

# FRIEDBERG'S

## COMMODITY & CURRENCY COMMENTS

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## The party is over, but the guests don't know it... yet

The second phase of the global bear market has coincided with the onset of fall in the Northern Hemisphere. And just like fall, it still has its days and moments of brightness, though they are getting ever fewer and more sporadic as the season wears on.

We name just some of the characteristics of this second phase. The news background remains optimistic, but a pervasive feeling of uneasiness sets in. To almost everyone's surprise (but see the article, "Productivity, Act II" on Page 5), earnings disappointments are coming in at an increasingly faster pace despite an almost ideal macroeconomic background.

Joining the tech companies are none other than the US commercial banks, reporting that their earnings dipped to the lowest level since 1997, prompting regulators to warn that "caution lights" are flashing. Weighing in this drop were major restructuring expenses at large banks, losses on securities sales, and sharply increased loan-loss reserves. The incongruity of the latter item with a booming economy is a clear warning that we have entered a new phase.

Finally, unbeknownst to the media and, apparently, to Fed officials, price pressures are building. While year-on-year (YoY) headline inflation of 3.5% has been dismissed as being the product of soaring energy prices (as if they occurred in a monetary vacuum), core prices are continuing to accelerate, particularly core services, which represent about 70% of the core CPI.

Here are the numbers: In December 1999, core services were showing a YoY rate of 2.7%. By the end of March 2000, the pace had quickened to 3%. By the end of June, the inflation in core services hit 3.2%. The latest reading, August 2000, has shown a further gain to 3.4%.

The goods portion of the core CPI has fallen, held down by a strong dollar. Still, the pace of the decline has eased compared with last year. The recent behavior of commodity prices other than energy leads us to believe that core goods will no longer act as a restraining influence on overall prices. Moreover, it is only a matter of time before the US dollar turns down and ceases to suppress genuine inflationary forces. (For the irrelevance of productivity gains in the present circumstances, see the following article, "No panacea" on Page 3).

In the early goings of the second phase of a bear market,

cracks in the edifice become visible *to those willing to heed the signs*. In addition to the general feeling of malaise, unexplainable and surprising earnings disappointments (witness Nokia and Intel, just to name two well-known cases) and the onset of stagflation (the so-called soft landing added on to the unnoticed but relentless climb in inflation), we find that increasingly, market observers welcome as overdue the unwinding of some of the worst excesses of the last bull market.

The heat of the summer days is over. Sadly, it was that very heat that sustained the bull phase.

That the dynamism of the bull market has been sapped can

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Contributions by Albert D. Friedberg, Steve H. Hanke, and Neil Rackoff.

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be ascertained from the steady fall in multiples (see Chart 2, and for an explanation, see the following articles). In the second phase of the bear market, multiples will continue to fall, a combination of rising (but disappointing) gains in earnings and a drop in stock prices. The more "reasonable" multiples will continue to attract uninformed money to the market, hiding the

insidious progress of the bear market. By the end of the second phase, the news background will have turned bleak, and the selling will have accelerated. This will signal the onset of the third and final phase.

Are the guests too drunk to notice that the party is over? So it seems.

Chart 1

S&P 500 PRICE/EARNINGS RATIO  
1970: 40 17.1

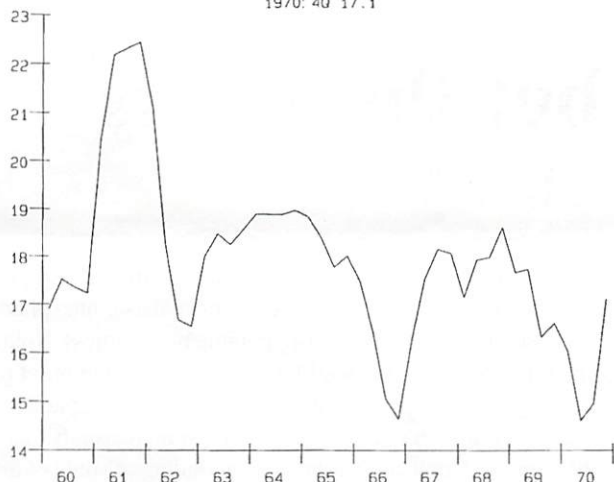


Chart 2

S&P 500 PRICE/EARNINGS RATIO  
Jun 26.1



## EUROLAND

*The nonsense about the euro does not take into account the nonsense about the US dollar.*

### **A warning to the euro bears: the US dollar is even sicker**

As the US economic boom winds down, inbound capital flows will recede. Eventually, the tide will turn, resulting in capital outflows. The US basic balance of payments (net balance of trade and capital flows) will move into deficit. The circle will be closed by rising interest rates (to attract short-term capital), a recession (as domestic savings rise), and a falling US dollar (to make its external business more competitive).

