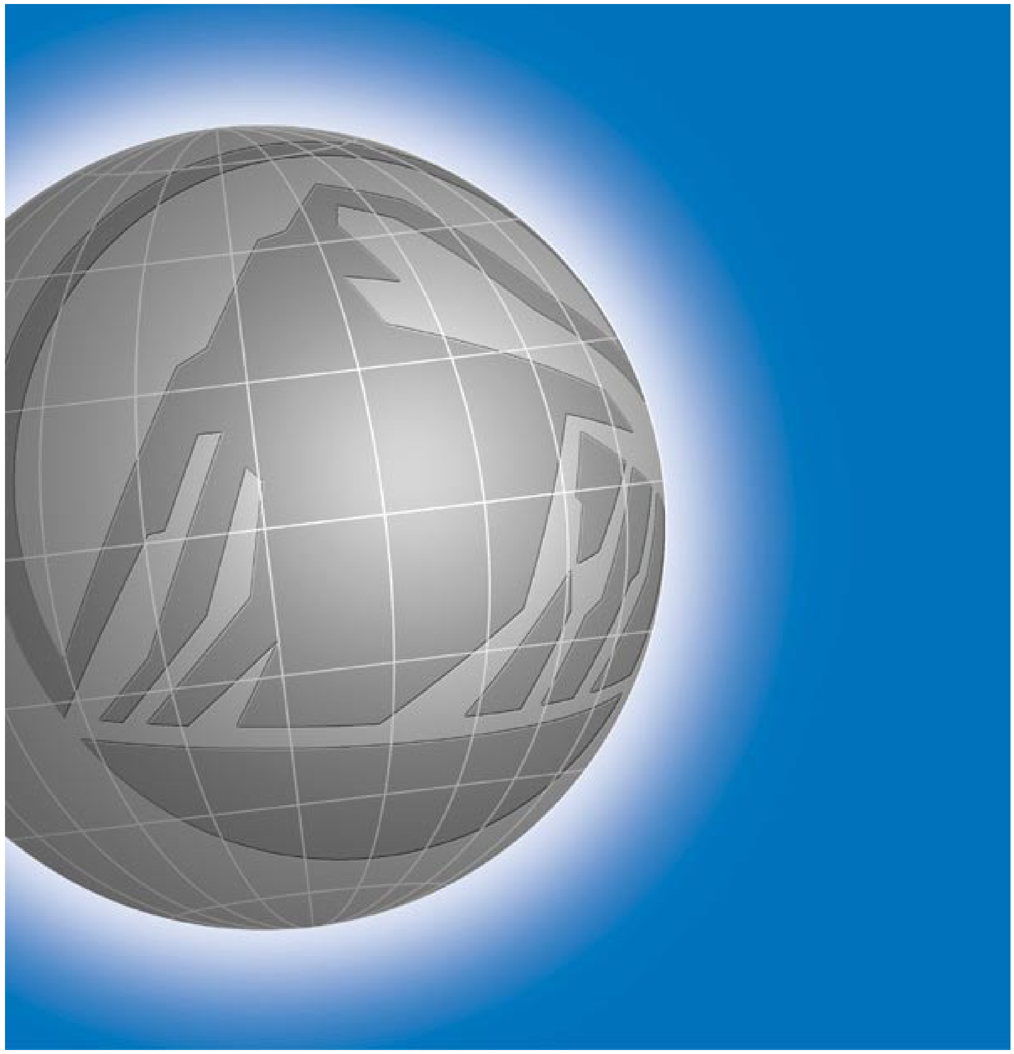
Prudential Equity Group, LLC

Research

February 13, 2004

# The Fed & The Stock Market



*Topical Study #64*

*All important disclosures can be found beginning on page 36.*


***Dr. Edward Yardeni***
*(212) 778-2646*
*ed_yardeni@prusec.com*


Prudential Financial

# I. Two More Years

Fed Chairman Alan Greenspan's term expires on February 1, 2006. He cannot be reappointed. I believe that monetary policy will remain relatively easy until then. Therefore, I am reasonably confident that the economy will continue to grow over the next two years. There probably won't be a recession, a depression, deflation, or a bear market in stocks during 2004 and 2005. Stock prices should continue to move higher. My S&P 500 targets remain 1300 for the end of this year and 1440 by the end of next year. I am simply assuming that Mr. Greenspan will do what he can to assure himself a favorable legacy now that his remarkable tenure as Chairman of the Board since August 11, 1987, is coming to an end (Figure A).

**Figure A: Fed Chairman Alan Greenspan's Term**

The seven members of the Board of Governors of the Federal Reserve System are nominated by the President and confirmed by the Senate. A full term is fourteen years. One term begins every two years, on February 1 of even-numbered years. A member who serves a full term may not be reappointed. A member who completes an unexpired portion of a term may be reappointed. All terms end on their statutory date regardless of the date on which the member is sworn into office.

The Chairman and the Vice Chairman of the Board are named by the President from among the members and are confirmed by the Senate. They serve a term of four years. A member's term on the Board is not affected by his or her status as Chairman or Vice Chairman.

Alan Greenspan took office on June 20, 2000, as Chairman of the Board of Governors of the Federal Reserve System for a fourth four-year term ending June 20, 2004. Dr. Greenspan also serves as Chairman of the Federal Open Market Committee, the System's principal monetary policymaking body. He originally took office as Chairman and to fill an unexpired term as a member of the Board on August 11, 1987. Dr. Greenspan was reappointed to the Board to a full 14-year term, which began February 1, 1992. He has been designated Chairman by Presidents Reagan, Bush, and Clinton.

Source: Federal Reserve Board

This might partly explain why the Fed's policy committee, the Federal Open Market Committee (FOMC), has been resisting hiking the federal funds rate despite a strong rebound in economic growth. The price of gold is soaring along with other commodity prices. The trade-weighted dollar is down 25% since the beginning of February 2002, yet, the federal funds rate, which was lowered to 1% on June 25, 2003, remains at 1%. This is the lowest level since the late 1950s. In his latest Congressional testimony, on February 11, 2004, Mr. Greenspan said, "What we've tried to indicate is that given our evaluation of what the economic outlook is…we believe the most appropriate rate is 1% for the federal funds rate."

The Fed Chairman should be concerned that such cheap money might stimulate another round of irrational exuberance. Indeed, there are already signs of speculative bubbles in some technology stocks, Chinese H-shares, currencies of resource-exporting nations, and several commodities. Of course, Mr. Greenspan has staked out a highly controversial and, in my opinion, dubious claim about the Fed's role in dealing with speculative bubbles: The Fed isn't in the business of averting speculative bubbles. Bubbles can only be recognized with certainty after they burst. Then it is the Fed's job to help clean up the mess quickly by easing credit conditions.

This was his position during 1999 as the Great Tech Bubble was inflating. Here is what the Chairman told the Joint Economic Committee of Congress on June 17, 1999:

> The 1990s have witnessed one of the great bull stock markets in American history. Whether that means an unstable bubble has developed in its wake is difficult to assess. A large number of analysts have judged the level of equity prices to be excessive, even taking into account the rise in "fair value" resulting from the acceleration of productivity and the associated long-term corporate earnings outlook.
>
> But bubbles generally are perceptible only after the fact. To spot a bubble in advance requires a judgment that hundreds of thousands of informed investors have it all wrong. Betting against markets is usually precarious at best. While bubbles that burst are scarcely benign, the consequences need not be catastrophic for the economy.
>
> The bursting of the Japanese bubble a decade ago did not lead immediately to sharp contractions in output or a significant rise in unemployment. Arguably, it was the subsequent failure to address the damage to the financial system in a timely manner that caused Japan's current economic problems. Likewise, while the stock market crash of 1929 was destabilizing, most analysts attribute the Great Depression to ensuing failures of policy. And certainly the crash of October 1987 left little lasting imprint on the American economy.
>
> This all leads to the conclusion that monetary policy is best primarily focused on stability of the general level of prices of goods and services as the most credible means to achieve sustainable economic growth. Should volatile asset prices cause problems, policy is probably best positioned to address the consequences when the economy is working from a base of stable product prices.
>
> For monetary policy to foster maximum sustainable economic growth, it is useful to preempt forces of imbalance before they threaten economic stability. But this may not always be possible—the future at times can be too opaque to penetrate. When we can be preemptive we should be, because modest preemptive actions can obviate the need of more drastic actions at a later date that could destabilize the economy ….
>
> Someday, of course, the expansion will end; human nature has exhibited a tendency to excess through the generations with the inevitable economic hangover. There is nothing in our economic data series to suggest that this propensity has changed. It is the job of economic policymakers to mitigate the fallout when it occurs, and, hopefully, ease the transition to the next expansion.[1]

---

[1] See the "Greenspan Center" on my web site:
http://www.cm1.prusec.com/yardweb.nsf/$$Greenspan?readform or go directly to the document at
http://www.federalreserve.gov/boarddocs/testimony/1999/19990617.htm

Earlier this year, at the annual meeting of the American Economic Association on January 3, 2004, Mr. Greenspan concluded that he was right to do nothing to stop the bubble:

> It is far from obvious that bubbles, even if identified early, can be preempted at lower cost than a substantial economic contraction and possible financial destabilization—the very outcomes we would be seeking to avoid.
>
> In fact, our experience over the past two decades suggests that a moderate monetary tightening that deflates stock prices without substantial effect on economic activity has often been associated with subsequent *increases* in the level of stock prices. Arguably, markets that pass that type of stress test are presumed particularly resilient. The notion that a well-timed incremental tightening could have been calibrated to prevent the late 1990s bubble while preserving economic stability is almost surely an illusion.
>
> Instead of trying to contain a putative bubble by drastic actions with largely unpredictable consequences, we chose, as we noted in our mid-1999 congressional testimony, to focus on policies "to mitigate the fallout when it occurs and, hopefully, ease the transition to the next expansion."[2]

The speech was a glowing self-appraisal and a blatant attempt to defend and promote his legacy. Revisionists haven't even started to seriously question the wisdom of the Fed chairman, but he has already anticipated their attacks and launched a counterattack against his future critics.

Whether you and I agree with the Maestro is irrelevant. The point is that even after the financial calamity of the past three years, along with the gross misallocation of capital, Mr. Greenspan is telling us that we can go ahead and have another bubble without worrying that he will spoil the party by tightening credit conditions. I suppose if the next bubble bursts after he retires, it will be up to the next Fed chairman to clean up the mess.

That could be a tough job if Mr. Greenspan continues to peg the federal funds rate at 1%. That leaves only 100 basis points between the federal funds rate and zero. That's not enough if terrorists manage to disrupt the global economy again as they did with the 9/11 attacks. That's not enough if the global boom peters out and deflationary pressures emerge again. That's not enough if oil prices spike and shortages disrupt global economic growth. This is why I expect that the Fed's policy committee should soon conclude that gradually raising the federal funds rate by 100 basis points to 2% by the end of the year might be a good idea.

In his February 11 Congressional testimony, Mr. Greenspan acknowledged that at some point the Fed will have to raise rates, but he is in no hurry:

> To be sure, the Federal Open Market Committee's current judgment is that its accommodative posture is appropriate to foster sustainable expansion of economic activity. But the evidence indicates clearly that such a policy stance will not be compatible indefinitely with price stability and sustainable growth; the real federal funds rate will eventually need to rise toward a more neutral level. However, with inflation very low and substantial slack in the economy,

---

[2] http://www.federalreserve.gov/boarddocs/speeches/2004/20040103/default.htm

> the Federal Reserve can be patient in removing its current policy accommodation.[3]

There are only three meetings of the Federal Open Market Committee before the Democratic and Republican Presidential conventions on July 26-29 and August 30-September 2, respectively. Given Mr. Greenspan's latest comments, odds are that the FOMC won't raise rates at the next meeting on March 16. Then, I think it is quite possible that the FOMC might vote to raise the federal funds rate by 25 basis points on May 4, and again on June 30. I think they'll pass on August 10. But they might go again with a quarter-point hike right after the elections at the November 10 and December 14 meetings.

## II. Ten Years Ago

In my 1990s Replay Scenario, I've been noting the remarkable similarities between the current decade so far, and the previous one. In the context of this discussion, the Fed responded aggressively both times to a major industrial accident—i.e., the Savings & Loan Debacle of the early 1990s and the Tech Wreck of the past few years—by lowering the federal funds rate dramatically. During 1994, the Fed started raising rates on February 4. I think the Fed is likely to do so in 2004. Let's review what happened in 1994.

Virtually no one expected a rate hike at the start of 1994. However, Fed Chairman Alan Greenspan set the stage in testimony before the Joint Economic Committee on January 31, 1994. He started by recalling that over the previous few years he had discussed in detail the "structural imbalances" that were depressing the U.S. economy. But then he declared that much progress had been made in correcting these imbalances thanks to the deliberately accommodative stance of monetary policy.[4]

He delivered the punch line in the fourth paragraph of his prepared comments: "But it is important to emphasize that monetary policy must not overstay accommodation." At the end of the statement, he observed that the FOMC would have to consider the appropriate time to move "to a somewhat less accommodative level of short-term interest rates." He ended by declaring that "short-term interest rates are abnormally low in real terms" and added that they should be moved to a more "neutral stance."

In his presentation, he noted that labor market conditions remained weak, with employers relying to an unusual degree on overtime and temporary employees, and that overall inflation remained subdued despite upward pressure on some industrial commodity prices. Nevertheless, he hinted at a new concept, namely, that the Fed's job was to anticipate a rise in inflationary expectations and to stop it from happening by raising interest rates: "Over the longer haul, however, the *level* of inflation—that is, the rate of price change—depends crucially on price expectations and not the degree of slack."

---

[3] http://www.federalreserve.gov/boarddocs/hh/2004/february/testimony.htm
[4] *Federal Reserve Bulletin*, March 1994. He said more or less the same thing in his recent February 11 testimony: "Looking forward, the prospects are good for sustained expansion of the U.S. economy. The household sector's financial condition is stronger, and the business sector has made substantial strides in bolstering balance sheets."

Then, only five days later, boom! The FOMC raised the federal funds rate from 3.00% to 3.25% on February 4. According to the minutes of the meeting, one of the main goals was to avert a rise in inflationary expectations. They kept tightening at almost every meeting in 1994, culminating in one last hike to 6.00% during the meeting of February 1, 1995. In Congressional testimony on February 22, 1994, Mr. Greenspan stated:

> …price stability, with inflation expectations essentially negligible, should be the long-run goal of macroeconomic policy. We will be at price stability when households and businesses need not factor expectations of changes in the average level of prices into their decisions.

Ironically, the Consumer Price Index (CPI) for January 1994 was released nine business days after the Fed tightened. The core rate—excluding food and energy—edged up only 0.1%. It was 2.9% above the year-ago level. But in his February 22 testimony, Mr. Greenspan declared that expected, not actual, inflation was the Fed's concern. Of course, measuring inflationary expectations is challenging. Interestingly, the February 28, 1994, issue of *The New York Times* quoted Fed Governor Lawrence B. Lindsey, "We look at a whole raft of variables—we ignore nothing and focus on nothing." The article was titled "Bigger Role for Intuition Seen at Fed."

## III. One Year Ahead

If the Fed does get around to raising interest rates this year, I don't expect more than 100 basis points. I don't expect additional rate hikes in 2005. I seriously doubt that a 2% federal funds rate would put an end to the bull market in stocks. Of course, this depends on how Mr. Greenspan and the FOMC sell any tightening of credit conditions. I expect that they will say that they lowered the federal funds rate from 2% to 1¾% on December 11, 2001, then to 1¼% on November 6, 2002 and again down to 1% on June 25, 2003 as "insurance" against deflation and geopolitical risks. Mr. Greenspan started his latest Congressional testimony on February 11, 2004, by observing:

> When I testified before this committee in July, I reported that conditions had become a good deal more supportive of economic expansion over the previous few months. A notable reduction in geopolitical concerns, strengthening confidence in economic prospects, and an improvement in financial conditions boded well for spending and production over the second half of the year. Still, convincing signs of a sustained acceleration in activity were not yet in evidence. Since then, the picture has brightened.

Since this insurance is no longer necessary, it is appropriate to bring real interest rates back up to a more "neutral" level.

I could be wrong. The federal funds rate could still be at 1% by the end of the year. It may be that unlike 1994, the Fed is no longer rooting for price stability. The core CPI inflation rate was 1.1% last year, the lowest in four decades. The personal consumption deflator was up only 1.3% last year. Those numbers are awfully close to zero, which means the economy remains on the edge of deflation, notwithstanding the strong economic rebound, soaring commodity prices, and the weaker dollar.

The Fed may be rooting for a pickup in the inflation rate closer to 2%. They may want to reduce the risk of deflation. My good friend Martin Barnes, wisely writes in the February 2004 issue of *The Bank Credit Analyst* that the Fed may be obsessed about avoiding the mistakes made by the Bank of Japan during the 1990s, which greatly contributed to a self-feeding deflationary slump that lasted more than a decade. Martin states: "Inflation is still too low for comfort and the Fed sees little downside in being late rather than early in backing away from its current stance." This is a good point.

The Fed may be implicitly targeting inflation. In a March 25, 2003, speech titled "A Perspective on Inflation Targeting," Fed Governor Ben S. Bernanke promoted the idea:

> The FOMC already releases (and has released since 1979) a range and a "central tendency" of its projections for nominal GDP growth, real GDP growth, PCE inflation, and the civilian unemployment rate twice each year, publishing them as part of the semiannual Monetary Policy Report to the Congress….I think it would be very useful to detach these projections from the Monetary Policy Report and instead release them shortly after the meetings (in January and July) at which they are compiled. I would also suggest adding a second year of forecast to the January projection, to make it more parallel to the July projection as well as to the forecasts in the staff-prepared Greenbook. By releasing the projections in a more timely manner, and by adding a year to the January projection, the FOMC could provide quite useful information to the public. In particular, the FOMC projections would convey the policymakers' sense of the medium-term evolution of the economy, providing insight into both the Fed's diagnosis of economic conditions and its policy objectives.[5]

In Figures 1 through 54, I review the relationship between the nine major troughs in the federal funds rate since 1960 and the S&P 500, as well as numerous industry groups within the S&P 500. The groups shown are those for which data are available starting in 1960.

I have some good news: My analysis of the data suggests that there is no rush either to underweight stocks or to rotate from cyclicals to defensive industry groups. Since 1960, the S&P 500 has peaked eight months after the trough in the federal funds rate, on average (Figure 2). The market's momentum tends to peak at about the same time as interest rates begin to rise (Figures 3 and 4). But stock investors typically still gain for several months after the bottom in interest rates.

There are very few industry groups that should be either underweighted or overweighted just before major troughs in interest rates. In fact, I only found one that tends to underperform before the low in the interest rate cycle, namely, Property & Casualty.

Figure B summarizes my stylized conclusions of the best times–relative to major troughs in the federal funds rate cycle–to rotate out of, and into various industry groups. Of course, there are many other factors in additions to the monetary policy cycle that influence the relative performance of industry groups.

[5] http://www.federalreserve.gov/boarddocs/speeches/2003/20030325/default.htm

**Figure B: What to Do with Selected Industry Groups When the Fed Starts to Raise Interest Rates**

| Underweight | | | Overweight | | |
|---|---|---|---|---|---|
| **Before** | **Immediately** | **After** | **Before** | **Immediately** | **After** |
| Property & Casualty (Fig. 31) | Automobile Manufacturers (Fig. 7) | Restaurants (Fig. 14) | | Brewers (Fig. 19) | Tobacco (Fig. 23) |
| | Homebuilders (Fig. 9) | Banks-Diversified (Fig. 29) | | Soft Drinks (Fig. 20) | Food Retail (Fig. 25) |
| | Household Appliances (Fig. 10) | Life & Health Insurance (Fig. 32) | | Integrated Oil & Gas (Fig. 27) | Packaged Foods & Meats (Fig. 26) |
| | Retail Department Stores (Fig. 11) | Computer Hardware (Fig. 41) | | | Pharmaceuticals (Fig. 33) |
| | Consumer Finance (Fig. 30) | | | | Health Care Equipment (Fig. 34) |
| | Electrical Components & Equipment (Fig. 37) | | | | Paper & Forest Products (Fig. 45) |
| | Construction & Farm Equipment (Fig. 38) | | | | Paper Packaging (Fig. 46) |
| | Building Products (Fig. 39) | | | | Chemicals (Fig. 47) |
| | Railroads (Fig. 52) | | | | Diversified Metals & Mining (Fig. 49) |
| | Electric Utilities (Fig. 53) | | | | |

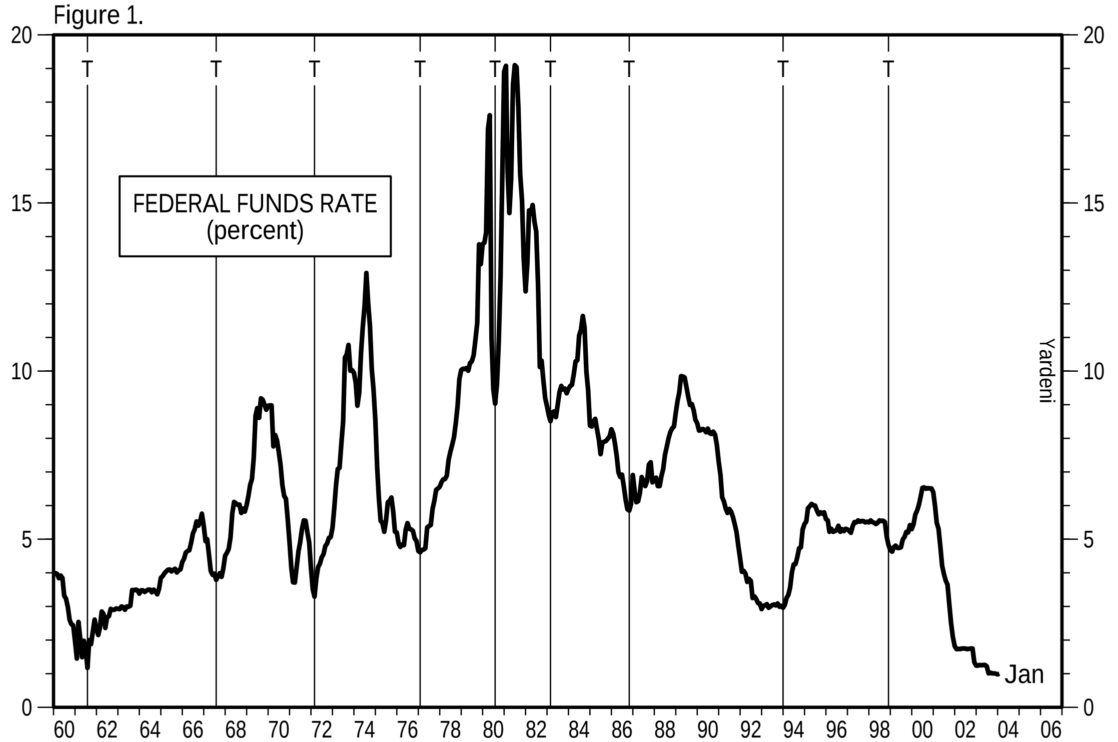
Source: Ed Yardeni, Investment Strategy, Prudential Equity Group, LLC

* * *

# Fed Funds Rate & S&P 500

There have been nine major troughs in the federal funds rate since 1960. The tenth is likely to happen this year. The average number of months between troughs is 57.

