
2000

10/5 FOMC
11/16 FOMC
12/21 FOMC
1/28 ECI GDP
1/13 Summers Buybacks Announcement

Treasury Yield Curve Spreads

Basis Points

20
15
10
5
0
-5
-10
-15
-20

10/1
10/15
10/29
11/12
11/26
12/10
12/24
1/7
1/21
1999
2000

10/5 FOMC
11/16 FOMC
12/21 FOMC
1/28 ECI GDP
1/13 Summers Buybacks Announcement

2 to 5-year
5 to 10-year
10 to 30-year
Benchmark Government Yield Curves

**United States**

- **1/31/00**
- **10/5/99**

**Canada**

- **1/31/00**
- **10/5/99**

**United Kingdom**

- **1/31/00**
- **10/5/99**

**Germany**

- **1/31/00**
- **10/5/99**
Percent Change of Currencies against U.S. Dollar
From October 1, 1999

- Brazilian Real
- Japanese Yen
- Canadian Dollar
- Mexican Peso
- Euro

Foreign Currency Appreciates

Foreign Currency Depreciates

Percent
MOVEMENTS OF KEY FACTORS SINCE DECEMBER 15
IMPACT ON RESERVE DEFICIENCIES
daily levels

Data are benchmarked to their December 15 values:
a positive value indicates that movements in a factor
since December 15 drained reserve balances.

- Sum of 3 factors
- Currency in circulation
- Foreign RP pool
- Treasury balance
Daily Federal Funds Rate Behavior and Reserve Levels Around the Year End

- Daily Effective
- Range
- Plus or minus one standard deviation

Percent
- 7 1/2
- 8

Billions
- Actual Free Reserves on the Day
- Intended level of Free Reserves
- Borrowing

Dates:
- December
- January
Volatility of the Daily Federal Funds Rate

October 1999 - January 2000

Basis points

Daily Standard Deviation of Rates

Median Values

Effective-
Target Rate  Standard
(abs. val.) Deviation

Oct '99 - Jan '00  8    9
Volatility of the Daily Federal Funds Rate

October 1998 - January 1999

Median Values

Effective-Target Rate  Standard Deviation
(abs. val.)

Oct '98 - Jan '99 15 24
Volatility of the Daily Federal Funds Rate


Basis points

Daily Standard Deviation of Rates

Daily Effective Federal Funds Rates minus Target

Percent of observations from Oct-Jan around the past two year-ends that fall within the 25 and 50 percent historical ranges

<table>
<thead>
<tr>
<th></th>
<th>25percent</th>
<th>50percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct 98-Jan 99</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>Oct 99-Jan 00</td>
<td>31</td>
<td>51</td>
</tr>
</tbody>
</table>

25 percent and 50 percent of observations from the Oct-Jan months around the 1996 and 1997 year-ends fell within these ranges.
APPENDIX 2

Charts used by Mr. Prell, Ms. Johnson, and Mr. Stockton.
Material for

Staff Presentation on the Economic Outlook

February 1, 2000

* Downgraded to Class II upon release of the February 2000 Humphrey-Hawkins report.
Chart 1

Forecast Summary

Growth in Economic Activity

Four-quarter percent change

Percent change, Q4/Q4

<table>
<thead>
<tr>
<th></th>
<th>GDP</th>
<th>Domestic spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2.2</td>
<td>1.7</td>
</tr>
<tr>
<td>1996</td>
<td>4.2</td>
<td>4.4</td>
</tr>
<tr>
<td>1997</td>
<td>4.3</td>
<td>4.9</td>
</tr>
<tr>
<td>1998</td>
<td>4.6</td>
<td>5.7</td>
</tr>
<tr>
<td>1999</td>
<td>4.1 (4.2)</td>
<td>5.2 (5.4)</td>
</tr>
<tr>
<td>2000</td>
<td>4.1</td>
<td>4.6</td>
</tr>
<tr>
<td>2001</td>
<td>3.8</td>
<td>4.0</td>
</tr>
</tbody>
</table>

BEA estimates in parentheses.