What makes us so sure that the economic boom is winding down? The behavior of stock prices, primarily the "macho" Nasdaq. The bear market in stocks is not only a predictor of future activity, but it also acts to cool foreign interest. The ardor for a piece of the US was reflected in M&A activity: As of September 8, the volume of pending deals flowing into the US, net of pending outflows, stood at \$147 billion (\$83 billion stock and \$64 billion cash), up from \$75 in July (courtesy of Morgan Stanley Dean Witter & Co.). The dominant source of pending flows continues to be Euroland.

There is a much higher correlation between dollar flows and pending deals than with completed deals. This is logical, because dealers and companies will tend to lock in their forex costs well in advance, especially when the euro's fall is accel-

erating. It is not unreasonable, thus, to believe that the peak impact on forex rates – euro selling/dollar buying – has been seen. European indigestion with the gobbling up of US assets (note the effect on Deutsche Telekom's credit standing after its announced takeover of VoiceStream) and the decidedly more uncertain US stock market outlook make it almost certain that we have seen the peak of US-bound transatlantic M&A activity. If so, near-term relief for the euro, aside from intervention, is in sight.

Our bullish case for the euro is predicated on our bearish outlook for the US dollar. Rather than euro bulls, then, we are dollar bears. Having said that, however, we suggest that the euro is ideally situated to gain *the most* from the coming dollar problems: It is a highly liquid currency, it has a deep money and capital market, it enjoys a current account surplus, the Euroland consumer is far less vulnerable to a bear market in stocks, tax and social security reform in the Euroland's main countries is proceeding, and labor markets are thawing under the impact of more flexible part-time work.

Long-term portfolios would be well advised to gradually shift their currency exposure to euros and away from dollars.

**INFLATION WATCH***Oversized productivity gains are great, but they are***No panacea***Neil Rackoff*

We don't want to be accused of "[hubristically assuming] that the bean-counters in Washington just don't know what they're doing, poor underpaid bureaucrats that they are," as Gene Epstein of *Barron's* (September 11, 2000, issue) accused one of our fellow Wall Street denizens. So we'll just come out and say it: We agree that given the currently available metrics, the productivity numbers are real and broad.

Much has been written on this subject by academics, Wall Street analysts, government economists, and of course the press (misguided though they may be). Among the best of the lot is a very readable paper written by two Federal Reserve Board economists, Stephen D. Oliner and Daniel E. Sichel, entitled, "The Resurgence of Growth in the Late 1990's: Is Information Technology the Story?" (May 2000).

Their work focuses on the annual rates of labor productivity growth in the non-farm business sector from the early '90s compared with the late '90s. Based on the Bureau of Economic Statistics (BEA) and the Bureau of Labor Statistics (BLS), the annual rate of growth from the years 1991 to 1995 was 1.53% and from 1996 to 1999 was 2.57%. The difference of approximately 1 percentage point is the subject of their study.

They show quite conclusively that the numbers indicate that the contribution to productivity growth from use of information technology – including computer hardware, software and communication equipment – surged in the second half of the 1990s. In addition, technological advance in the production of computers appears to have contributed importantly to the speed-up in productivity growth. They estimate that the use of information technology and production of computers accounted for about two thirds of the one-percentage-point step-up in productivity growth between the first and second halves of the decade.

It is of interest to note that for the 16 years from 1974 to 1990, the growth rate was 1.37%; so compared with even the whole last quarter-century, that 1-percentage-point increase is significant. (*For a copy of their study, please contact our office at 212-943- 5300.*)

Before we begin our analysis though, let's define what productivity is: Very simply, productivity is a factor that contributes to total output (creation of supply).