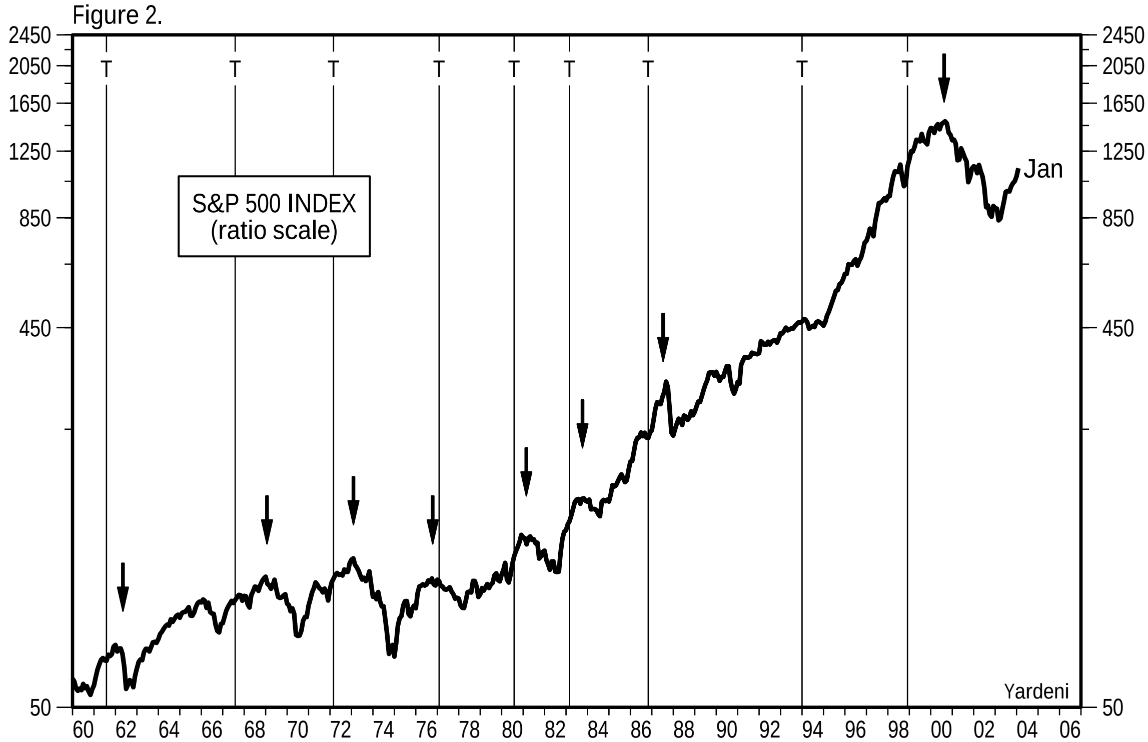
Figure 1.




T = Federal funds rate troughs.
Source: Board of Governors of the Federal Reserve System.

During the inflation-challenged 1960s, 1970s, and 1980s, S&P 500 peaked 8 months after trough in federal funds rate, on average. The market stalled for 11 months after February 1994 rate hike, but then soared over rest of decade. The late-1999 hike was followed by a crash.

Figure 2.

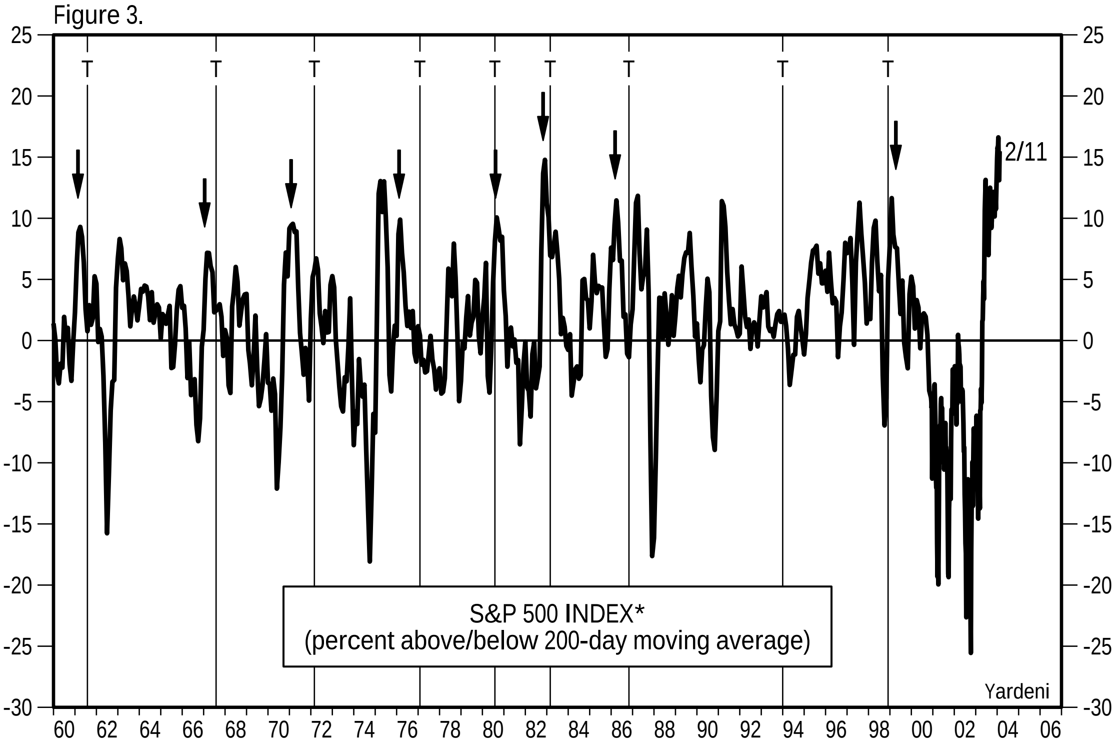



T = Federal funds rate troughs.
Source: Standard & Poor's Corporation.

# Momentum

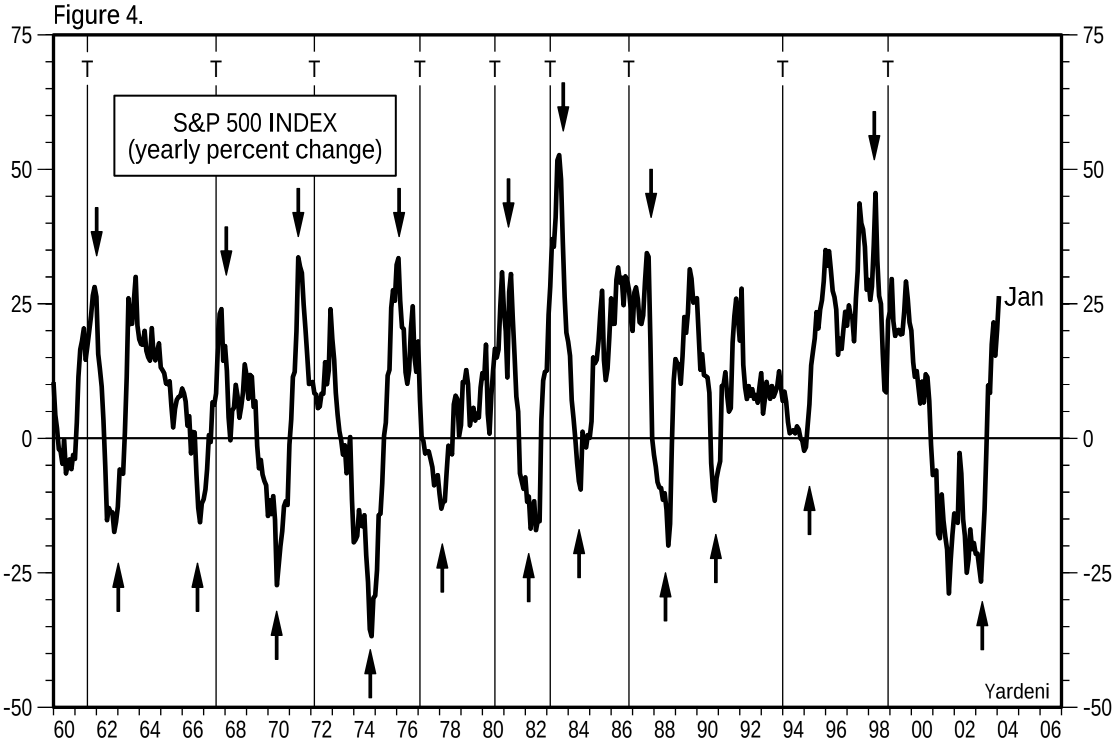
Stock market's momentum usually peaks at about the same time as Fed starts a new round of credit tightening. Momentum often rebounds well before the next rate trough.

Figure 3.




T = Federal funds rate troughs.
* Monthly through 2000, weekly thereafter.
Source: Standard & Poor's Corporation.

Figure 4.

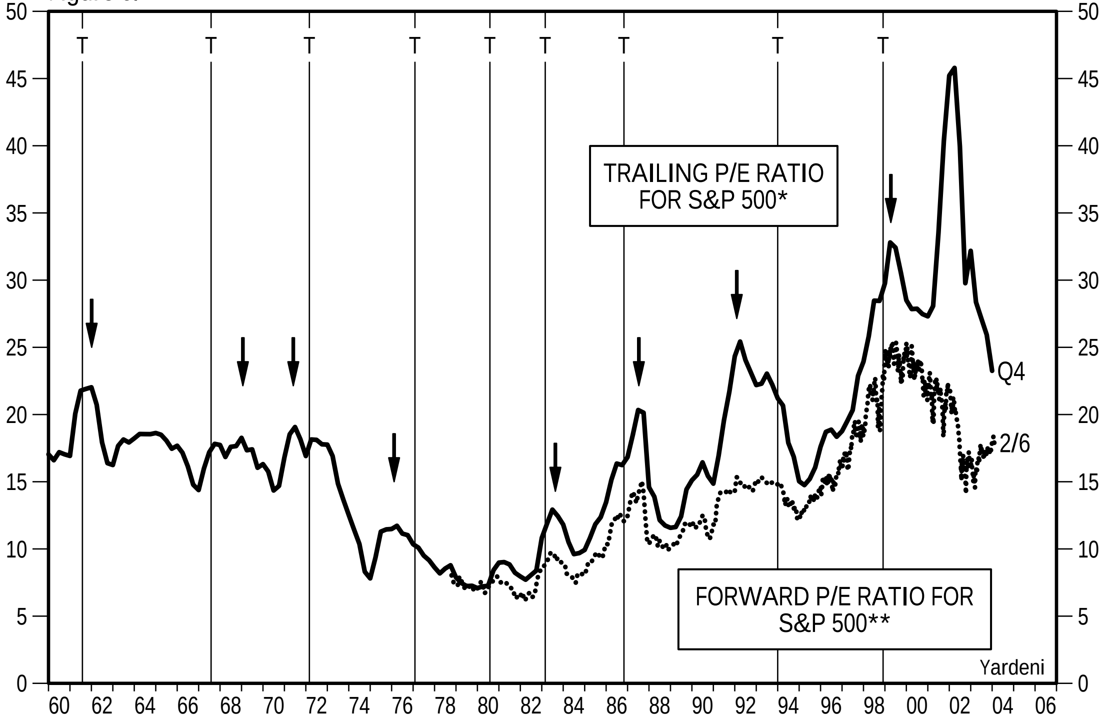



T = Federal funds rate troughs.
Source: Standard & Poor's Corporation.

# Valuation

Market's trailing P/E often peaks either just before or just after Fed starts to tighten.

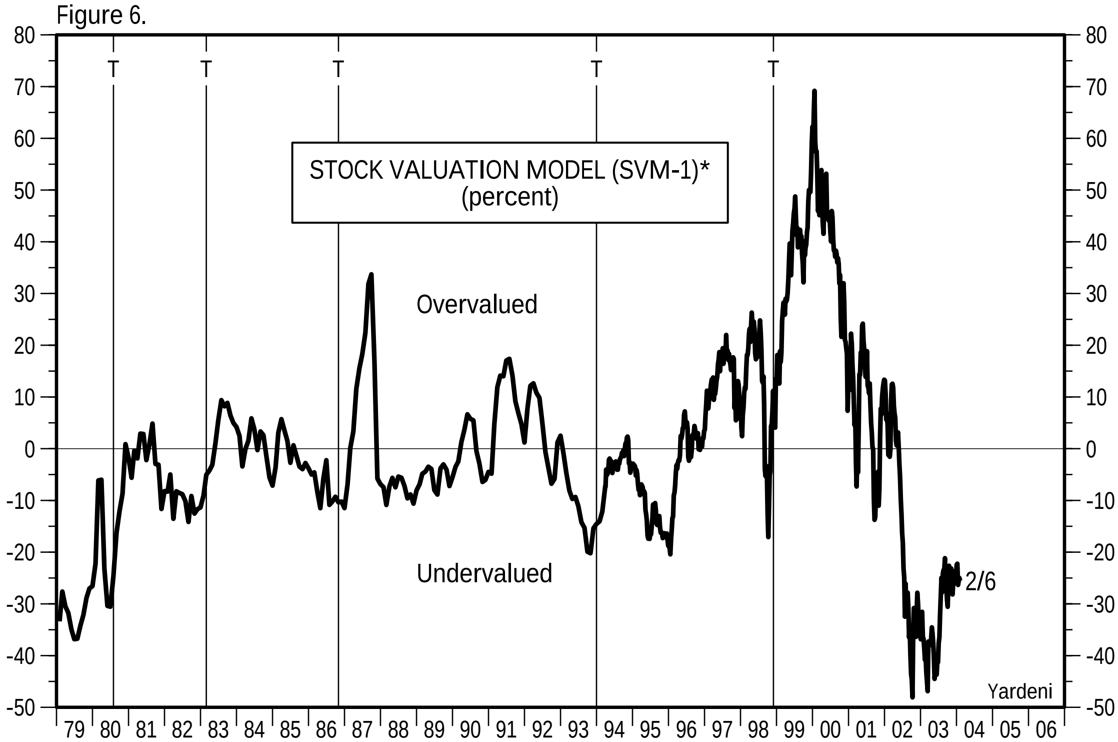
Figure 5.




T = Federal funds rate troughs.
* Using four-quarter trailing reported earnings.
** Using 52-week forward consensus expected operating earnings per share (mid-month data). Monthly through April 1994, weekly thereafter.
Source: Standard & Poor's Corporation and Thomson Financial.

Interestingly, stocks have been undervalued during previous five rate troughs.

Figure 6.

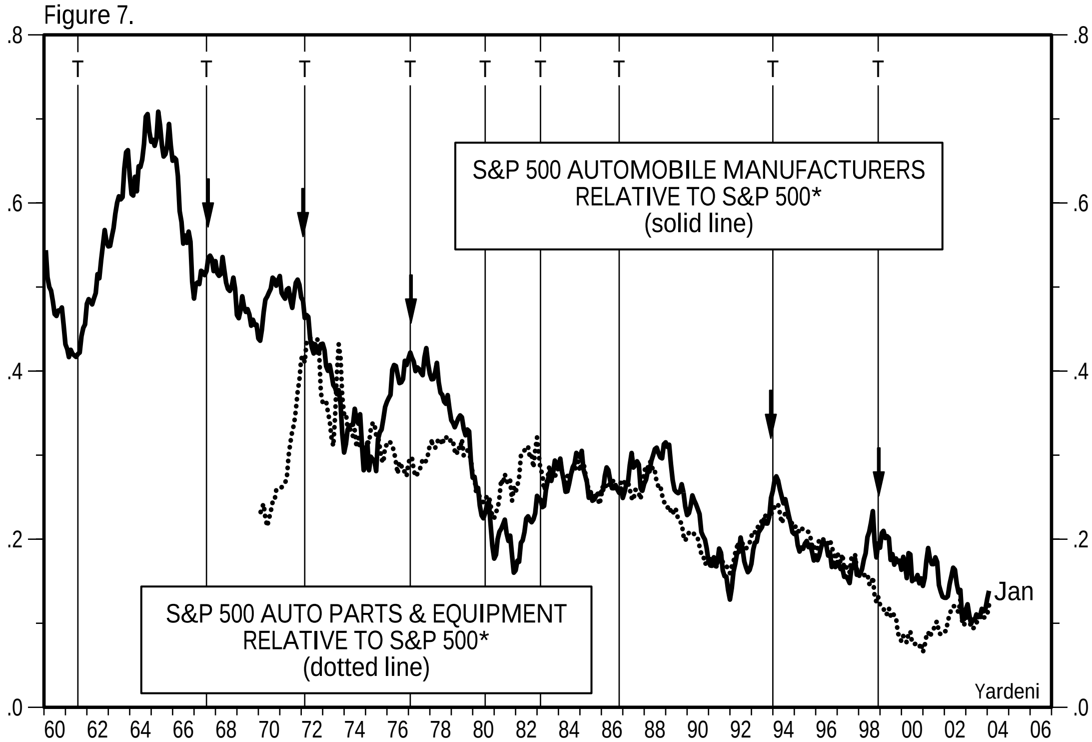



T = Federal funds rate troughs.
* Ratio of S&P 500 Index to its Fair-Value (52-week forward consensus expected S&P 500 operating earnings per share divided by the 10-year US Treasury bond yield) minus 100. Monthly through April 1994, weekly thereafter.
Source: Standard & Poor's, Thomson Financial and Board of Governors of the Federal Reserve System.

# Consumer Discretionary

Secular trend in autos' relative performance has been down since end of 1960s. Cyclical peaks coincided with 5 of the last 9 rate troughs.

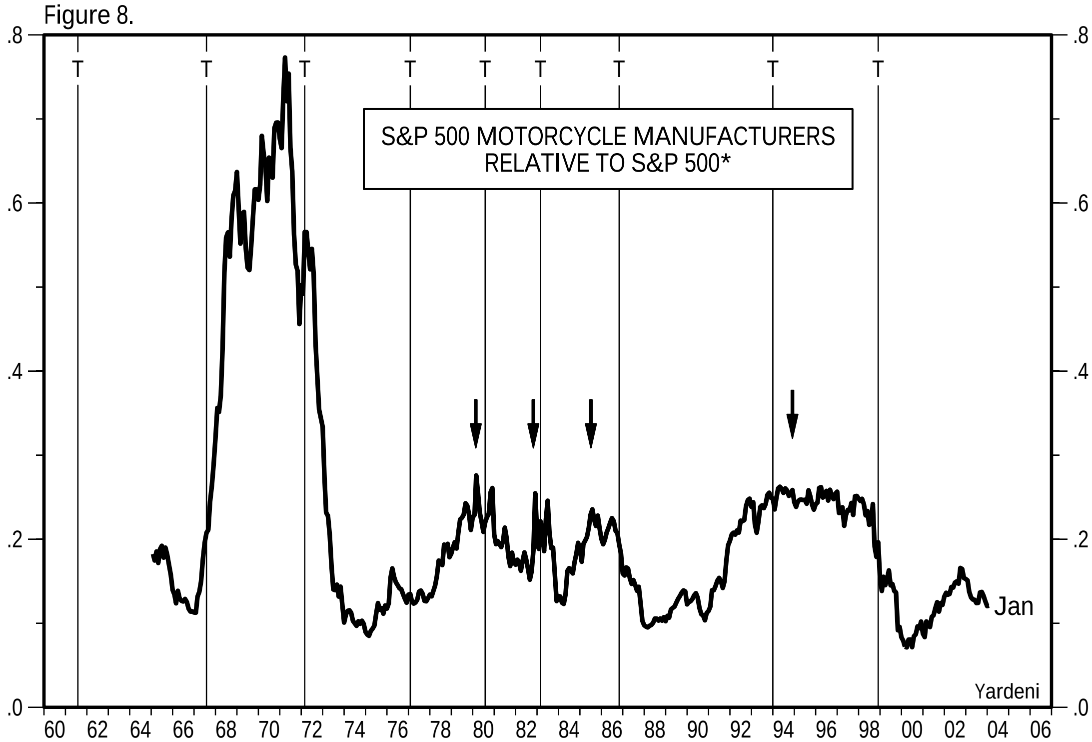
Figure 7.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Cycle in Motorcycles tends to peak when interest rates trough.

Figure 8.