Unemployment Rate

Q4 average

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>5.6</td>
</tr>
<tr>
<td>1996</td>
<td>5.3</td>
</tr>
<tr>
<td>1997</td>
<td>4.7</td>
</tr>
<tr>
<td>1998</td>
<td>4.4</td>
</tr>
<tr>
<td>1999</td>
<td>4.1</td>
</tr>
<tr>
<td>2000</td>
<td>4.0</td>
</tr>
<tr>
<td>2001</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Consumer Price Inflation

Four-quarter percent change

Percent change, Q4/Q4

<table>
<thead>
<tr>
<th></th>
<th>Published CPI</th>
<th>PCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2.7</td>
<td>2.0</td>
</tr>
<tr>
<td>1996</td>
<td>3.1</td>
<td>2.2</td>
</tr>
<tr>
<td>1997</td>
<td>1.9</td>
<td>1.3</td>
</tr>
<tr>
<td>1998</td>
<td>1.5</td>
<td>1.0</td>
</tr>
<tr>
<td>1999</td>
<td>2.6</td>
<td>2.0 (2.0)</td>
</tr>
<tr>
<td>2000</td>
<td>2.4</td>
<td>2.0</td>
</tr>
<tr>
<td>2001</td>
<td>2.4</td>
<td>2.0</td>
</tr>
</tbody>
</table>
Chart 3

Household Spending

Consumer Sentiment Index

Michigan SRC

1966=100

Jan.

Household Wealth-to-income Ratio


Growth of Real PCE and DPI

Percent change, Q4/Q4

DPI
PCE


Mortgage Rates and Home Buying Conditions

Diffusion index

Percent

30-year fixed rate loan (right scale)

Michigan SRC Home buying conditions (left scale)

Jan.

Cash Flow Affordability of Home Purchase*

Monthly payment/income


Housing Starts

Millions of units, saar

* Based on new home, 30-year FRM.
Chart 5

Government Sector

Federal Budget Balances
Fiscal year
Billions of dollars

Real Discretionary Spending
Fiscal year
Billions of chained (1996) dollars

Grossbook

CBO
"Constant real discretionary"

Unified

On-budget


Fiscal Impetus
Percent of GDP


State and Local Budget Surplus*
Billions of dollars

State Tax Changes
State fiscal year
Billions of dollars


Real State and Local Purchases
Four-quarter percent change


* Excludes social insurance funds.
Chart 6

Exchange Rates

Nominal Exchange Rates
Foreign currency per U.S. dollar
Jan. 1997 = 100

*Trade weighted-average dollar against major international currencies
**Restated German mark 1997 through 1998

Interest Rates

<table>
<thead>
<tr>
<th>Level</th>
<th>Change 6/29/99 to 1/31/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-Month</td>
<td></td>
</tr>
<tr>
<td>1. Euro</td>
<td>3.49</td>
</tr>
<tr>
<td>2. Japan</td>
<td>0.06</td>
</tr>
<tr>
<td>3. United Kingdom</td>
<td>6.04</td>
</tr>
<tr>
<td>4. United States</td>
<td>6.00</td>
</tr>
</tbody>
</table>

Nominal Exchange Rates
Foreign currency per U.S. dollar
Jan. 1997 = 100

Interest Rates

<table>
<thead>
<tr>
<th>Level</th>
<th>Change 6/29/99 to 1/31/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-Month Domestic</td>
<td></td>
</tr>
<tr>
<td>1. Korea</td>
<td>6.00</td>
</tr>
<tr>
<td>2. Thailand</td>
<td>3.50</td>
</tr>
<tr>
<td>3. Hong Kong</td>
<td>5.85</td>
</tr>
</tbody>
</table>

Offshore-Dollar Bond Spreads

<table>
<thead>
<tr>
<th>Level</th>
<th>Change 6/29/99 to 1/31/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. China</td>
<td>1.23</td>
</tr>
<tr>
<td>5. Korea</td>
<td>1.36</td>
</tr>
<tr>
<td>6. Thailand</td>
<td>1.29</td>
</tr>
</tbody>
</table>