The questions are, How does the Fed look at this at this phenomenon and what are its implications? From two excellent speeches by Federal Reserve Board Chairman Alan Greenspan, we are going to share with you how we interpret how the Fed looks at productivity. (*Again, for a copy of both speeches, please contact our office.*)

The following is a well-considered description by Chairman Greenspan of how technology has greatly improved productivity, from a speech entitled "Technological

Innovation and the Economy," given to the White House Conference on the New Economy, April 5, 2000:

*Before this revolution in information availability, most twentieth-century business decision-making had been hampered by pervasive uncertainty. Owing to the paucity of timely knowledge of customers' needs and of the location of inventories and materials flowing throughout complex production systems, businesses required substantial programmed redundancies to function effectively.*

*Doubling up on materials and people was essential as backup to the inevitable misjudgments of the real-time state of play in a company. Decisions were made from information that was hours, days, or even weeks old. Accordingly, production planning required costly inventory safety stocks and backup teams of people to respond to the unanticipated and the misjudged.*

*Clearly, the remarkable surge in the availability of more timely information in recent years has enabled business management to remove large swaths of inventory safety stocks and worker redundancies. That means fewer goods and worker hours are absorbed by activities that, while perceived as necessary insurance to sustain valued output, in the end produce nothing of value.*

*These developments emphasize the essence of information technology – the expansion of knowledge and its obverse, the reduction of uncertainty. As a consequence, risk premiums that were associated with many forms of business activities have declined.*

*In short, information technology raises output per hour in the total economy principally by reducing hours worked on activities needed to guard productive processes against the unknown and the unanticipated. Narrowing the uncertainties reduces the number of hours required to maintain any given level of production readiness. Because knowledge is essentially irreversible, much, if not most, of the recent gains in productivity appear permanent.*

Furthermore, in his remarks before the Economic Club on January 13, 2000, Mr. Greenspan points out that the increasing availability of labor-displacing equipment and software at declining prices and improving delivery lead-times is the reason for loss of business pricing-power in recent years. This is in addition to greater global capacity and deregulation, which lead to the removal of bottlenecks in the system and increased supply.

This is not the whole story, however. Because there is another side of the equation, namely demand, it's fair to ask whether the Fed is concerned. The answer would seem to be "Yes, it is."

Mr. Greenspan points out in his April speech that there are several areas that could cause an upsetting of this virtuous apple cart:

1. Demand outstripping even productivity-produced supply of goods.
2. Demand for productivity-producing labor outstripping the supply (labor pool - there are only so many people).

He further points out,

*It is conceivable that these two buffers [accelerating productivity and its complement of increasing supply] can continue to absorb an excess growth of demand over potential supply for quite a while longer. However, the significant uncertainties surrounding these new economic forces counsel prudence. We need to be careful to keep inflationary pressures contained: The evidence that inflation inhibits economic growth and job creation is too credible to ignore. Consequently, maintaining an environment of low and stable inflation provides the greatest opportunity for the dramatic increases in structural productivity to show through fully into higher standards of living.*

It all sounds nice. So what is our problem? Our problem is that the doomsday Wall Street denizens and the wild-eyed New Economy cheerleaders seem to be missing the forest for some trees.

By way of example, *Business Week* in its August 28, 2000, issue ran a headline that read, "U.S.: It's Productivity to the Rescue!" They and many others glean from Chairman Greenspan that as long as productivity remains high, we will not have a problem with inflation - steady as she goes! They point out that unit labor costs continue to fall, which is true. They imply, though, that productivity is "the" determining factor in controlling inflation.

Are they nuts? As we've pointed out, productivity is a factor in determining supply. But inflation is not only a function of supply. Monetary demand is just as important. According to the quantity theory of money, the quantity of money and the quantity of goods produced interact to yield the price level. As economist Milton Friedman said, "Inflation is always and everywhere a monetary phenomenon." In other words, when the price of an item, like energy, rises, it won't affect the general level of prices as long as the supply of money does not grow. In fact, other prices would even fall as the demand diminishes, because there is only a fixed amount of resources (money) available to purchase goods. Therefore, inflation would not rise, and the Fed would have nothing to worry about.

Consider that money supply (M3) continues to grow at 9.78% YoY as of August 31 (see Chart 3). This does not bode well for prices in the future, even with outsized productivity gains. The equation is pretty simple. If real GDP, including productivity has grown, as measured on June 30, 2000, on a year-on-year basis of 6.0% and you subtract that from the current rate of money supply growth (M3) of 9.78%, then excess money growth is a significant 3.78%, more than double what it was just 2 years ago. So long as money growth exceeds the new supply of goods and services, inflation will become a problem. The Fed should stop talking about one side of the equation.