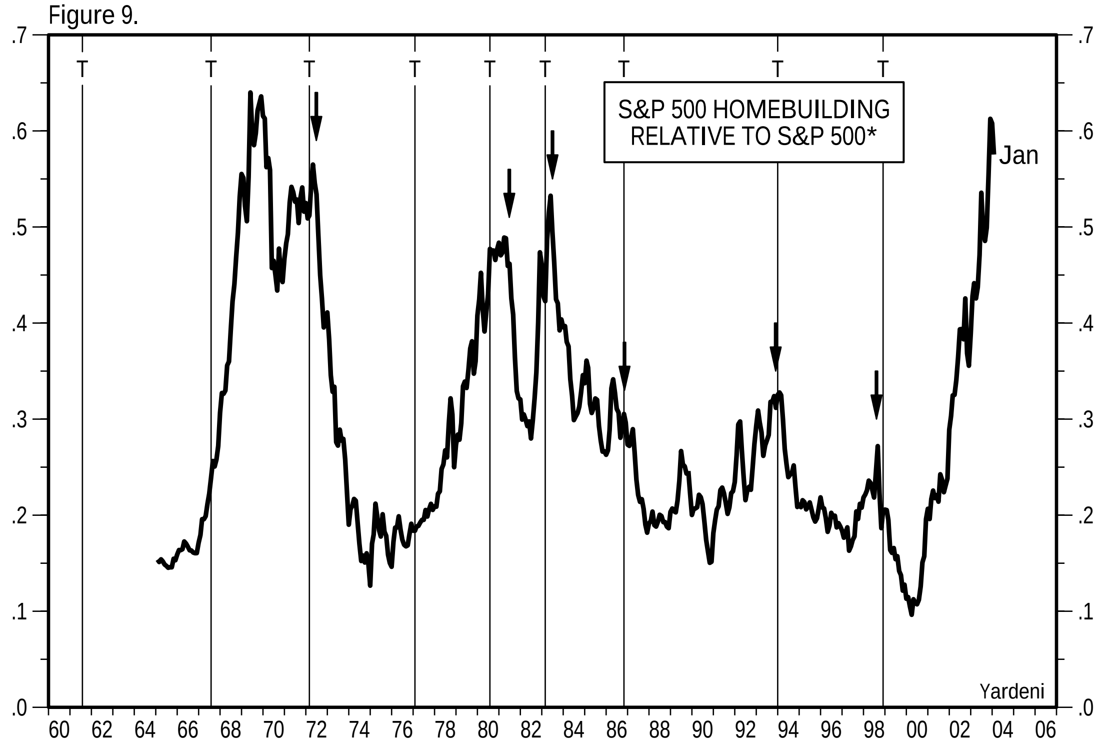



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Consumer Discretionary

Homebuilding relative strength is best since early 1970s. Relative performance fell following 6 of the last 9 rate troughs.

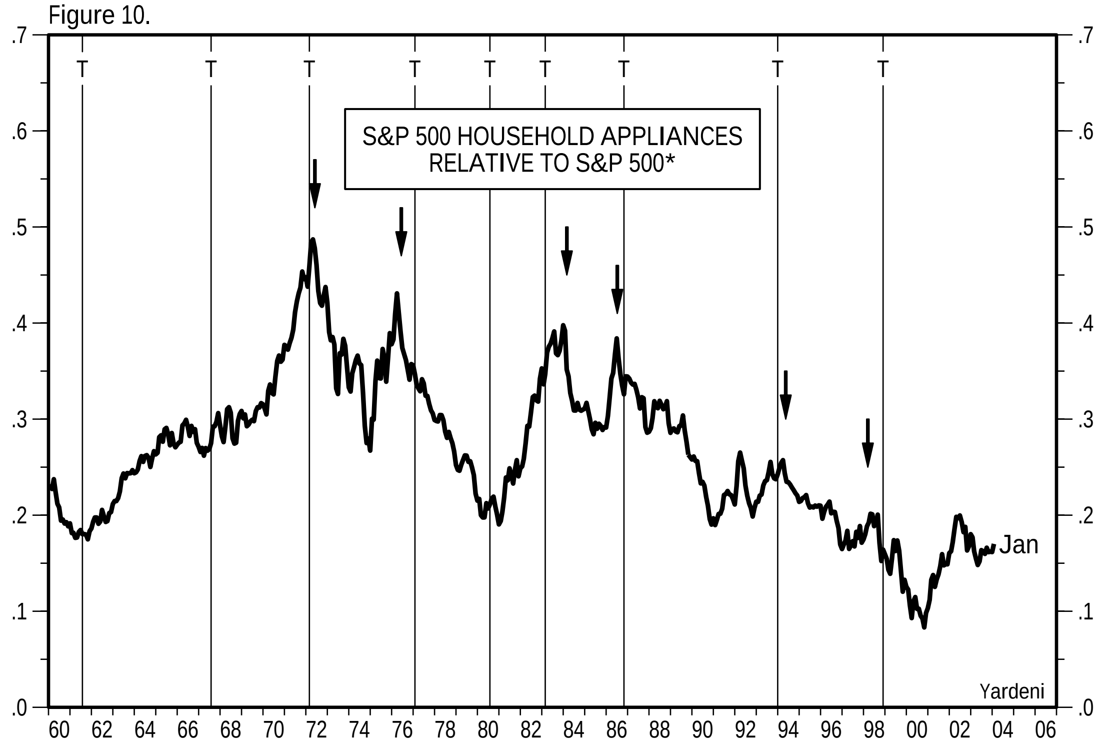
Figure 9.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Relative strength of Household Appliances tends to peak when federal funds rate troughs.

Figure 10.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Consumer Discretionary

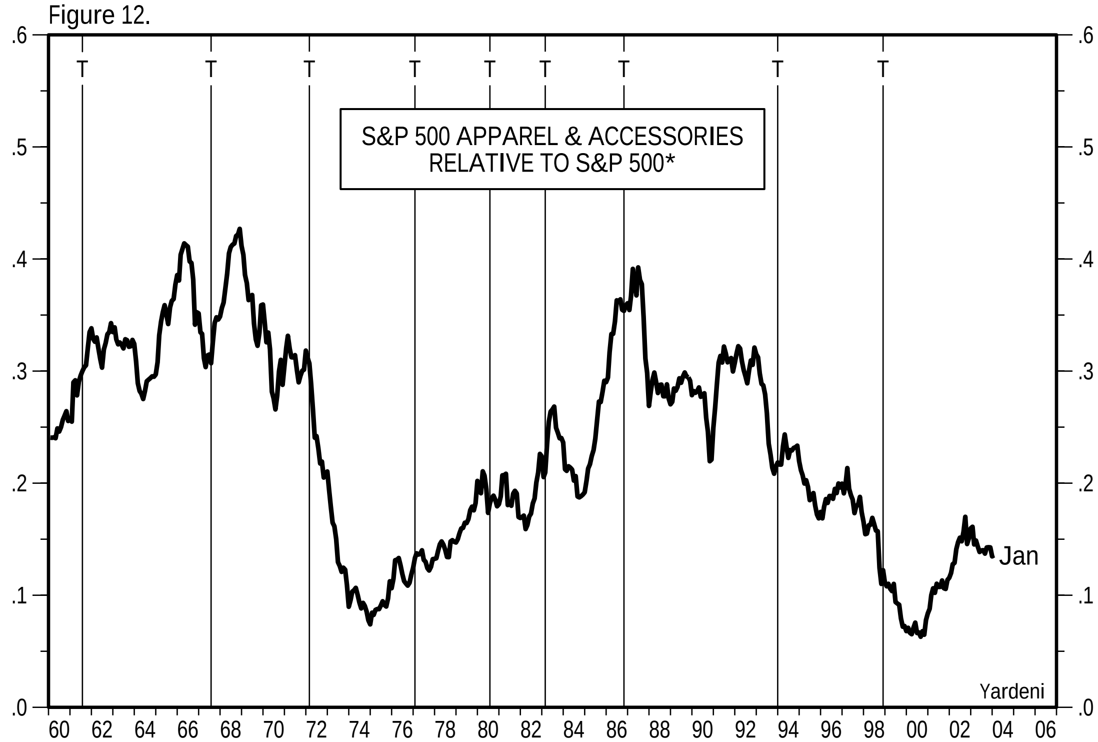
Retailers were hot in the 1960s, cold in the 1970s, hot in the 1980s, and cold in the 1990s. Time to get hot again? Cyclical peaks coincided with 5 of the last 9 rate troughs.

Figure 11.


T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Apparel & Accessories tend to have a longer multi-year cycle than interest rates.

Figure 12.

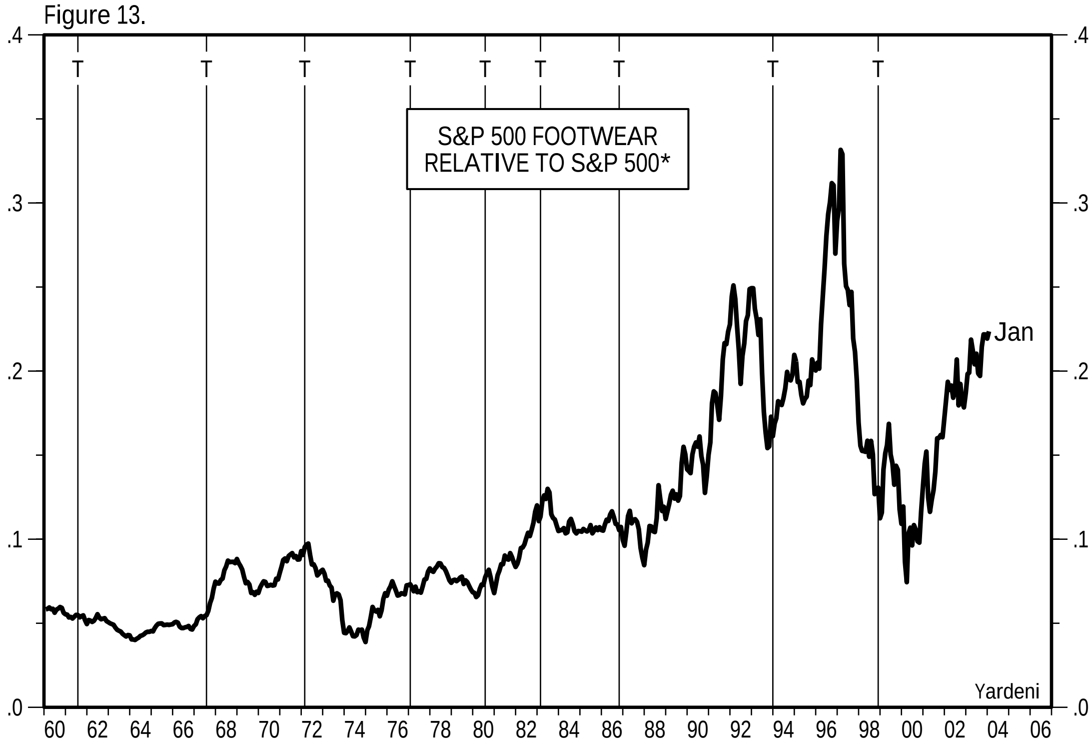



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Consumer Discretionary

Interest rates don't have much impact on Footwear.

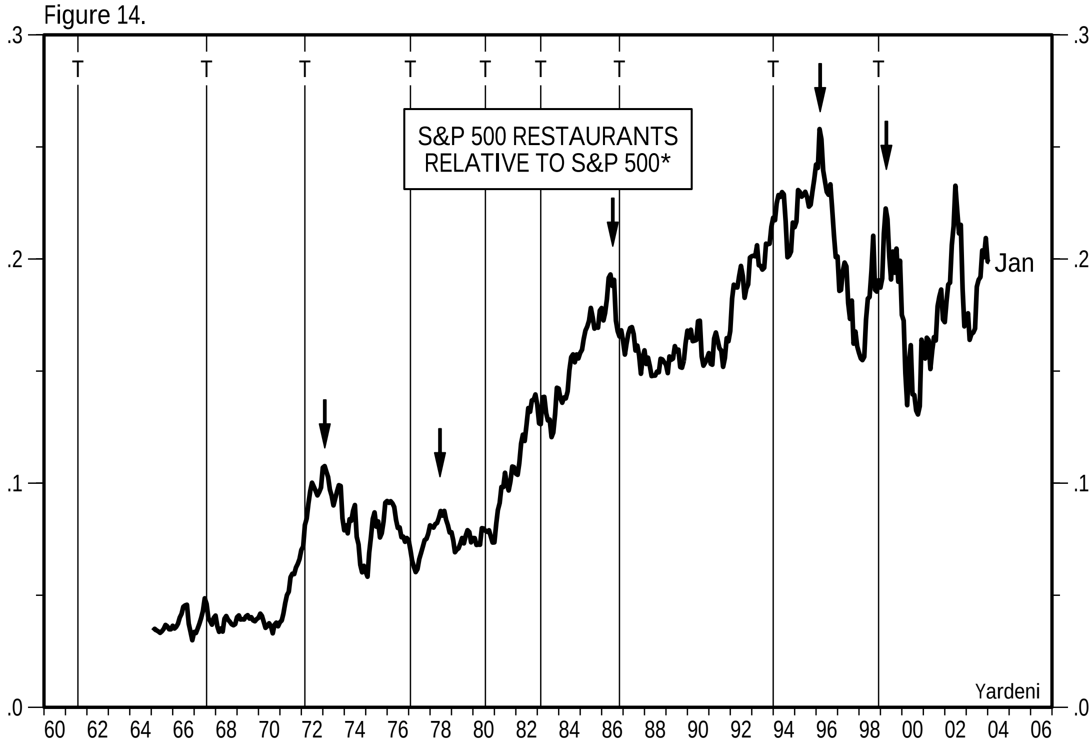
Figure 13.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Restaurants tend to underperform several months after rate cycle troughs.

Figure 14.

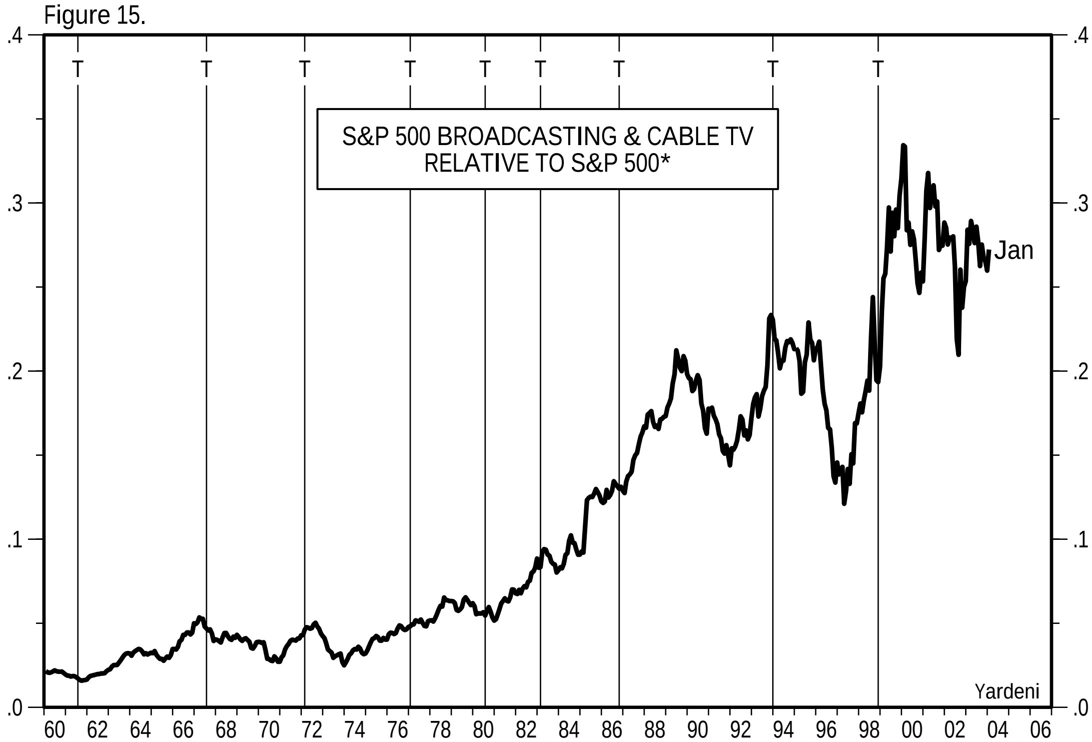



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Consumer Discretionary

Not much correlation between rate cycle and Movies & Entertainment and Broadcasting & Cable TV cycles.

Figure 15.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

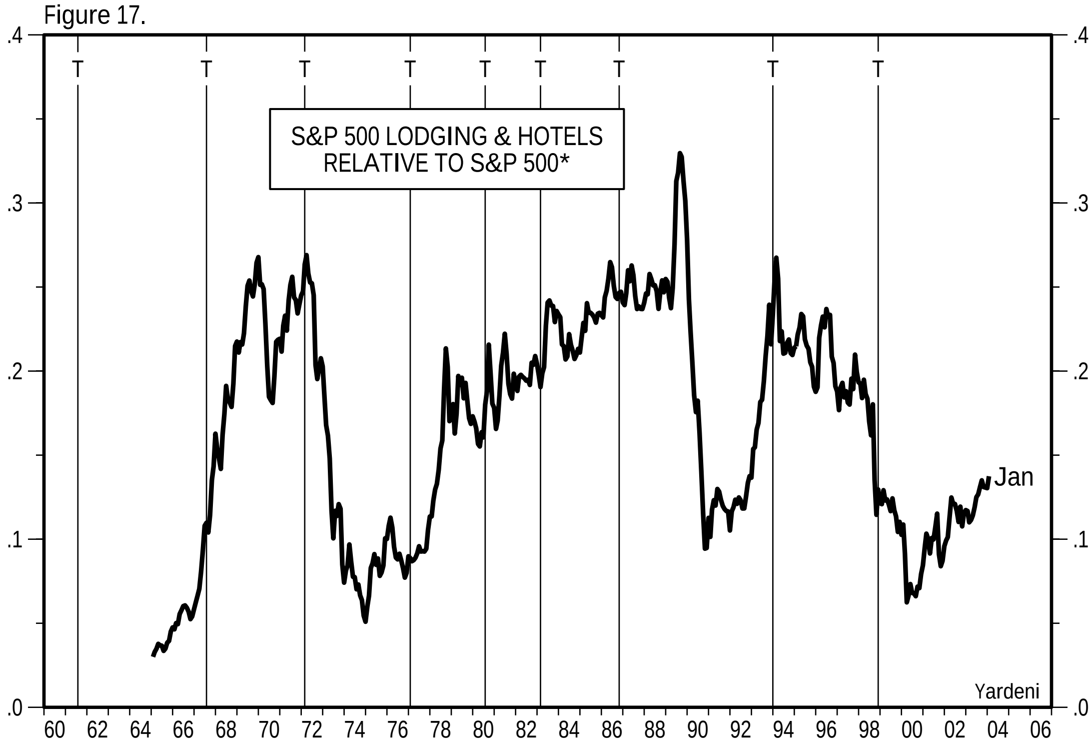
Figure 16.


T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Consumer Discretionary

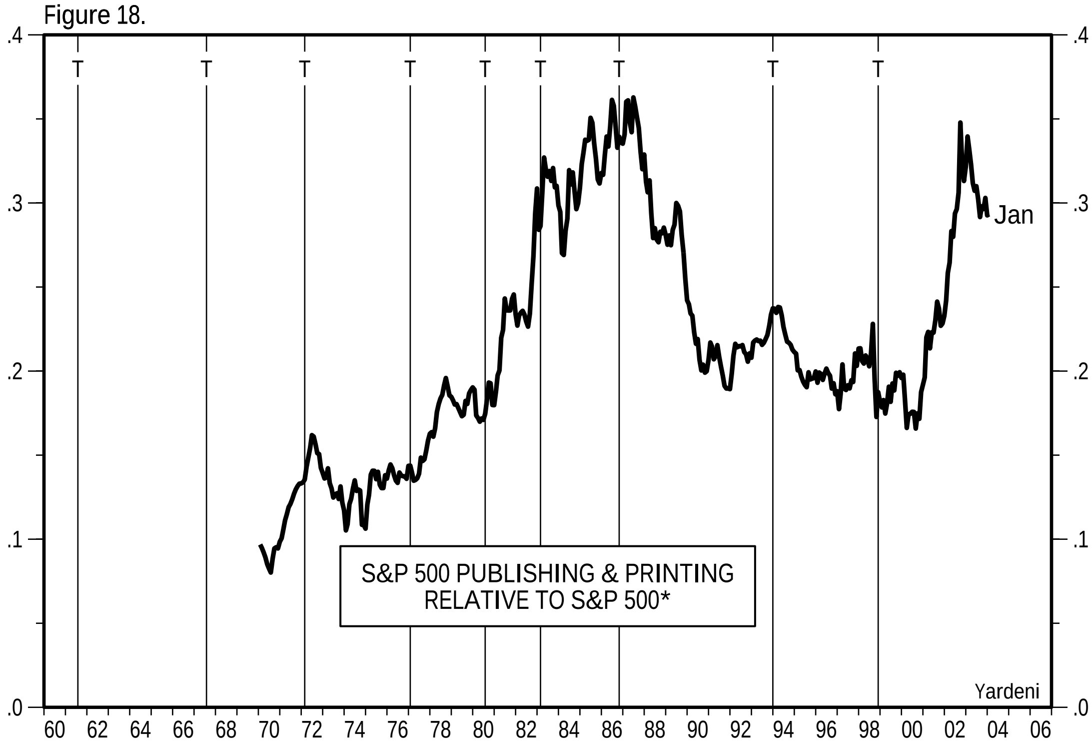
Interest rates have little cyclical influence on Lodging & Hotels and Publishing & Printing.

Figure 17.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Figure 18.

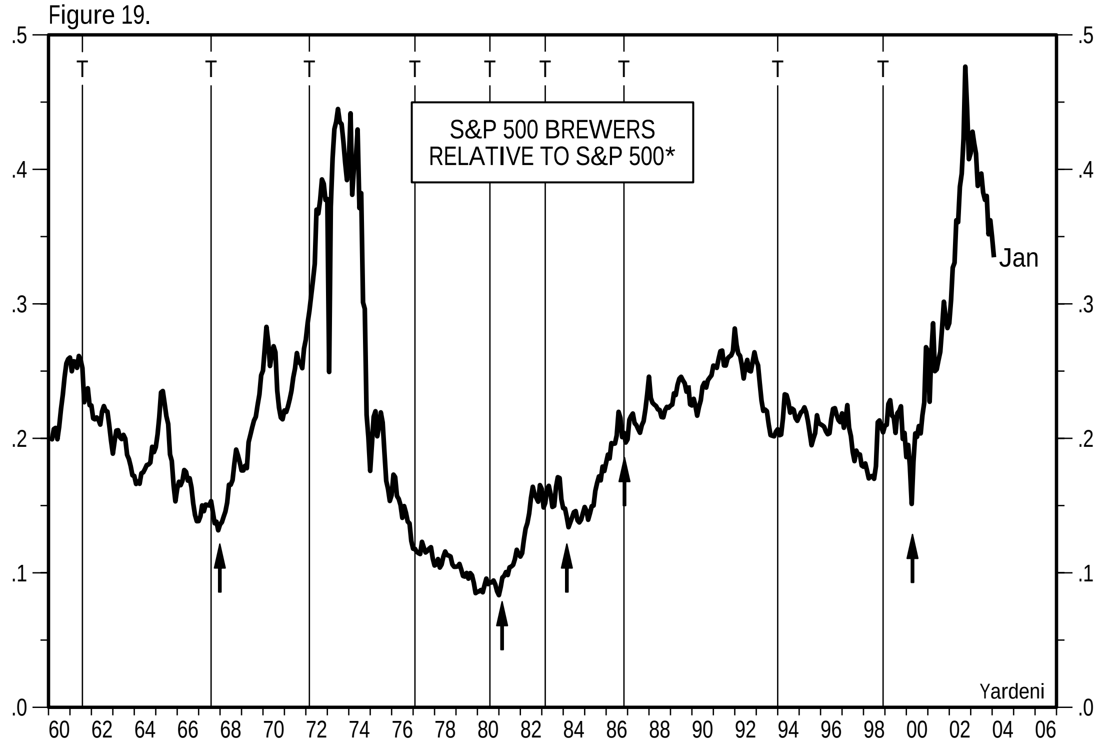



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Consumer Staples

Brewers outperformed S&P 500 following 5 of the previous 9 rate lows.