Nominal Exchange Rates
Foreign currency per U.S. dollar
Jan. 1997 = 100

Interest Rates

<table>
<thead>
<tr>
<th>Level</th>
<th>Change 6/29/99 to 1/31/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-Month Domestic</td>
<td></td>
</tr>
<tr>
<td>1. Argentina</td>
<td>8.25</td>
</tr>
<tr>
<td>2. Brazil</td>
<td>19.90</td>
</tr>
<tr>
<td>3. Mexico (1/28)</td>
<td>16.95</td>
</tr>
</tbody>
</table>

Brady Bond Yield Spreads

<table>
<thead>
<tr>
<th>Level</th>
<th>Change 6/29/99 to 1/31/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Argentina</td>
<td>8.22</td>
</tr>
<tr>
<td>5. Brazil</td>
<td>8.59</td>
</tr>
<tr>
<td>6. Mexico</td>
<td>5.10</td>
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</tbody>
</table>
Chart 7

Stock Market Indexes
(Local currency)

Industrial

Jan. 1997 = 100

Latin America

Jan. 1997 = 100

Germany

Brazil

Mexico

Argentina

Asia

Jan. 1997 = 100

China

Germany

Korea

German earnings yield*

Hong Kong

10-Year real bond yield

Thailand

United States

1998

1999

%12-month-ahead earnings forecast/Price

1998

1999

1997

1998

1999

1997

1998

1999
Chart 11

Inflation Projection

PCE Prices

Four-quarter percent change

<table>
<thead>
<tr>
<th>Percent change, Q4/Q4</th>
<th>Total</th>
<th>Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2.0</td>
<td>2.2</td>
</tr>
<tr>
<td>1996</td>
<td>2.2</td>
<td>1.6</td>
</tr>
<tr>
<td>1997</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>1998</td>
<td>1.0</td>
<td>1.4</td>
</tr>
<tr>
<td>1999</td>
<td>2.0</td>
<td>1.5</td>
</tr>
<tr>
<td>2000</td>
<td>2.0</td>
<td>1.9</td>
</tr>
<tr>
<td>2001</td>
<td>2.0</td>
<td>2.1</td>
</tr>
</tbody>
</table>

PCE Food

Percent change, Q4/Q4

PCE Energy

Percent change, Q4/Q4

Core Non-oil Import Prices*

Four-quarter percent change

Intermediate Materials Prices

3-month moving averages

<table>
<thead>
<tr>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
</tr>
<tr>
<td>85</td>
</tr>
<tr>
<td>75</td>
</tr>
<tr>
<td>65</td>
</tr>
<tr>
<td>55</td>
</tr>
<tr>
<td>45</td>
</tr>
<tr>
<td>35</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>15</td>
</tr>
</tbody>
</table>

* Excluding oil, computer and semiconductor prices.
Chart 12

Inflation Influences

ECI Health Insurance Costs

Minimum Wage Effects*

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECI</td>
<td>.1</td>
<td>.2</td>
</tr>
<tr>
<td>comp/hr.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFB</td>
<td>.1</td>
<td>.2</td>
</tr>
<tr>
<td>comp/hr.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCE</td>
<td>.0</td>
<td>.1</td>
</tr>
<tr>
<td>prices</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Effect on Q4/Q4 percent change.