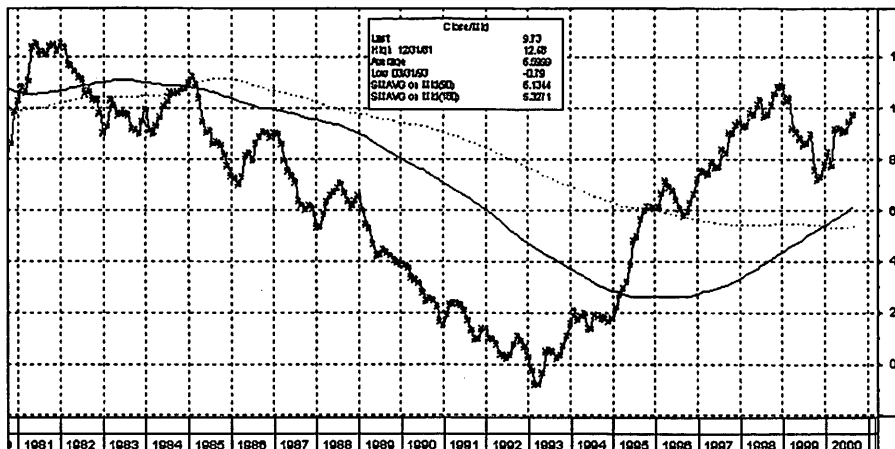
So what is the real forest? Inflation, and it's here.

If our economy slows down (see third-quarter earnings) but inflation expectations remain high, then the Fed could find itself in a "catch 22." It won't be able to raise rates for fear of recession, and it won't be able to lower them, because of inflation.

Productivity has helped us - and will continue to help us - achieve new milestones in growth and output from a supply side point of view, but it is not the real panacea for inflation. Slowing money growth and curbing demand is.

*Neil Rackoff is President and Chief Executive Officer of Friedberg Mercantile Group, Inc. in New York.*

Chart 3 - M3% Year-Over-Year



**INFLATION WATCH****Productivity, Act II**

Neil Rackoff

In the previous article we suggested that the real growth in productivity gains in the past five years from both the *use* of information technology and from the *production* of computers has contributed to a supply-side boom – but that we also find ourselves on the doorstep of an inflationary period.

We would like to share some further thoughts about the productivity story that could have some far-reaching implications for the equities markets and labor costs.

We begin our discussion by asking a simple question: Why are computer programmers paid more than short-order cooks in a diner? Surely there is no moral or ethical reason why this should be so.

In economic terms the answer lies in the understanding that there is a value assigned to the marginal product of the two individuals. In other words, because the dollar value per hour of the person providing computer programming services is higher than the person cooking in a diner, the computer programmer will get paid more. Additional factors that will affect their levels of compensation are the number of skilled individuals able to perform their respective tasks and the demand for each type of task.

“Productivity” refers to the quantity of goods and services that can be produced for each hour of labor with a given stock of physical capital, human capital (labor), and natural resources, otherwise known as the factors of production.

The neo-classical theory of distribution says that the amount paid to each factor of production depends on the supply and demand for that factor. The demand, in turn, depends on that particular factor’s marginal productivity. In equilibrium, each factor of production earns the value of its marginal contribution to the production of goods and services. As the demand for each factor grows, it earns (or is perhaps entitled to) an increasing portion of the marginal productivity.

An example of this is a case study in *Principals of Economics* by N. Gregory Mankiw (Dryden Press, 1998):

*In fourteenth-century Europe, the bubonic plague wiped out about one third the of the population within a few years. This event, called the Black Death, provides a grisly natural experiment to test the theory of factor markets that we have just developed. Consider the effects of the Black Death on those who were lucky enough to survive. What do you think happened to the wages earned by workers and the rents earned by landowners?*

*To answer this question, let’s examine the effects of a reduced population on the marginal product of labor and the marginal product of labor and the marginal product of land. With a smaller supply of workers, the marginal product of labor rises. (This is simply diminishing marginal product*

*working in reverse.)*

*Thus, we would expect the Black Death to raise wages.*

*Because land and labor are used together in production, a smaller supply of workers also affects the market for land, the other major factor of production in medieval Europe. With fewer workers available to farm the land, an additional unit of land produced less additional output. In other words, the marginal product of land fell. Thus, we would expect the Black Death to lower rents.*

*In fact, both predictions are consistent with the historical evidence. Wages approximately doubled during this period, and rents declined 50 percent or more. The Black Death led to economic prosperity for the peasant classes and reduced income for the land classes.*

As productivity increases, the “owners” of each factor of production demand their share of the increase. The providers of capital, both physical and financial, demand to be compensated for the risk they take. Labor also demands to be compensated for its increased production. Historically there is an equilibrium between these competing factors, or put another way, there is a natural level of return that each factor earns on production.