Figure 19.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Perfect score: Soft Drinks outperformed following each of the last 9 rate troughs.

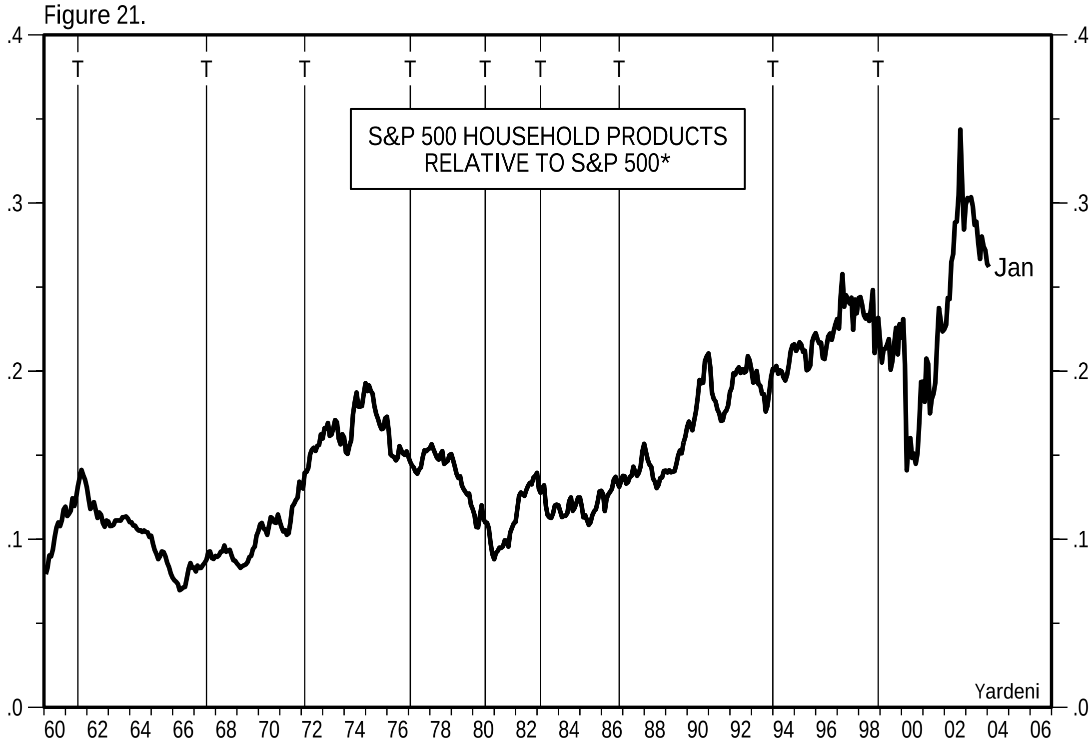
Figure 20.


T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Consumer Staples

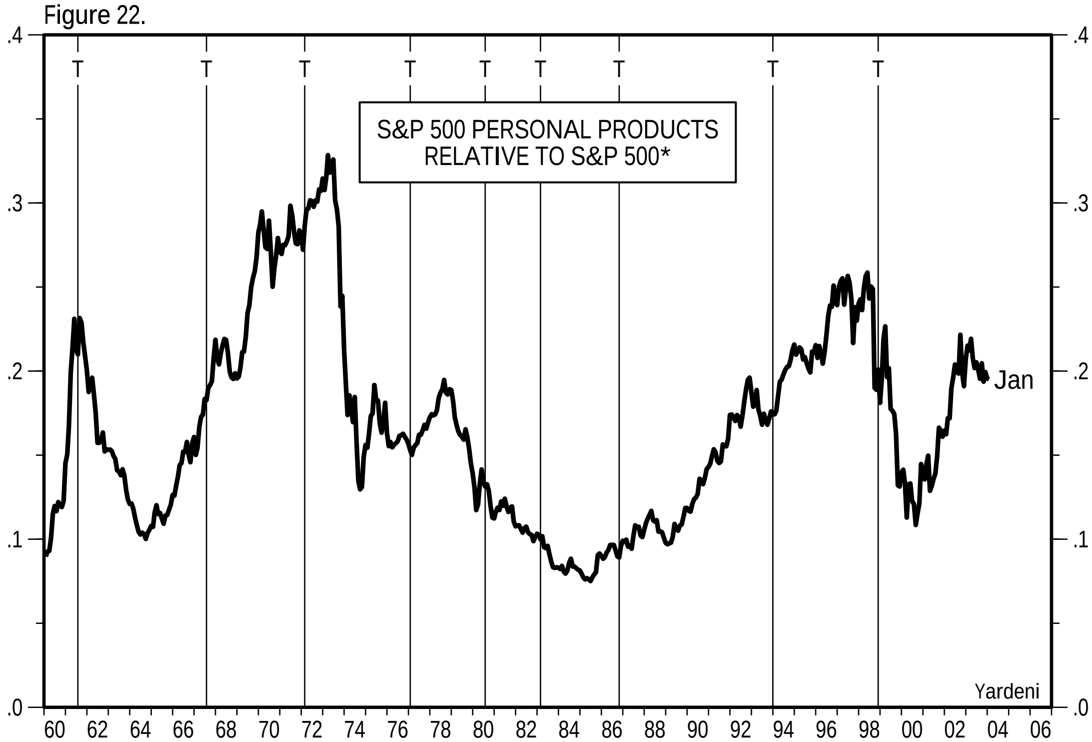
Not much correlation between rate cycle and Household and Personal Products cycles.

Figure 21.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Figure 22.

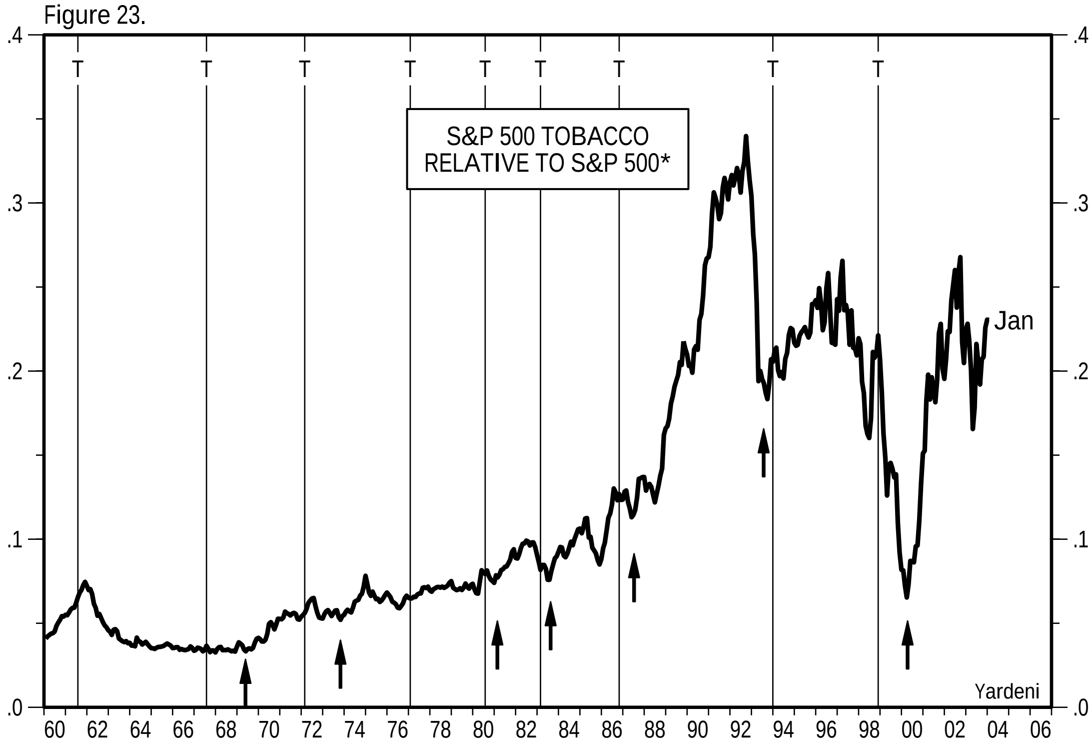



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Consumer Staples

Tobacco tends to outperform several months after rate troughs.

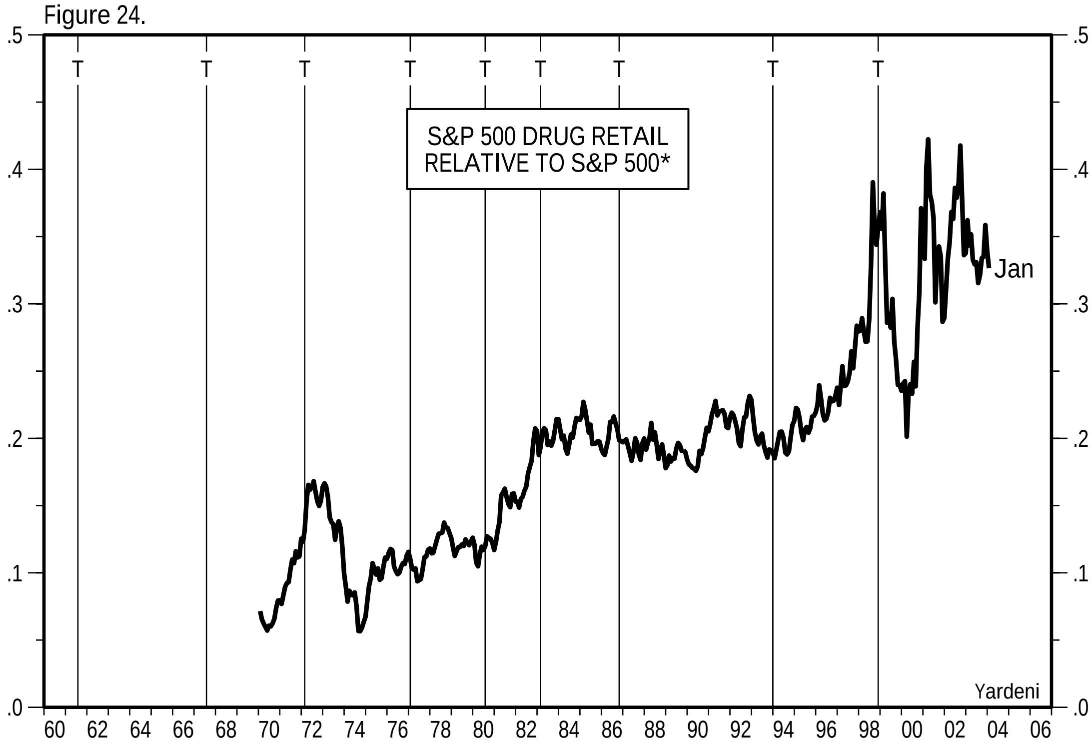
Figure 23.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

No story here.

Figure 24.

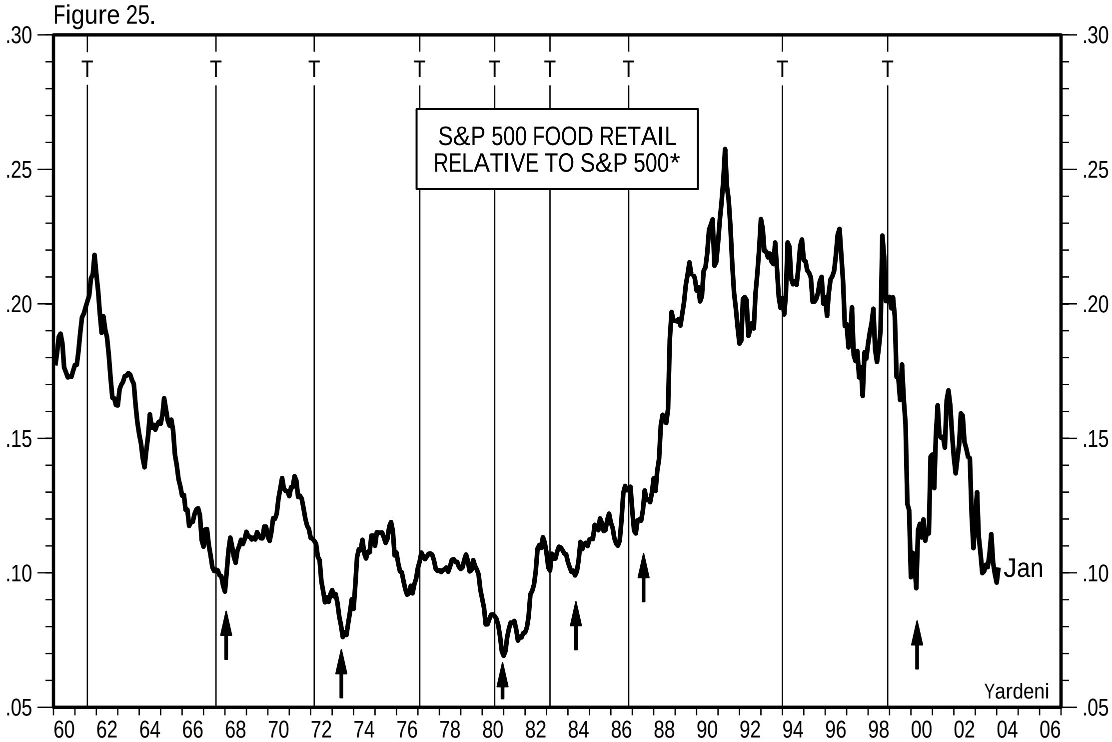



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Consumer Staples

Food Retail tends to outperform after interest rates bottom.

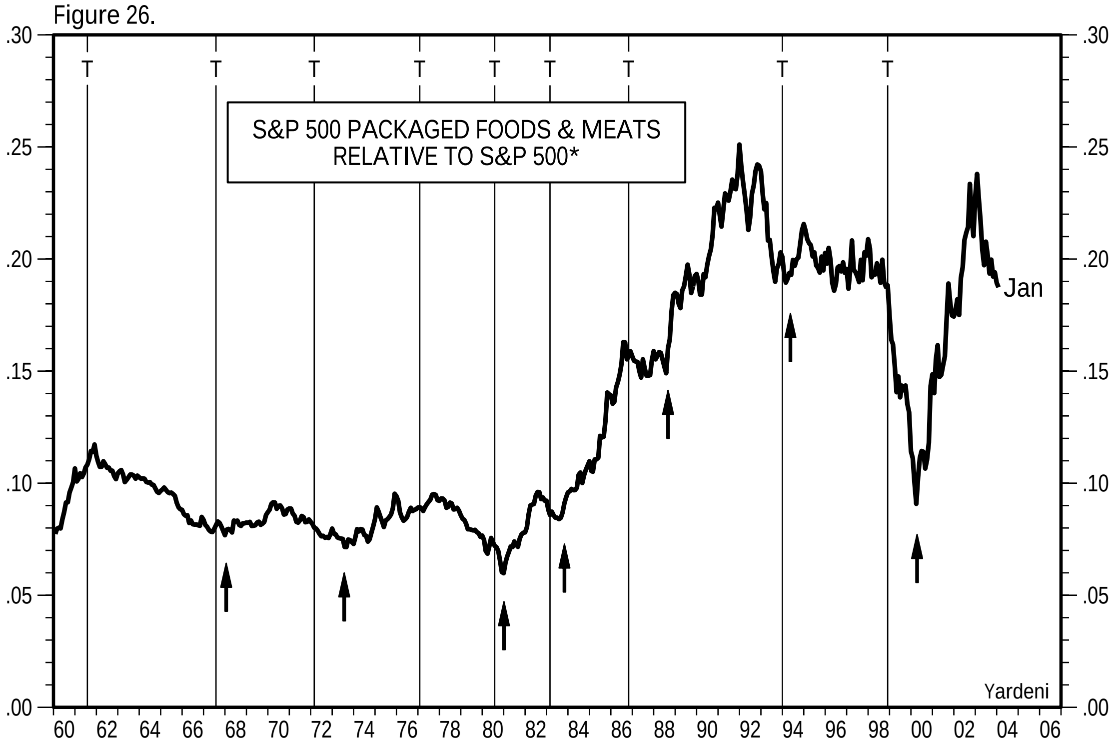
Figure 25.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Seven out of 9: That's how often Packaged Foods & Meats outperformed after rate troughs.

Figure 26.

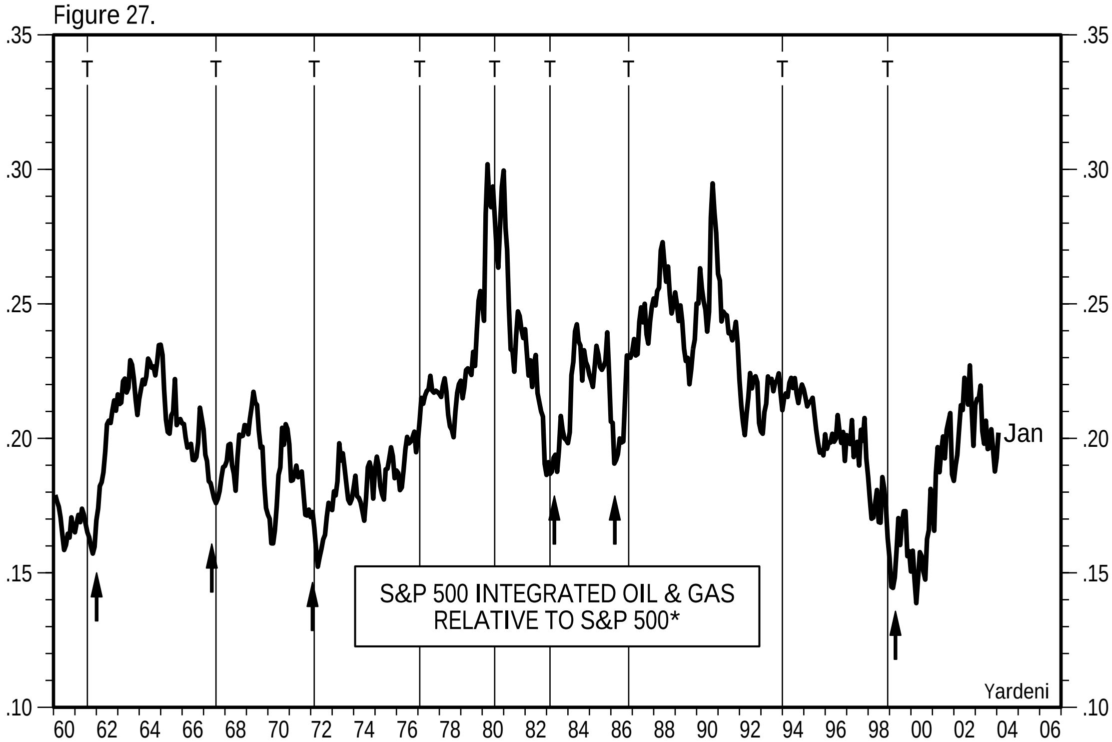



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Energy

Integrated Oil & Gas tends to have same secular trend as S&P 500 and to cyclically outperform for several months around interest rate troughs.

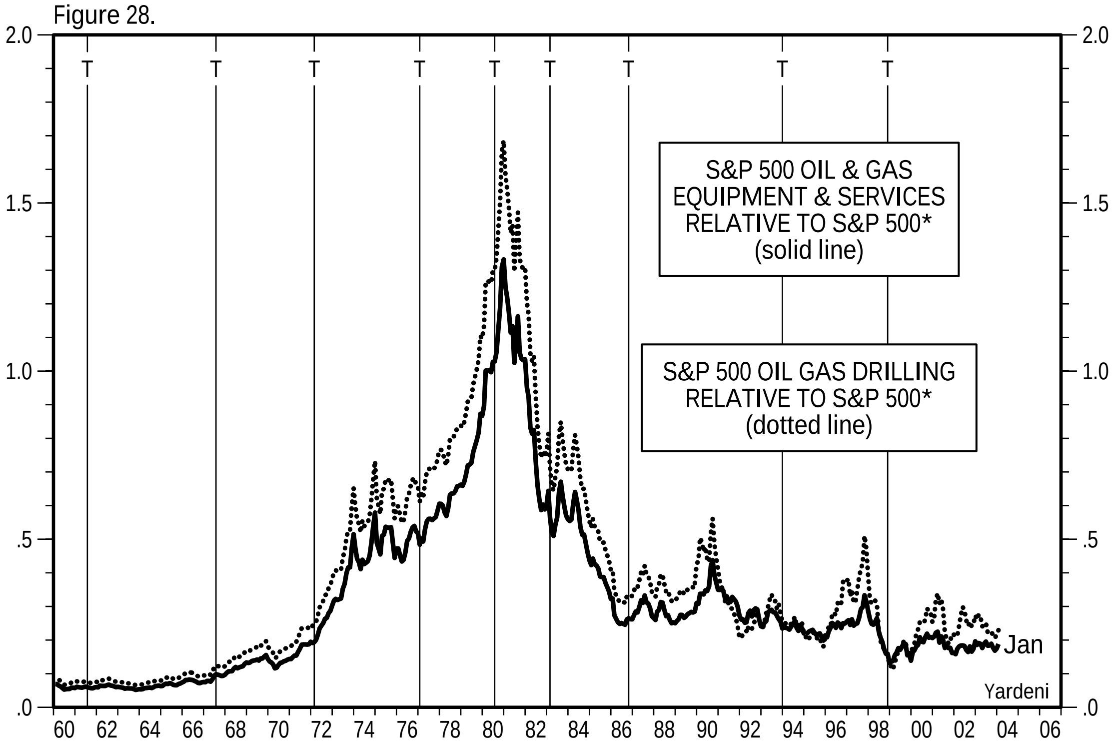
Figure 27.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Not much relationship between interest rate cycle and these two Oil & Gas industries.