Current Job Availability
Conference Board

Percent of households

Inflation Expectations

Percent

Labor Compensation

Four-quarter percent change

NFB compensation per hour

Employment cost index
Chart 13

Inflation Uncertainties

Model Simulation of Core PCE Prices

Four-quarter percent change

70% confidence interval
Model-based forecast
Greenbook

Frequency of GDP Price Acceleration
Percent of annual observations

Unemployment Rate
Percent

Manufacturing Capacity Utilization
Percent
## Chart 14

### Supply–Side Components of Potential GDP
(Average annual growth rate)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Potential GDP</td>
<td>3.0</td>
<td>2.3</td>
<td>3.3</td>
<td>3.8</td>
<td>4.0</td>
</tr>
<tr>
<td>2. Labor input</td>
<td>1.6</td>
<td>1.0</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>3. Labor productivity</td>
<td>1.5</td>
<td>1.5</td>
<td>2.3</td>
<td>2.8</td>
<td>3.0</td>
</tr>
<tr>
<td>4. Capital deepening</td>
<td>.8</td>
<td>.5</td>
<td>1.1</td>
<td>1.6</td>
<td>1.8</td>
</tr>
<tr>
<td>5. Labor quality</td>
<td>.3</td>
<td>.4</td>
<td>.3</td>
<td>.3</td>
<td>.3</td>
</tr>
<tr>
<td>6. Multifactor productivity</td>
<td>.4</td>
<td>.6</td>
<td>.9</td>
<td>.9</td>
<td>.9</td>
</tr>
<tr>
<td>7. Technical factors</td>
<td>.0</td>
<td>-.1</td>
<td>-.1</td>
<td>-.1</td>
<td>-.1</td>
</tr>
</tbody>
</table>

Note: Detail may not sum to total because of rounding.

---

### Capital Services

**Percent change**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Multifactor Productivity

**Percent change**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Acceleration of Nonfarm Business Productivity*

* Eight-quarter percent change less same measure eight quarters previous.
Chart 15
Influence of Alternative Productivity Assumptions on the Outlook

Structural Labor Productivity
Four-quarter percent change

Real GDP
Four-quarter percent change

Unemployment Rate
Percent

Employment Cost Index
Four-quarter percent change

Profit Share
Percent of GDP

Core PCE Prices
Four-quarter percent change
## ECONOMIC PROJECTIONS FOR 2000

<table>
<thead>
<tr>
<th></th>
<th>Range</th>
<th>Central Tendency</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal GDP</strong></td>
<td>5 to 6</td>
<td>5¹⁄₄ to 5½</td>
<td>6.0</td>
</tr>
<tr>
<td>July 1999 H-H</td>
<td>(4 to 5¼)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Real GDP</strong></td>
<td>3¹⁄₄ to 4</td>
<td>3½ to 3¾</td>
<td>4.1</td>
</tr>
<tr>
<td>July 1999 H-H</td>
<td>(2 to 3½)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PCE Prices</strong></td>
<td>1¾ to 2¹⁄₂</td>
<td>1¾ to 2</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Unemployment rate</strong></td>
<td>4 to 4¹⁄₄</td>
<td>4 to 4¹⁄₄</td>
<td>4.0</td>
</tr>
<tr>
<td>July 1999 H-H</td>
<td>(4 to 4-½)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---------- Percentage change, Q4 to Q4 ----------

---------- Average level, Q4, percent ---------

Central tendencies calculated by dropping high and low three from ranges.
APPENDIX 3

Charts used by Mr. Whitesell.
Material for

Staff Presentation on Money and Debt Ranges

February 1-2, 2000
### Table 1

**Growth of Money and Debt**

(percent)

<table>
<thead>
<tr>
<th>Memo:</th>
<th>1999 Ranges</th>
<th>1999 (Actual)</th>
<th>2000 (Projected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td>1 to 5</td>
<td>6.2</td>
<td>4¾</td>
</tr>
<tr>
<td>M3</td>
<td>2 to 6</td>
<td>7.6</td>
<td>6¼</td>
</tr>
<tr>
<td>Debt</td>
<td>3 to 7</td>
<td>6.6</td>
<td>5¼</td>
</tr>
</tbody>
</table>

**Memo:**
Nominal GDP

5.9

6

### Table 2

**Alternative Ranges for Money and Debt in 2000**

(percent)

<table>
<thead>
<tr>
<th>Alt. 1 Provisional</th>
<th>Alt. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>M2</td>
<td>1 to 5</td>
</tr>
<tr>
<td>M3</td>
<td>2 to 6</td>
</tr>
<tr>
<td>Debt</td>
<td>3 to 7</td>
</tr>
</tbody>
</table>
Chart 1: M2 Velocity and Opportunity Cost
(ratio scales)

Note: The scales are set to match the estimation results shown below. Opportunity cost is a two-quarter moving average of the three-month Treasury bill rate less a weighted average of the interest rates on M2 components.
Chart 2

M2 Velocity

M3 Velocity

Domestic Nonfinancial Debt Velocity

Note: Recession shading.