We can see this phenomenon perhaps by looking at the relationship between corporate profits (after-tax) as a percent of GDP over the past 50 years (longest available data). In Chart 4, we see that the band of equilibrium is perhaps between 4.5% and 5.5%, with the spikes corresponding to times of rapid increases in productivity. Notice that since 1995, corporate profits as a percentage of GDP have soared to levels almost equaling that of the early to mid 1960s, a time of great productivity growth with relatively low inflation. Notice, too, that from the mid-’60s onward, the share of profits reverted back to the more “normal” returns experienced over the length of more than half a century.

In his April 5, 2000, remarks before the White House Conference on the New Economy, Federal Reserve Board Chairman Alan Greenspan states that

*Short of a significant opening up of our borders to more immigration, an increase in employment beyond the growth of the working-age population is limited to what remains of our shrinking pool of available workers. Although the sum of the unemployed and those not in the labor force but who nonetheless are available for work is still about 10 million, the level has been falling steadily. This year, the figure has been lower as a percentage of the population than at any time in the history of this*

series, which goes back to 1970. Should the pool of available workers continue to shrink, there is a point at which this safety valve for excess demand will effectively close, even in the face of accelerating productivity. We do not know where that point is, but presumably it would occur well before a full depletion of the pool of potential workers. When we reach that point, short of a repeal of the law of supply and demand, the scarcity of labor will almost surely induce a rise in hourly compensation gains that increasingly outpaces an even faster productivity growth – a condition that would cause unit costs to accelerate over time.

In other words, there is a point at which labor will demand its (larger) share of the marginal contribution to productivity gains.

Later in his speech, he offers what we interpret to be a possible explanation for why this has not happened yet:

*One less welcome byproduct of rapid economic and technological change that needs to be addressed is the insecurity felt by many workers. This stems, I suspect, from fear of job skill obsolescence. Despite the tightest labor markets in a generation, for example, more workers currently report in a prominent survey that they are fearful of losing their jobs than was reported in 1991, at the bottom of the last recession. The marked movement of capital from failing technologies to those at the cutting edge has quickened the pace at which job skills become obsolete. The completion of high school used to equip the average worker with sufficient knowledge and skills to last a lifetime. That is no longer true, as evidenced by community colleges being inundated with workers returning to school to acquire new skills and by on-the-job training being expanded and upgraded by a large proportion of American business.*

We would like to offer another explanation why we have

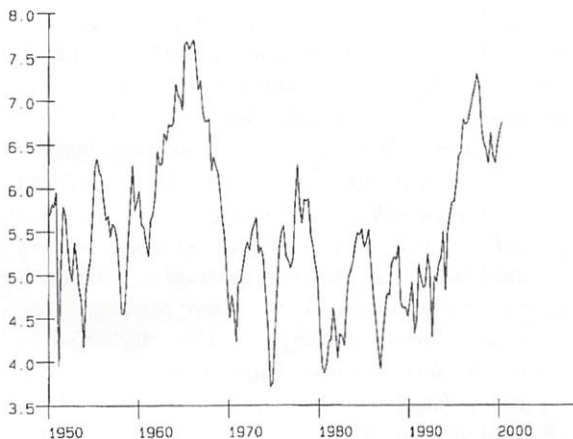
not seen an upturn in unit labor costs. Remember that productivity is also a key determinant of living standards, and growth in productivity is *the* key determinant of the growth in living standards. This rise of standard of living could be measured by how wealthy people feel or perhaps by consumer spending (see Chart 5).

We submit that the reason people feel more wealthy (as indicated by consumer spending) and therefore have not put more pressure on hourly wages is that the public in general has benefited from a rising equities market (in personal accounts and retirement plans) and from the issuance of equity options (that keep rising in value) from the companies that they work for. In addition, the dollar has been relatively strong and thereby has artificially kept prices somewhat subdued. Therefore, labor has in its (collective) mind gotten a de facto raise. This warm and fuzzy feeling, though, will last only as long as the stock market lasts.

There is another observation about the stock market that we feel is quite important. Because the stock market discounts future profitability quite efficiently, it stands to reason that important fluctuations in profitability will be reflected, well in anticipation, by movements in the multiple of earnings (P/E ratios). As we saw, history tells us that excess returns, i.e., corporate profitability in excess of the typical 4.5%-5.5% of GDP, get whittled down by competitive forces (see Chart 4). If so, while the rise in multiples from 1995 to 1999 was well justified in view of the subsequent explosion of corporate profitability, the coming return to the mean, whenever it comes, will be correctly signaled by a contraction of multiples.