Figure 28.

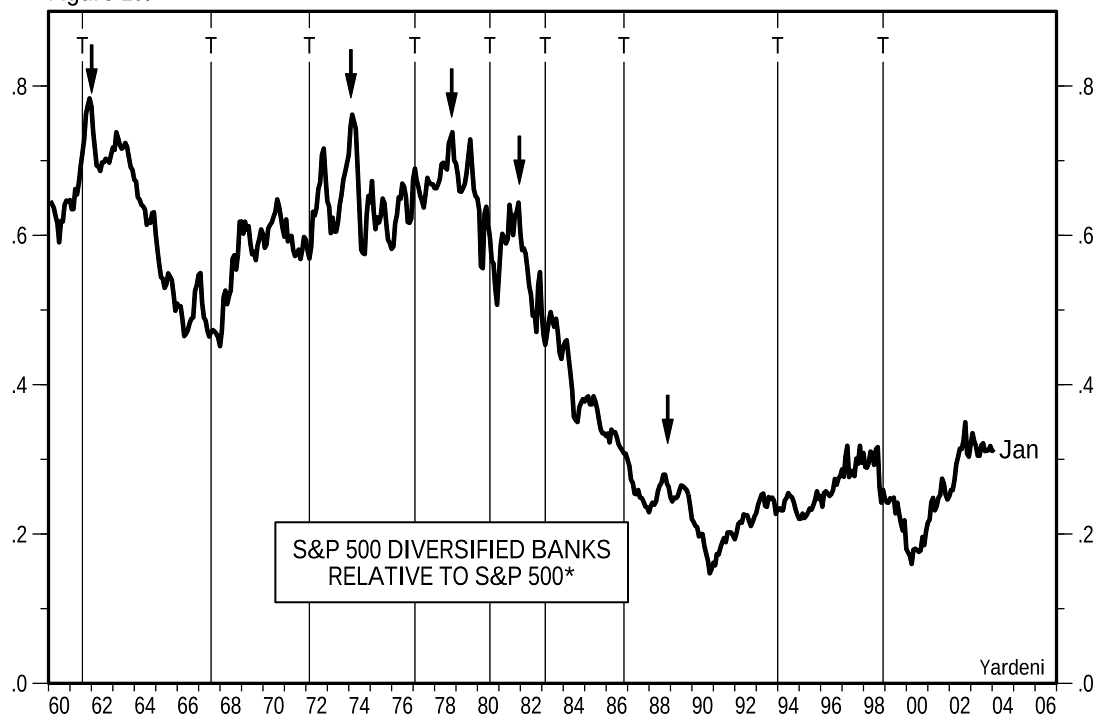



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Finance

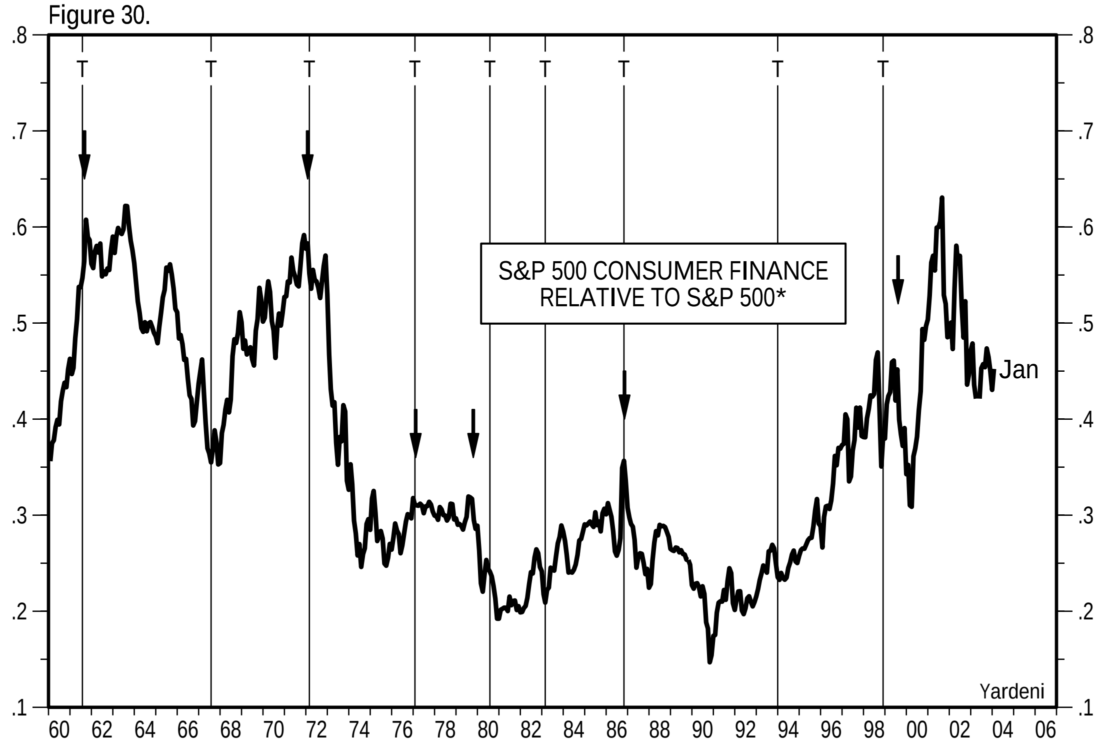
Banks' relative strength peaked 5 of last 9 rate troughs. Consumer Finance relative strength peaked around 6 of last 9 rate troughs. Lenders tend to underperform during inflation (1970s-1980s) and to outperform during disinflation (1990s).

Figure 29.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Figure 30.

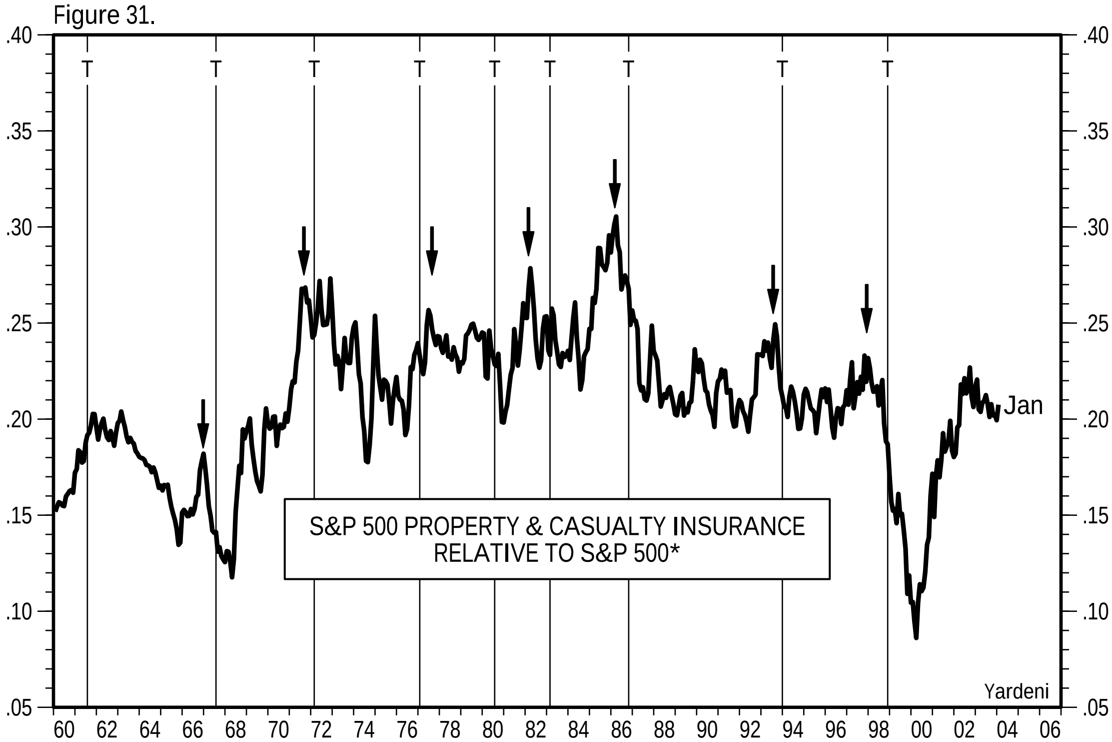



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Finance

P&C relative cycle tends to peak just before rates trough.

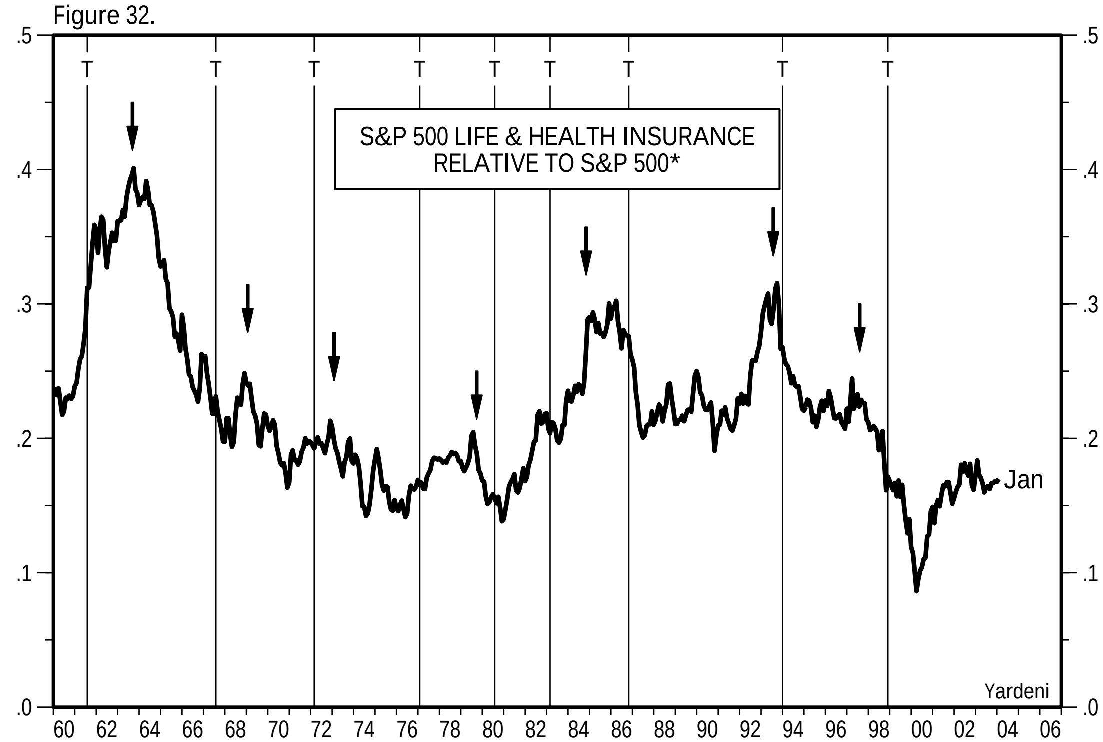
Figure 31.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Health Insurance tends to peak relative to S&P 500 several months after rates start rising.

Figure 32.

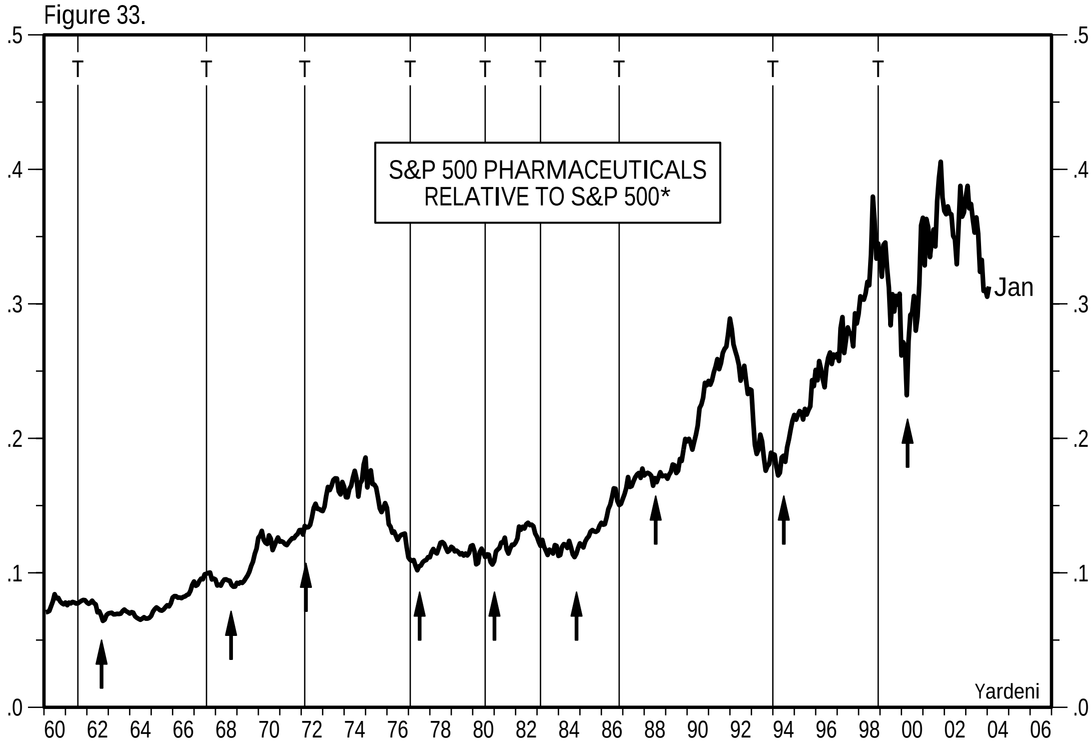



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Health Care

Perfect score: Pharmaceuticals outperformed S&P 500 starting 22 months after each of the last 9 rate troughs, on average.

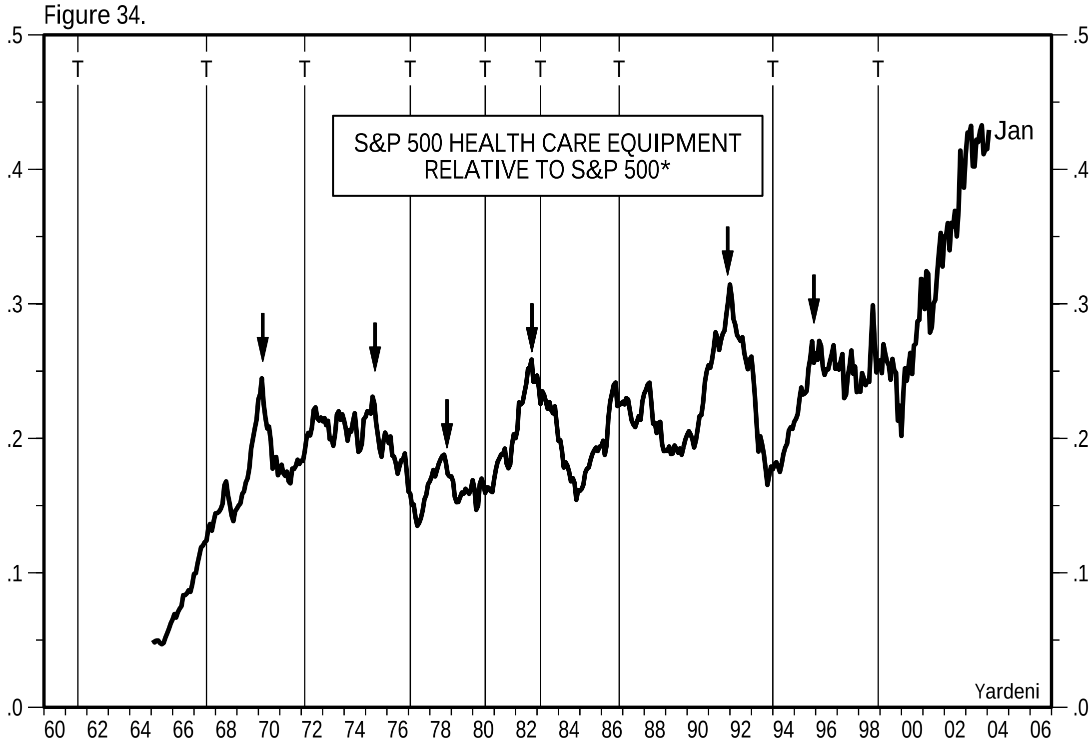
Figure 33.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Health Care Equipment tends to outperform about halfway between rate troughs.

Figure 34.

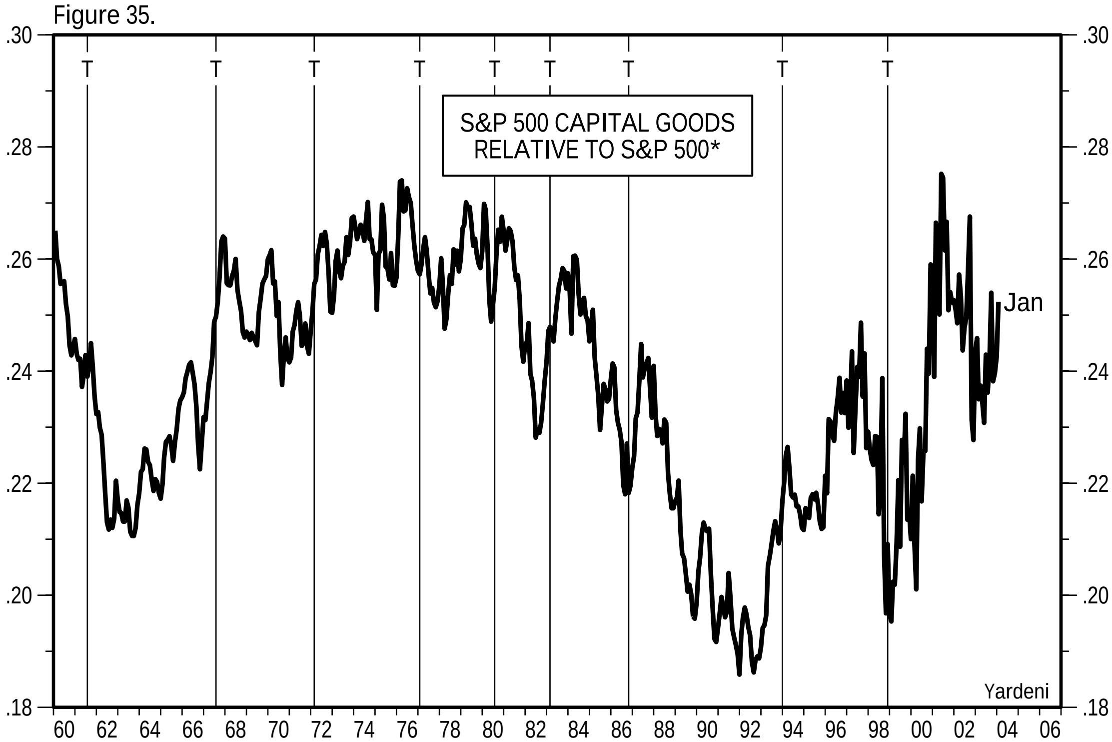



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Industrials

Not much correlation between interest rate cycle and Capital Goods relative strength cycles.

Figure 35.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Aerospace & Defense has its own cycle.

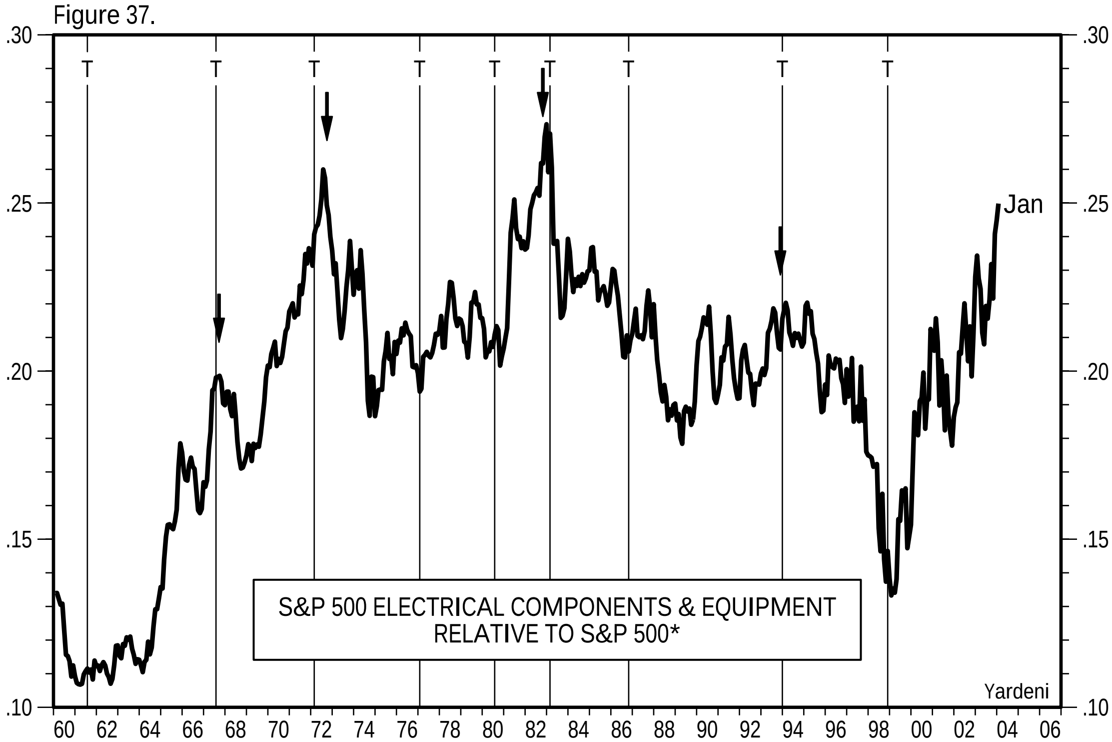
Figure 36.


T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Industrials

Start of rate hikes sometimes makes the relative peaks in Electrical Components & Equipment.

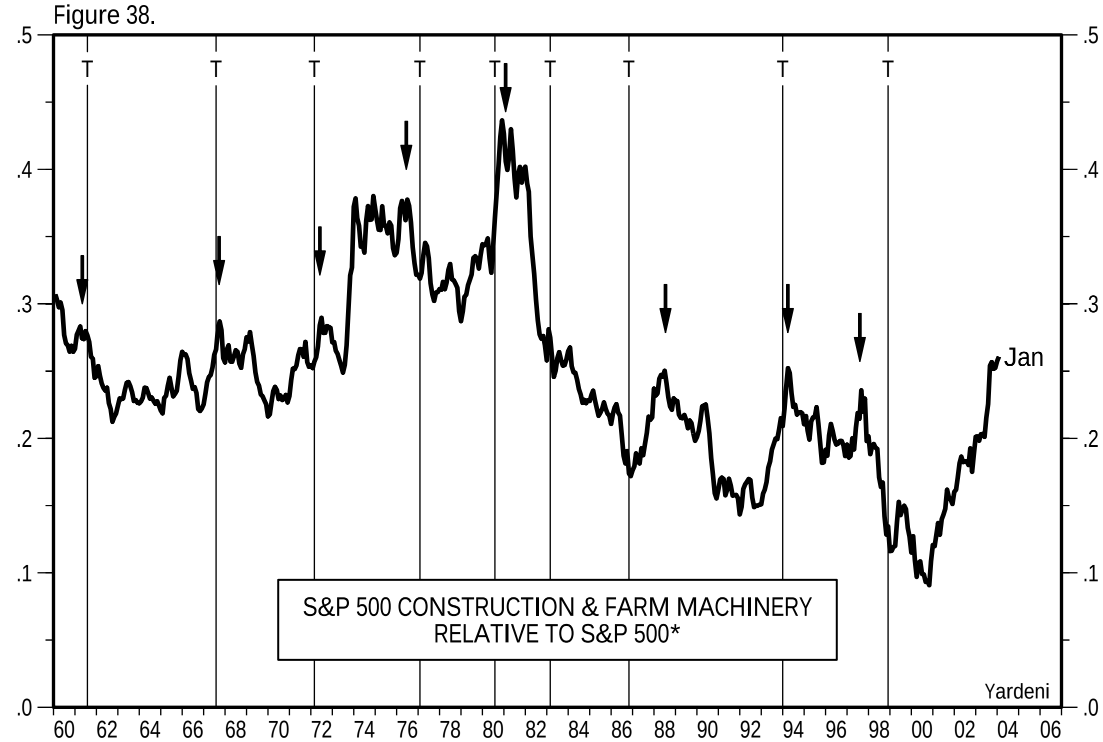
Figure 37.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Construction & Farm Machinery usually peaks within a few months before or after interest rate bottoms.

Figure 38.

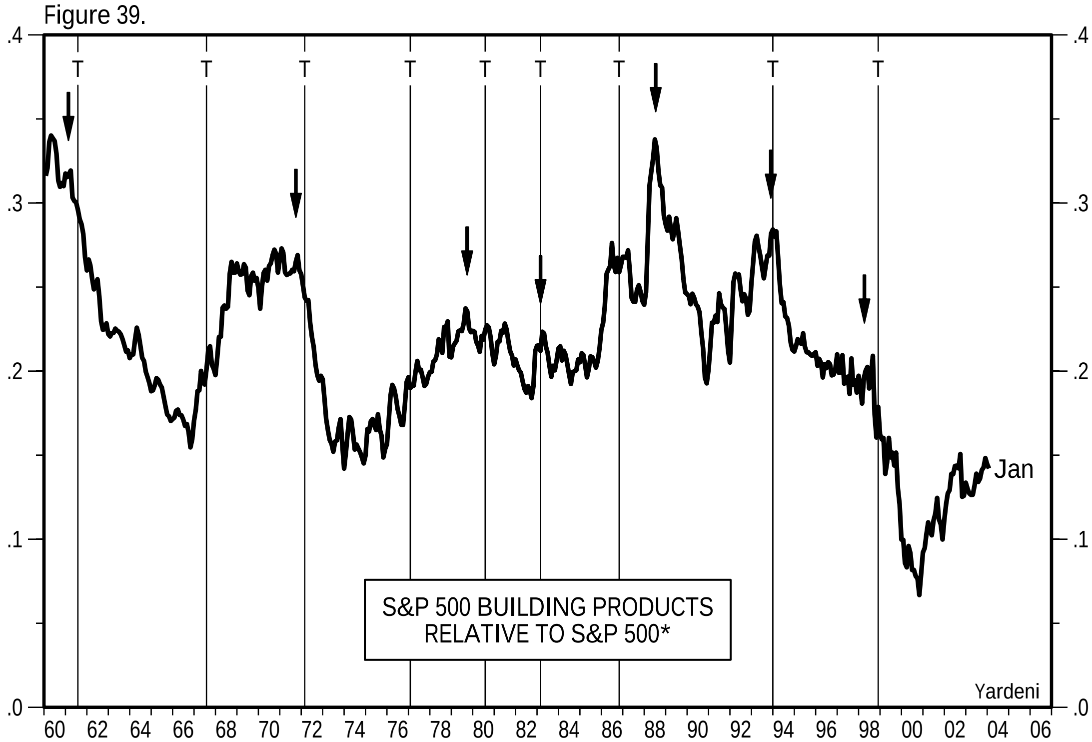



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Industrials

Building Products usually underperform after rates start rising.

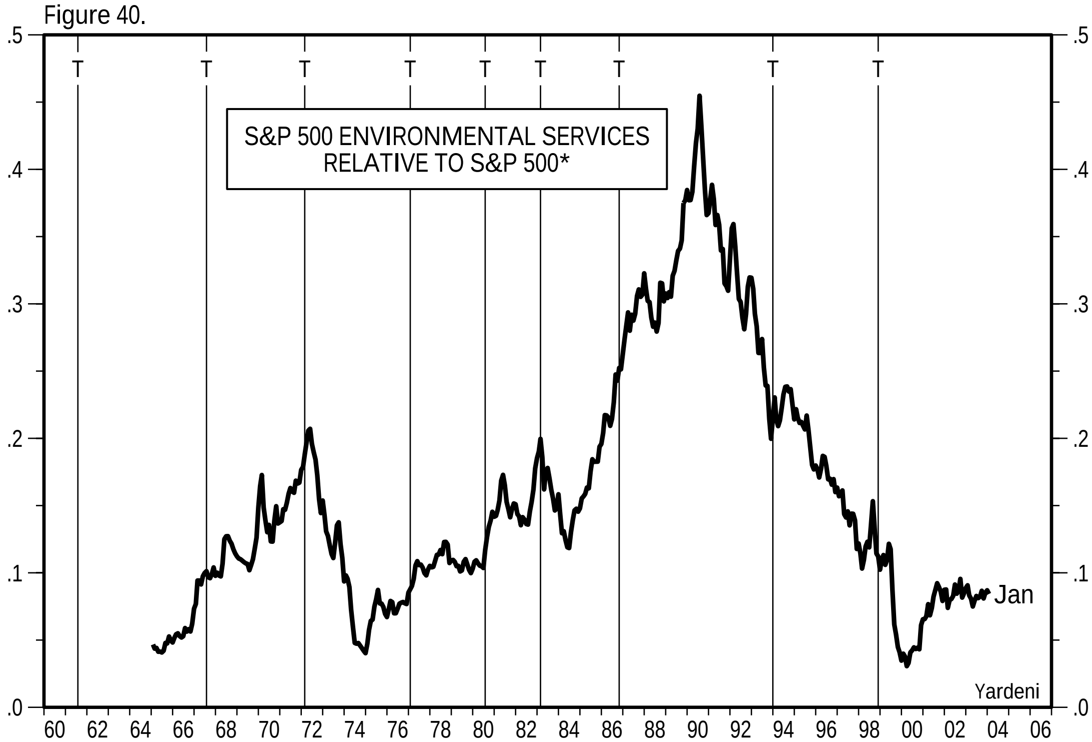
Figure 39.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Garbage in, garbage out.

Figure 40.

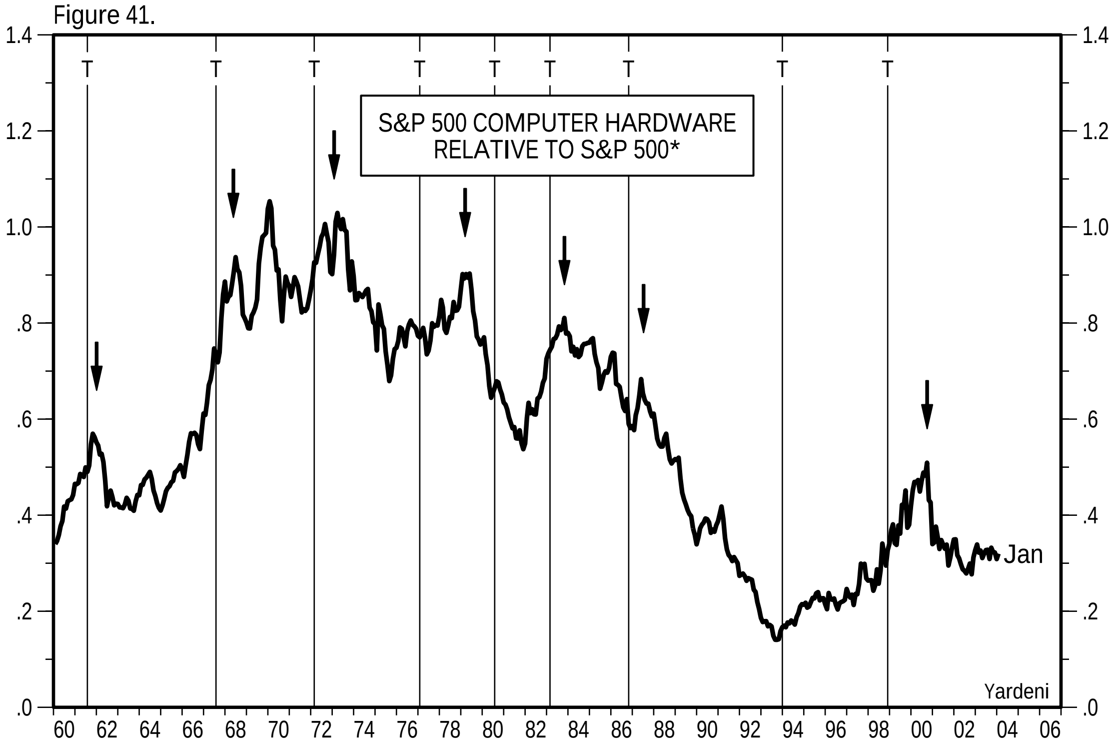



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Information Technology

Computer Hardware cycle tends to peak near rate troughs.

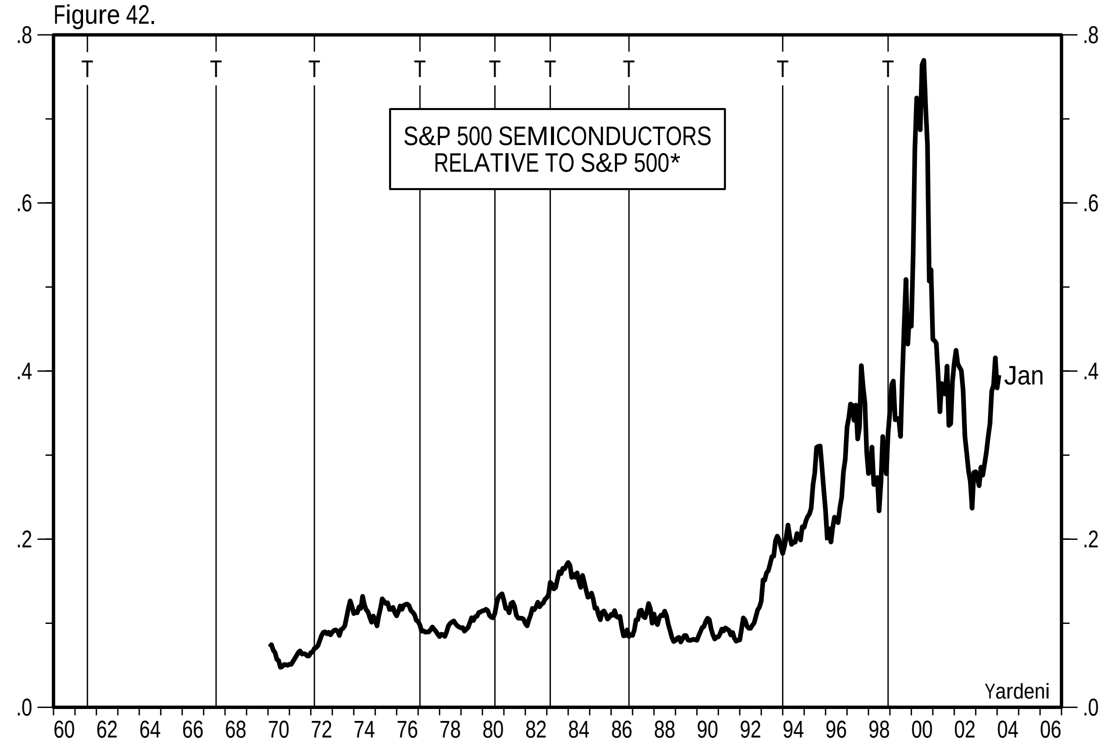
Figure 41.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Semiconductors do their own thing.

Figure 42.

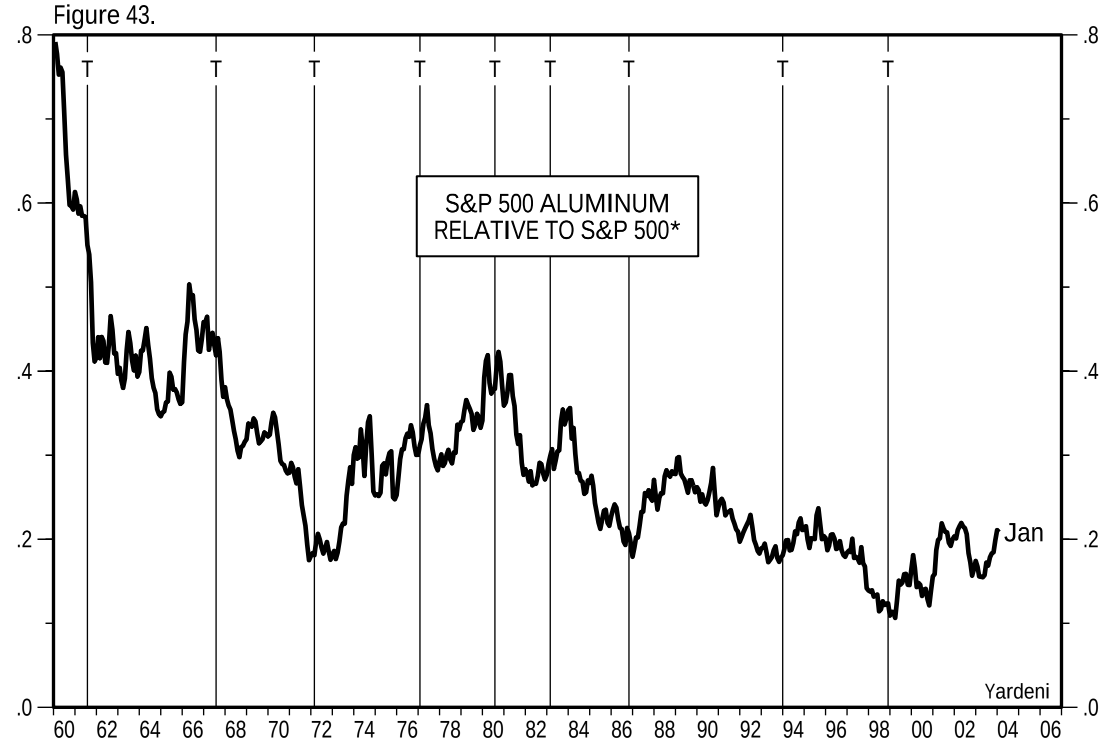



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Materials

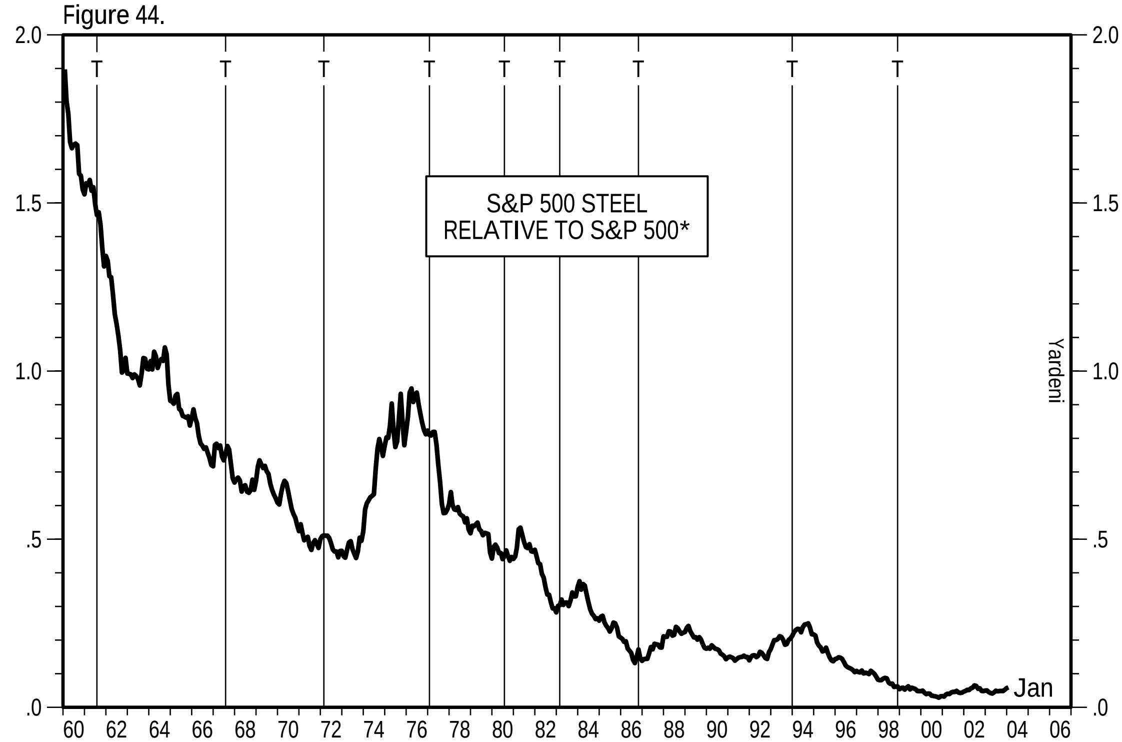
Rate cycle has little impact on Aluminum and Steel relative performance.

Figure 43.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Figure 44.

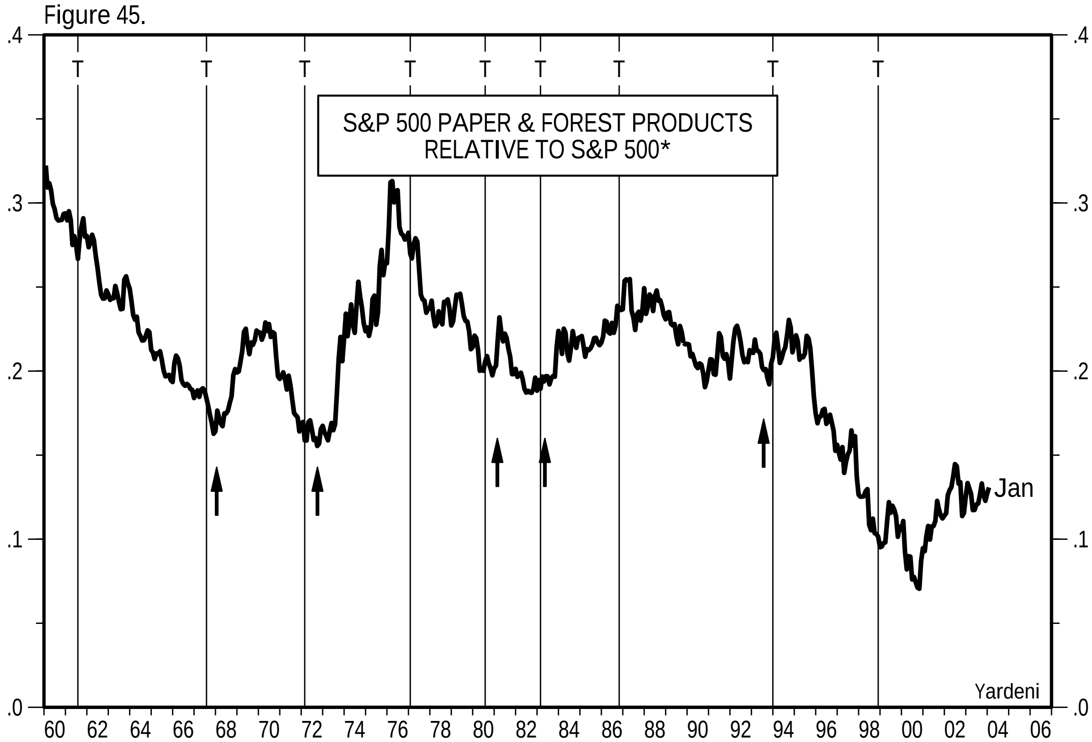



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Materials

Paper & Forest Products tends to briefly outperform after rate troughs.

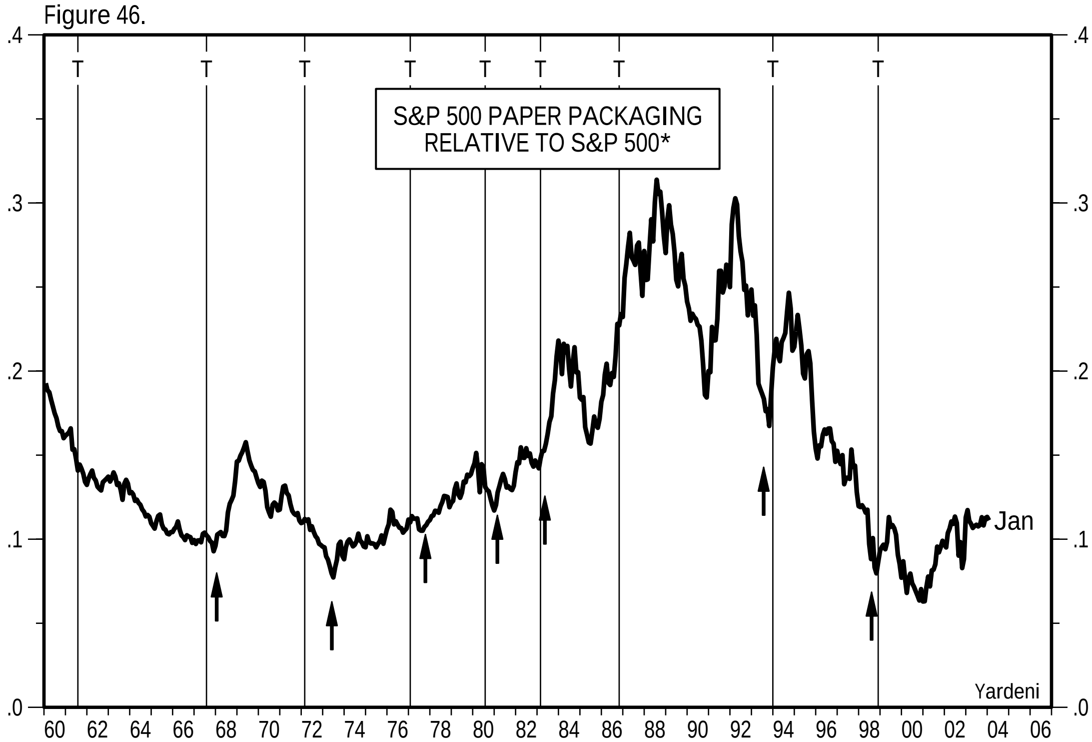
Figure 45.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Paper Packaging often outperforms once interest rates have bottomed.

Figure 46.

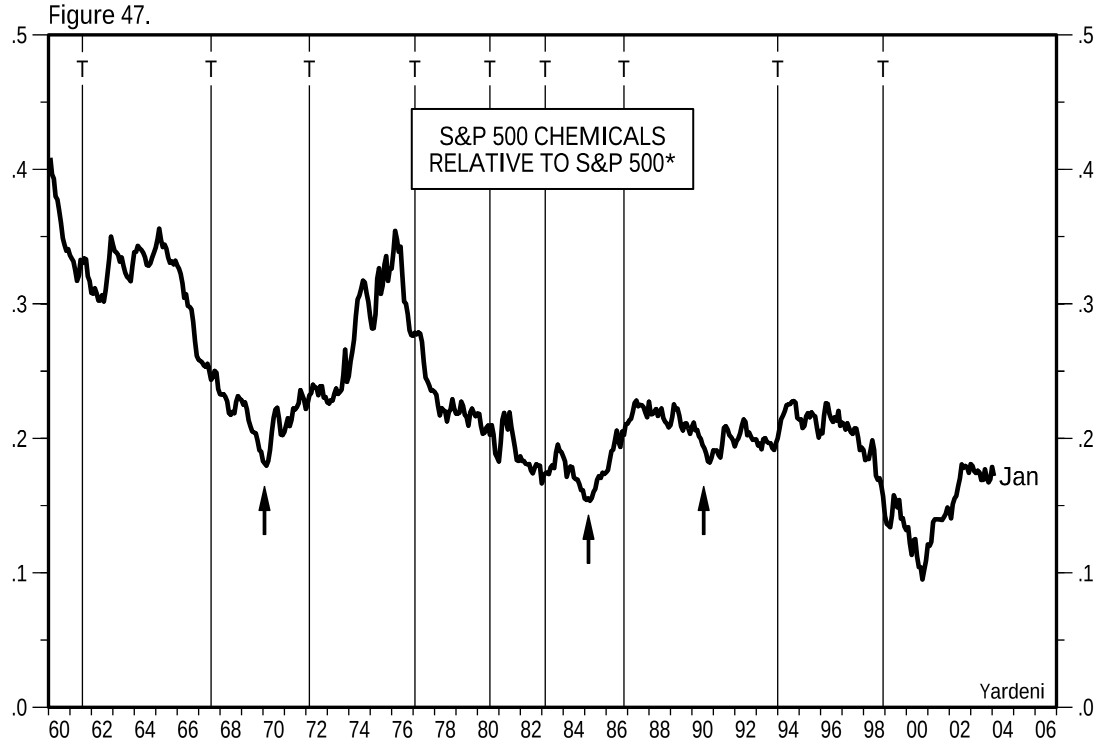



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Materials

Chemicals cycle sometimes bottoms halfway between rate troughs.

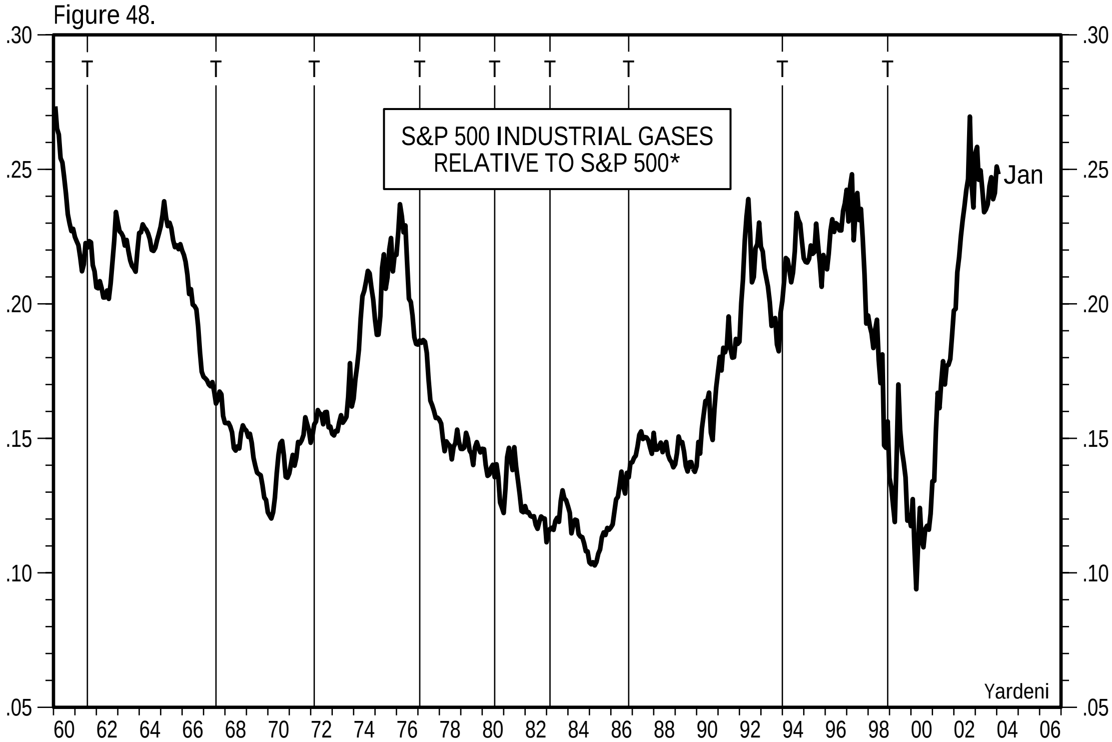
Figure 47.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

No story here.

Figure 48.

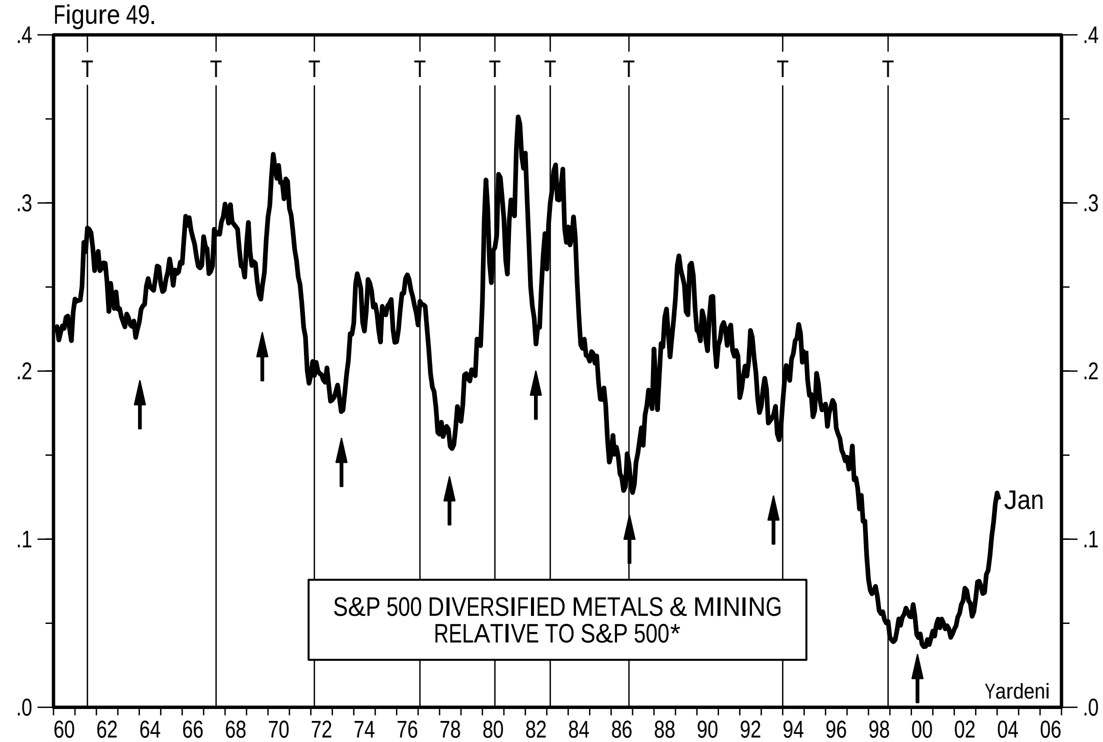



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Materials

Metals & Mining tends to outperform between rate troughs.

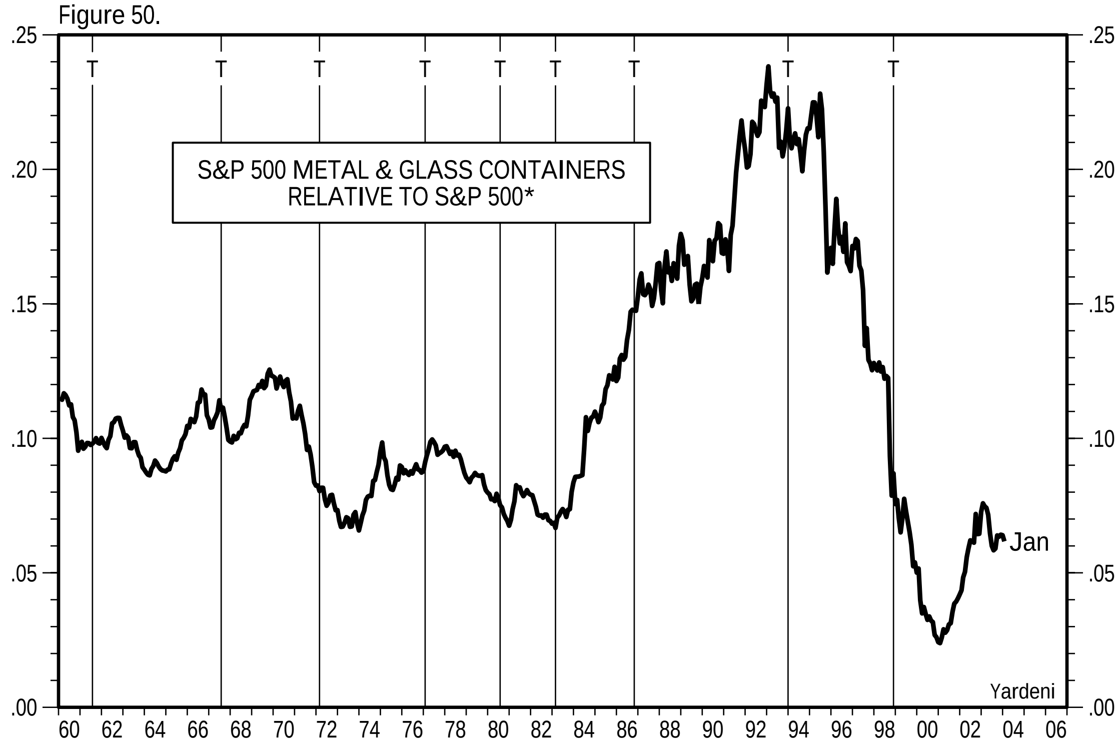
Figure 49.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

No story here.

Figure 50.

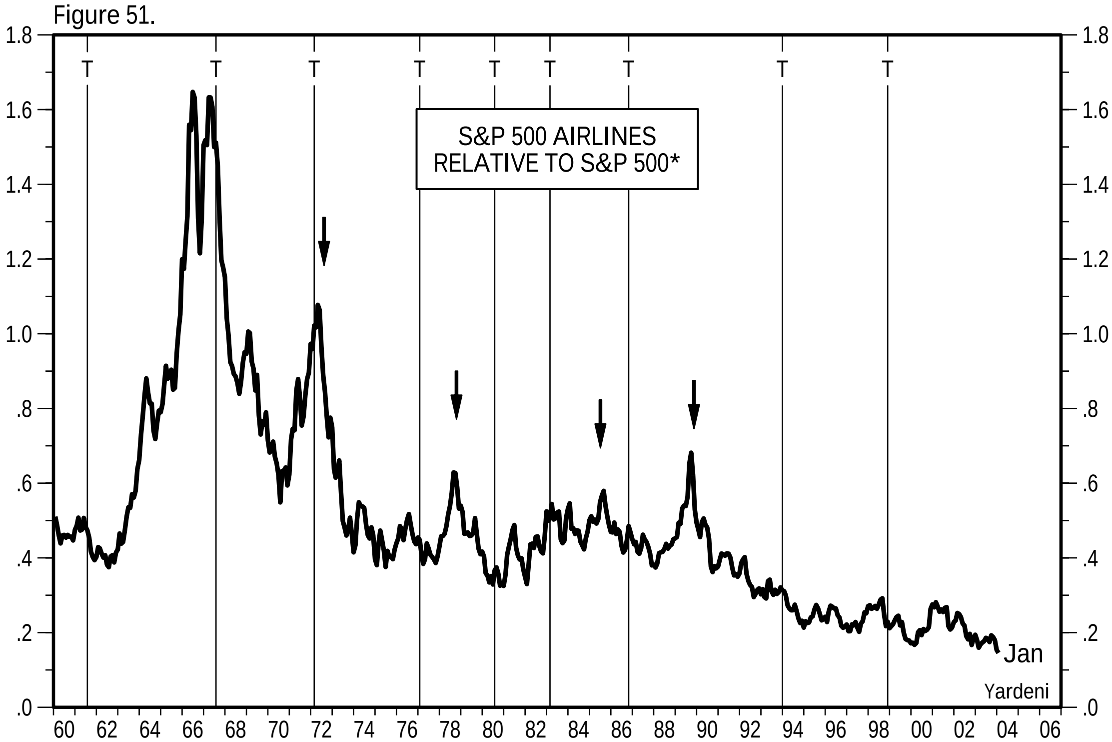



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Transportation

Interest rate cycle has little impact on the relative performance cycle of airlines.

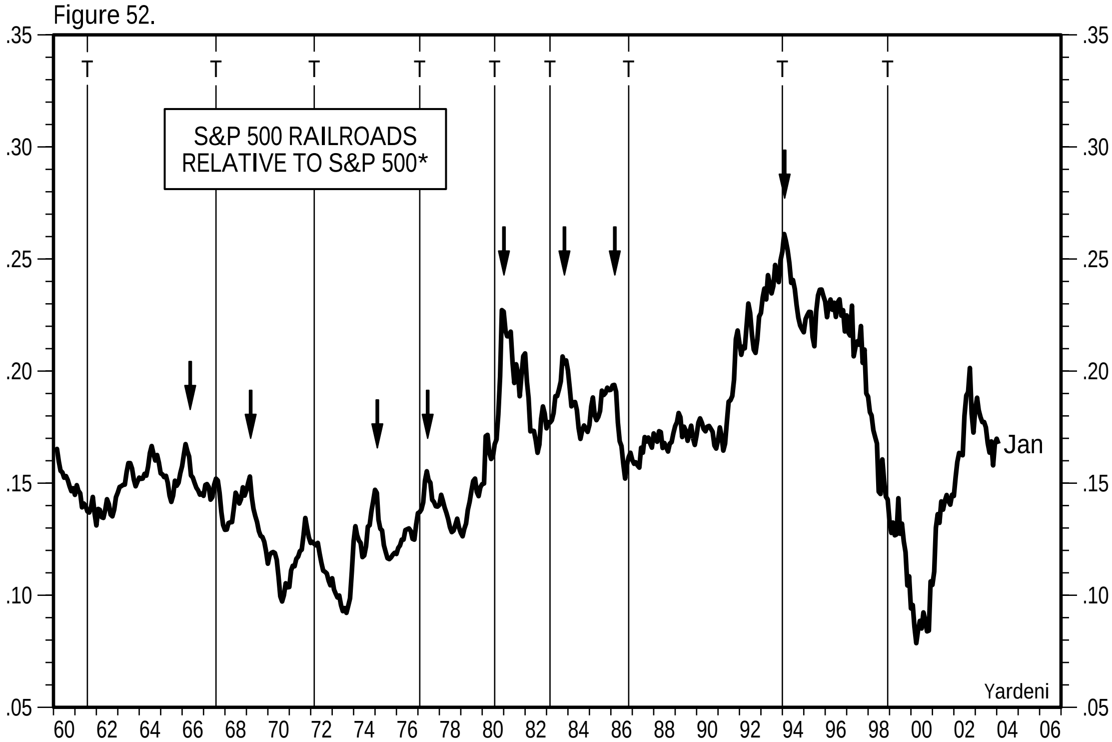
Figure 51.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

Railroads relative performance tends to peak around rate troughs.

Figure 52.

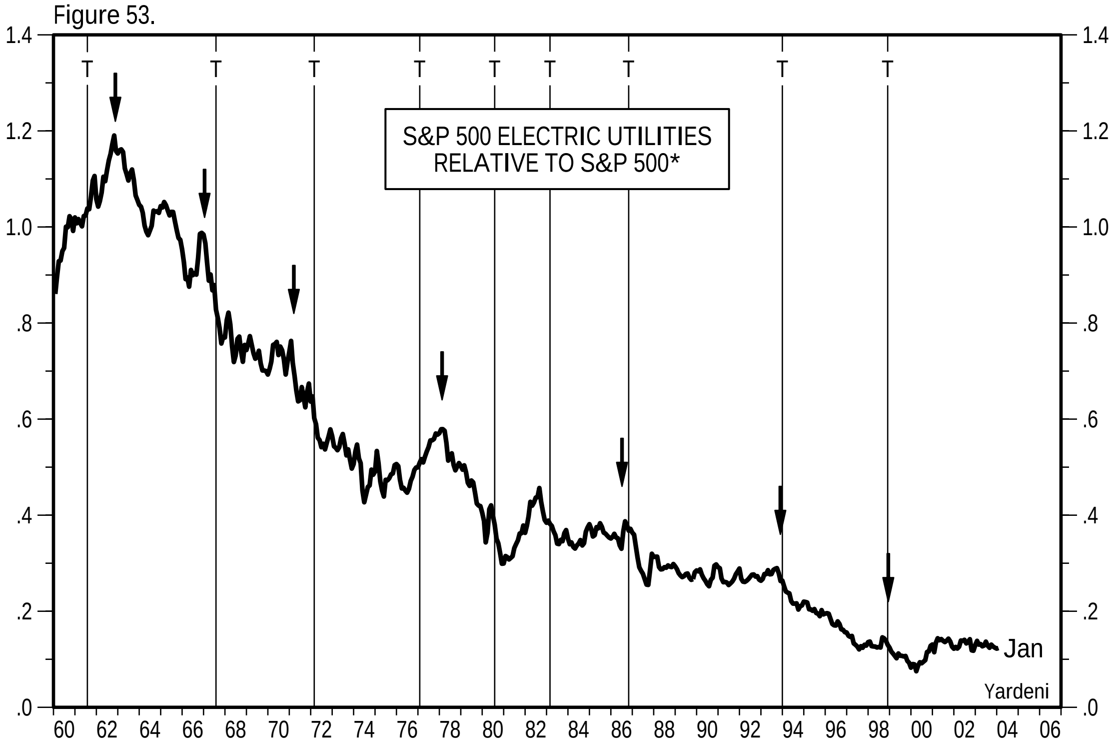



T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Utilities

Electric Utilities relative performance tends to peak around rate lows.

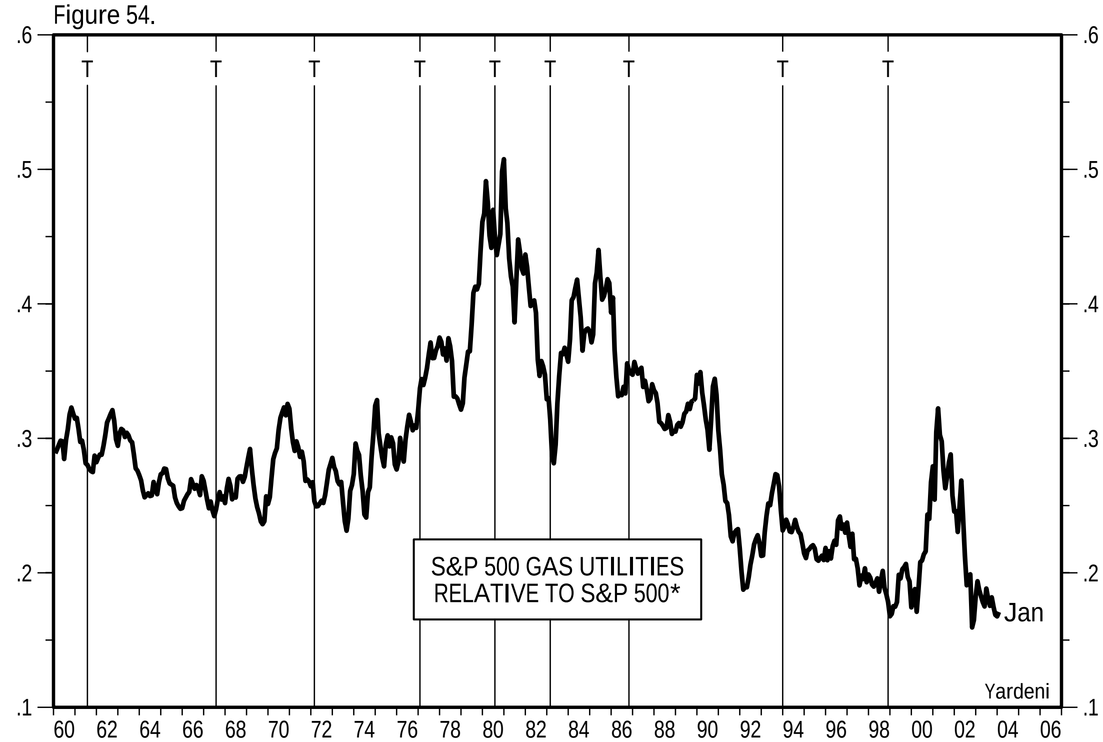
Figure 53.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

No story here.

Figure 54.




T = Federal funds rate troughs.
* Monthly average.
Source: Standard & Poor's Corporation.

# Disclosures

## Rating Distribution

| | Prudential Equity Group, LLC Research Universe | |
|---|---|---|
| **02/12/04** | **Consolidated** | **Investment Banking Clients** |
| **Overweight(Buy)*** | 35.00% | 2.00% |
| **Neutral Weight(Hold)*** | 43.00% | 4.00% |
| **Underweight(Sell)*** | 22.00% | 1.00% |
| Excludes Closed End Funds | | |
| **12/31/03** | **Consolidated** | **Investment Banking Clients** |
| **Overweight(Buy)*** | 34.00% | 2.00% |
| **Neutral Weight(Hold)*** | 42.00% | 4.00% |
| **Underweight(Sell)*** | 24.00% | 1.00% |
| Excludes Closed End Funds | | |
| **09/30/03** | **Consolidated** | **Investment Banking Clients** |
| **Overweight(Buy)*** | 34.00% | 2.00% |
| **Neutral Weight(Hold)*** | 41.00% | 3.00% |
| **Underweight(Sell)*** | 26.00% | 1.00% |
| Excludes Closed End Funds | | |
| **06/30/03** | **Consolidated** | **Investment Banking Clients** |
| **Buy** | 40.00% | 4.00% |
| **Hold** | 57.00% | 5.00% |
| **Sell** | 4.00% | 0.00% |
| Excludes Closed End Funds | | |

* In accordance with applicable rules and regulations, we note above parenthetically that our stock ratings of “Overweight,” “Neutral Weight,” and “Underweight” most closely correspond with the more traditional ratings of “Buy,” “Hold,” and “Sell,” respectively; however, please note that their meanings are not the same. (See the definitions below.) We believe that an investor’s decision to buy or sell a security should always take into account, among other things, the investor’s particular investment objectives and experience, risk tolerance, and financial circumstances. Rather than being based on an expected deviation from a given benchmark (as buy, hold, and sell recommendations often are), our stock ratings are determined on a relative basis (see the, as defined below).

When we assign an **Overweight** rating, we mean that we expect that the stock's total return will exceed the average total return of all of the stocks covered by the analyst (or analyst team). Our investment time frame is 12-18 months except as otherwise specified by the analyst in the report.

When we assign a **Neutral Weight** rating, we mean that we expect that the stock's total return will be in line with the average total return of all of the stocks covered by the analyst (or analyst team). Our investment time frame is 12-18 months except as otherwise specified by the analyst in the report.

When we assign an **Underweight** rating, we mean that we expect that the stock's total return will be below the average total return of all of the stocks covered by the analyst (or analyst team). Our investment time frame is 12-18 months except as otherwise specified by the analyst in the report.

Prior to September 8, 2003, our ratings were Buy, Hold, and Sell. A **Buy** rating meant that we believed that a stock of average or below-average risk offered the potential for total return of 15% or more over the following 12 to 18 months. For higher-risk stocks, we may have required a higher potential return to assign a **Buy** rating. When we reiterated a **Buy** rating, we were stating our belief that our price target was achievable over the following 12 to 18 months. A **Sell** rating meant that we believed that a stock of average or above-average risk had the potential to decline 15% or more over the next 12 to 18 months. For lower risk stocks, a lower potential decline may have been sufficient to warrant a **Sell** rating. When we reiterated a **Sell** rating, we were stating our belief that our price target was achievable over the following 12 to 18 months. A **Hold** rating signified our belief that a stock did not present sufficient upside or downside potential to warrant a Buy or a Sell rating, either because we viewed the stock as fairly valued or because we believed that there was too much uncertainty with regard to key variables for us to rate the stock a Buy or a Sell.

When we assign an industry rating of **Favorable**, we mean that generally industry fundamentals/stock prospects are improving.

When we assign an industry rating of **Neutral**, we mean that generally industry fundamentals/stock prospects are stable.

When we assign an industry rating of **Unfavorable**, we mean that generally industry fundamentals/stock prospects are deteriorating.

*To view charts associated with the stocks mentioned in this report, please visit* ***http://cm1.prusec.com***. In addition, the applicable disclosures can be obtained by writing to: Prudential Equity Group, LLC, One New York Plaza – 17th floor, New York, NY 10292 Attention: Equity Research.

The research analyst, a member of the team, or a member of the research analyst's household does not have a financial interest in any of the stocks mentioned in this report

The research analyst or a member of the team does not have a material conflict of interest relative to any stock mentioned in this report.

The research analyst has not received compensation that is based upon (among other factors) the firm's investment banking revenues as it related to any stock mentioned in this report.

The research analyst, a member of the team, or a member of the household does not serve as an officer, a director, or an advisory board member of any stock mentioned in this report.

The methods used to determine the price target generally are based on future earning estimates, product performance expectations, cash flow methodology, historical and/or relative valuation multiples. The risks associated with achieving the price target generally include customer spending, industry competition and overall market conditions.

Additional risk factors as they pertain to the analyst's specific investment thesis can be found within the note/report.

Prudential Equity Group, LLC has no knowledge of any material conflict of interest involving the companies mentioned in this report and our firm.

Any analyst principally responsible for the analysis of any security or issuer included in this report certifies that the views expressed accurately reflect such research analyst's personal views about subject securities or issuers and certifies that no part of his or her compensation was, is, or will be directly or indirectly related to the specific recommendation or views contained in the research report.

When recommending the purchase or sale of a security, Prudential Equity Group, LLC is subject to a conflict of interest because should such advice be followed, and result in a transaction being executed through Prudential Equity Group, LLC, Prudential Equity Group, LLC stands to earn a brokerage compensation on the transaction. In addition, any order placed with Prudential Equity Group, LLC may be executed on either agency basis resulting in a commission payment to Prudential Equity Group, LLC or on a principal basis, versus Prudential Equity Group, LLC's proprietary account, resulting in a mark-up or mark-down by Prudential Equity Group, LLC.

Any OTC-traded securities or non-U.S. companies mentioned in this report may not be cleared for sale in all jurisdictions. 24-0121

**Securities products and services are offered through Prudential Equity Group, LLC, a Prudential Financial company.**

**©Prudential Equity Group, LLC, 2004, all rights reserved. One New York Plaza, New York, NY 10292**

Prudential Financial is a service mark of The Prudential Insurance Company of America, Newark, NJ, and its affiliates.

Information contained herein is based on data obtained from recognized statistical services, issuer reports or communications, or other sources, believed to be reliable. Any statements nonfactual in nature constitute only current opinions, which are subject to change.

There are risks inherent in international investments, which may make such investments unsuitable for certain clients. These include, for example, economic, political, currency exchange rate fluctuations, and limited availability of information on international securities. Prudential Equity Group, LLC, its affiliates, and its subsidiaries make no representation that the companies which issue securities which are the subject of their research reports are in compliance with certain informational reporting requirements imposed by the Securities Exchange Act of 1934. Sales of securities covered by this report may be made only in those jurisdictions where the security is qualified for sale. The contents of this publication have been approved for distribution by Prudential-Bache International Limited, which is authorized and regulated by the Financial Services Authority. We recommend that you obtain the advice of your Financial Advisor regarding this or other investments.

**Additional information on the securities discussed herein is available upon request.**

**Information as of November 19, 2003**

## Important Information Regarding The Accompanying Research Report For Clients Of Wachovia Securities

**Wachovia Securities, LLC and/or its affiliates managed or co-managed a public offering of the following companies' securities in the past 12 months, received compensation for investment banking services from the following companies in the past 12 months, or expects to receive or intends to seek compensation for investment banking services from the following companies in the next 3 months**: AAII, ACAS, ACE, ACF, ADCT, ADP, ADS, AFCI, AHG, AIV, ALD, AMLN, AMSG, ANSR, AOL, APA, APC, APPB, ARI, ARO, ASN, AT, ATAC, AVB, AWE, AXL, AXP, AZPN, BAC, BBBY, BE, BG, BEBE, BLS, BMY, BOBE, BR, BRE, BSC, BSG, BWA, C, CAN, CB, CBL, CBR, CCU, CE, CEG, CEN, CFC, CHC, CHIC, CHUX, CIEN, CIN, CIT, CKC, CKFR, CLI, CLP, CMLS, CNT, CNXT, COF, CPG, CPS, CRE, CTCO, CTL, CXR, CY, D DUK, DCN, DCX, DDR, DECA, DG, DGX, DIGL, DIS, DLTR, DPH, DRE, DRI, DRL, DTPI, DVA, DVN, EAT, EMC, EMKR, EMMS, ENDP, EOG, EOP, EPD, EPN, EPR, EQR, ETR, EVG, EXC, F, FBN, FDC, FDO, FDRY, FE, FFIV, FISV, FNM, FOX, FPL, FRE,FRT, GBP, GE, GLW, GM, GS, GTN, HC, HCP, HEW, HME, HPT, HR, HRP, HTG, HVT, IBC, ICN, ICPT, IDPH, IFSIA, IMMU, INTC, IPXL, ISCA, JBX, JDAS, JDEC, JHF, JKHY, JPM, KEA, KG, KIM, KMI, KMP, KMR, KPA, KRB, KRON, KTR, LAMR, LEA, LEG, LEH, LH, LIN, LNCR, LRY, LSI, LXP, LZB, MAC, MAN, MANU, MCGC, MEDI, MER, MGA, MHK, MHX, MMA, MNST, MO, MRR, MU, MWD, NESN.VX, NI, NNN, NSCN, NSRGY, NT, NXTL, NXTP, O, OFC, OSI, PAYX, PDX, PFGC, PGN, PKY, PLD, PNP, POG, PPL, PRE, PSA, PSC, PSUN, PXD, RCII, RE, REG, RI, RL, RMK, RNR, RNT, ROIAK, RQI, RRE, RRGB, RSAS, RWT, S, SBGI, SCG, SCRI, SCT, SDS, SFNT, SFP, SGA, SIMG, SINT, SLAB, SLG, SLXP, SMT, SNH, SO, SSTI, STT, SYMC, SYY, TBI, TCR, TDS, TEK, TELK, TIER, TLRK, TM, TMA, TOM, TPC, TPP, TTEN, TTN, TUES, TUNEE, TYC, UCO, UDR, URBN, USM, USON, USPI, VAST, VMSI, VNO, VNX, VZ, WB, WEG, WEN, WFC, WPI, WRI, WSM, WTSLA, WWCA, X, XL, YBTVA, YUM, ZQK

**An employee, director, or officer of Wachovia Securities, LLC is a Board Member or Director of**: AIRT, CMLL, EDCO, GBTB, JHFT, PAB, SSYMW, WLC

**Wachovia Securities, LLC and its Wachovia affiliates beneficially own 1% or more of a class of common equity securities for**: AA, AB, ABCO, ABFS, ABNK, ABT, ACAS, ACBK, ACEM, ACS, ADNM, ADP, ADSK, ADTG, ADVP, AERN, AFCO, AFHI, AFR, AG, AGCC, AGII, AGIL, AGIX, AGLE, AGN, AIG, ALAB, ALCD, ALOG, ALTR, AME, AMEO, AMG, AMGC, AMGM, AMGN, AMIS, AMMRQ, AMR, AMWD, AMX, ANDW, ANGC, ANN, ANSS, AOS, AOT, AP, APA, APC, APFC, APOG, APOL, APPB, ARJ, ARM, ARW, ARXX, ASBC, ASD, ASFI, ASMI, ASYT, ATCY, ATLD, ATMI, ATR, ATU, ATW, AUGT, AV, AVO, AWWC, AXC, AXP, B, BAC, BAEI, BBA, BBGI, BBOX, BBR, BBY, BCR, BCRH, BDF, BDK, BDX, BDY, BEANQ, BEC, BESOQ, BGG, BHE, BHIV, BIF , BIFL, BKBK, BKS, BLKR, BMLC, BN, BNA, BNEC, BNK, BOTX, BPFH, BRIF, BRY, BSBX, BTHS, BTLMF, BWA, BWC, BWEB, BXCP, BYM (F7), CAL, CALA, CASY, CBBI, CBE, CBI, CBLEE, CBM, CBNV, CBUK, CCM, CCRD, CCUP, CD, CDCSQ, CDN, CDTV, CDV, CECO, CEDC, CELG, CF, CFD, CG, CGCE, CGEIF, CGPI, CHAC, CHAD, CHK, CHP, CHPC, CHS, CHUX, CIPH, CIYXX, CLEC, CLIF, CLSR, CMC, CMLS, CMOS, CMRT, CNQR, CNTV, CNXS, COCI, COG, COH, COKE, COLB, COLM, COO, COOP, CPB, CPHD, CPK, CPO, CPUL, CPWM, CQB, CR, CRAI, CRD/A, CRDN, CRFN, CRK, CRL, CRMT, CRVSQ, CSE, CSL, CSP, CSTR, CTCI, CTCO, CTMI, CTV, CTVP, CUB, CVCO, CVH, CVII, CVLVA, CVT, CVTI, CVTX, CXP, CYBX, CYTB, DAFC, DAKMF, DATL, DBCI, DCLK, DCSN, DE, DEBS, DEL, DF, DG, DGIT, DIEC, DIGE, DIVN, DLP, DNIR, DPMI, DRI, DRIV, DRTE, DSCM, DSCP, DSS, DTPI, DTRX, DVN, DVSA, DXYN, DYAN, DYHGQ, DYN, ECF, EECC, EF, EFDS, ELOFF, ELY, EML, ENVT, EP, EPIX, EQTX, ESA, ESL, ESST, ESTK, ETF, EVC, EVIAC, EWBC, EWF, EXAR, FAMI, FARKC, FARO, FBGI, FBN, FBSH, FCCY, FCE.A, FCHC, FCN, FCS, FCTR, FEKR, FFBZ, FFDF, FFIV, FHOUF, FIBK, FIC, FIDF, FL, FLE, FLEX, FLIR, FMER, FNC, FNSC, FOB, FOCF, FOE, FOX, FPL, FPU, FRF, FRGO, FRK, FRNT, FSNM, FST, FTCFQ, FUND, GADZ, GB, GCO, GDIE, GER, GF, GGC, GITN, GLGC, GLOC, GLYT, GME, GNLR, GODDE, GPI, GRAN, GRNTQ, GROSQ, GRR, GSOF, GSPN, GSPN9, GTLL, GTLS, GTRC, GVA, GWBB, GWM, GY, GYMB, HAE, HAPY, HAR, HAT, HCC, HCFO, HEAC, HEII, HIBB, HIET, HLEX, HLTH, HMBQ, HMN, HOC, HOLL, HOTT, HRLY, HSC, HSCM, HSII, HTCH, HTHR, HUG, IAF, IBEV, IBTKF, ICN, IDEV, IEMMF, IES, IGT, IHWY, IIIN, IIJI, IIVI, IKN, ILXO, IMAX, IMIT, IMMT, IMN, INCY, INVN, IRL, ISEDF, ISSI, IT, ITG, ITLA, ITUC, JAKS, JAWS, JBX, JH, JHS, JLMI, JNJ, JNY, JOSB, JOYG, JPM, JRC, KAI, KAMNA, KCS, KEA, KERX, KEX, KFRC, KKD, KMI, KMT, KNAP, KNSY, KO, KRON, KTEC, KVHI, KWD, LAB, LABS, LADY, LBGF, LBY, LC, LDF, LDSH, LEA, LEH, LEN, LEN.B, LETH, LEXR, LF, LFB, LFG, LFZA, LICB, LLUR, LM, LMWRA, LNCE, LNCR, LNOP, LNR, LOW, LQI, LRCX, LSCC, LSMSF, LTTO, LTXX, LXNR, LYO, MADB, MANT, MATK, MAXS, MCDTA, MDPY, MDST, MEC, MECA, MEDB, MEE, MEMO, MERQ, MFGI, MFLO, MGNFF, MGP, MICAQ, MKC, MKL, MLI, MLLEQ, MLR, MMEM, MMRX, MNC, MNRO, MNST, MNY, MOSY, MPH, MPS, MRD, MRF, MRTN, MSF, MSM, MSTRW, MSVC, MTF, MTRX, MTW, MYL, NABCQ, NAMG, NAV, NAVG, NCI, NCT, NDC, NEVNF, NICH, NMG.A, NOI, NPO, NSCN, NTBK, NTEX, NTSL, NTT, NUE, NVH, NVO, NX, NXTP, OHP, OKE, OMG99, OSI, OSTE, OTL, OVAB, OVTI, OGPXY, PAAN, PANL, PATK, PATR, PBSP, PBY, PCOP, PD, PDE, PEI, PENG, PER, PFCB, PFGC, PGTV, PHXYE, PHYP, PIR, PJFA, PJFC, PKD, PKE, PLAB, PLMD, PMGEA, PMI, PNNW, PNR, PNRA, PNRZX, PNY, POG, POS, POWI, POWL, POZN, PPG, PPL, PRLX, PRSP, PRTL, PRTX, PRUN, PRX, PSLA, PSS, PSTI, PSUN, PSVB, PTSI, PTZ, PVTB, PW, PWER, PWN, PX, PZZA, QLGC, QNBC, QNTX, R, RA, RADS, RAVN, RBNC, RCLA, RDC, REGN, REPT, RESP, RESW, RETK, REXI, REY, RFMC, RGC, RHT, RKT, RLI, RML, RNBO, RNE, RNR, ROC, ROCM, ROH, ROIA, ROST, ROV, ROW, RPAL, RPM, RRA, RRGB, RSAS, RSTI, RYAN, SBI, SBSA, SCG, SCNO, SCPNA, SCPS, SCT, SCUR, SDMI, SESL, SFD, SFN, SGC, SGF, SGI, SHFL, SHOO, SIGI, SIPX, SKY, SLE, SLGN, SLVFY, SMG, SMLI, SMRT, SMSC, SNIC, SNIFQ, SNTVQ, SOSK, SOV, SPER, SPH, SPLS, SPNC, SPW, SPZN, SRA, SRCM, ST, STAR, STC, STLCQ, STNR, STS, STW, SUITE, SUMM, SUP, SUR, SVEIA, SVN, SWN, SWS, SWZ, SYEP, TAIE, TARO, TBC, TBCC, TBI, TDAD, TECUB, TER, TESP, THC, THCIQ, TLD, TMM, TMT, TMX, TMXIQ, TNC, TNL, TO, TPADA, TPC, TRO, TROV, TRY, TSAI, TSCPQ, TUP, TWN, TWTC, TXAG, TXON, TZIX, UCOMA, UDGI, UEIC, UFBS, UFI, UFTC, UIS, UNBJ, UNFI, UNHC, UPL, USBR, USES, USTR, UTEK, UTSI, UVV, VANS, VAS, VAST, VBVT, VCI, VEGA, VES, VICL, VITL, VLMI, VLNT, VNWK, VNX, VOTP, VPI, VSH, VTIX, VUL, WASH, WB, WBS, WCGRQ, WCI, WCIIQ, WCST, WEBX, WEDC, WFT, WHG, WIBW, WIN, WLM, WLV, WMAR, WMO, WPI, WRLD, WRM-WA (CN), WST, WTSLA, WURT, WWCA, WWE, WWVY, WXS, WYE, XEC, XOVR, XSCIA, XTO, YANB, YBTVA, YORW, The information, disclosures, and disclaimers on this page are only applicable to, and intended for, clients of Wachovia Securities.

Research provided in the attached report was prepared by the firm and its analyst(s) identified on the attached report (the "Research Firm"). Wachovia Securities did not assist in the preparation of the accompanying report, and its accuracy and completeness are not guaranteed. Wachovia Securities is solely responsible for the distribution or use of research provided by the Research Firm to clients of Wachovia Securities. In this regard, the material has been prepared or is distributed solely for information purposes and is not a solicitation or an offer to buy any security or instrument or to participate in any trading strategy. The investment discussed may not be suitable for all investors. Further, the research provided by the Research Firm was prepared by the Research Firm for its customers and may not be suitable for clients or customers of Wachovia Securities. Investors must make their own decisions based on their specific investment objectives and financial circumstances.

The research provided by the Research Firm may have been made available to customers of the Research Firm before being made available to Wachovia Securities clients. The accompanying report is not a complete analysis of every material fact in respect to any company, industry or security. The opinions and estimates contained in the research provided by the Research Firm constitute the Research Firm's judgment as of the date appearing on the research provided by the Research Firm and are subject to change without notice. Information has been obtained from sources believed to be reliable but its accuracy is not guaranteed. Any opinions expressed or implied herein are not necessarily the same as those of Wachovia Securities or its affiliates.

Past performance is not necessarily a guide to future performance. Income from investments may fluctuate. The price and value of the investments mentioned in this report are as of the date indicated and will fluctuate.

Wachovia Securities is the trade name used by two separate, registered broker-dealers and non-bank affiliates of Wachovia Corporation providing certain retail securities brokerage services: Wachovia Securities, LLC, member NYSE/SIPC, and Wachovia Securities Financial Network, LLC, member NASD/SIPC.

Wachovia Securities, LLC is owned, indirectly, through subsidiaries, 38 percent by Prudential Financial, Inc. and 62 percent by Wachovia Corporation.

Prudential, Pru and Rock logo marks are owned by The Prudential Insurance Company of America and are used herein under license.

Securities and Insurance Products:

| | | |
|---|---|---|
| NOT INSURED BY FDIC OR ANY FEDERAL GOVERNMENT AGENCY | MAY LOSE VALUE | NOT A DEPOSIT OF OR GUARANTEED BY A BANK OR ANY BANK AFFILIATE |

Digitally signed by Douglas A. Sandler
cn=Douglas A. Sandler, ou=Advisory Services Group, o=Wachovia Securities, LLC, c=US
Date: 2003.11:19 14:41:25 –05'00'
Reason: I have reviewed 'specified' portions of this document
richmond. va