In this light, it is interesting to note that the high point of P/E ratios for the S&P 500 was June 30, 1999 (see Chart 2). One wonders whether in fact the market has begun to discount the end of the productivity boom and the beginnings of more normal profitability levels. If so, the corollary is simple: Falling P/E ratios should not lull you into believing that stock prices are cheap. If anything, they may be telling you that the party is over, indeed.

**Chart 4**  
Corporate Profits A.T. Adj. IVA & CCA% Nominal GDP



**Chart 5**  
U.S. Real Consumer Spending, Y/Y% July 5.1%

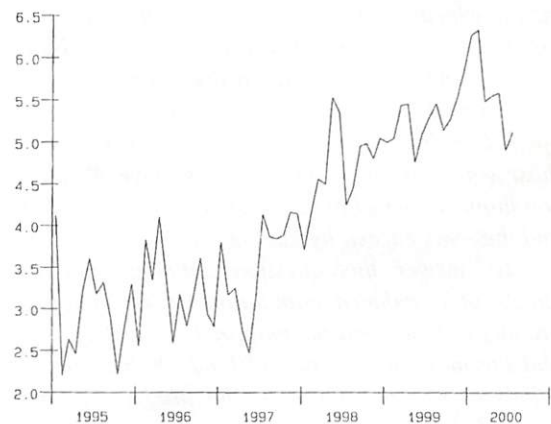
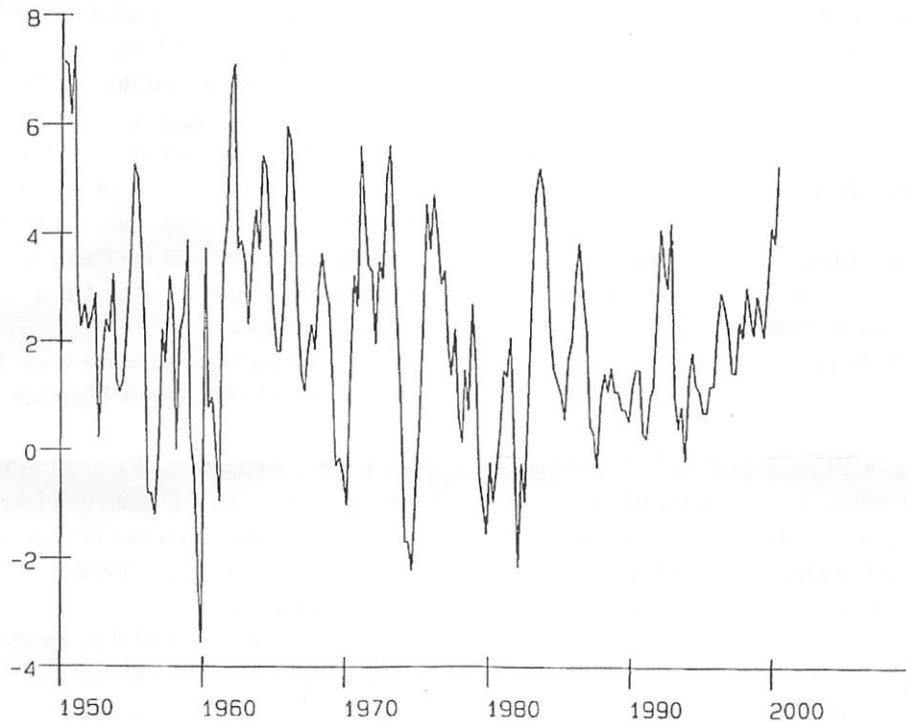


Chart 6 – U.S. Productivity, Y/Y% 2000: 2Q 5.3%



## STOCK MARKETS

# The long-run outlook for stocks

*Steve H. Hanke*

Most of what is written about the stock markets in the popular financial press concerns short-run movements in stock prices, rationalizations about yesterday, and/or prognostications about tomorrow. This is curious, to say the least, because virtually all the scientific work on stock price movements concludes that short-run movements are unpredictable and subject to a random walk. This results because new information can be either good or bad news, and both are apt to arrive randomly over time. Consequently, there is no predictable pattern of price movements from day to day or month to month.

In this environment, it is possible to realize abnormally high returns by obtaining new information and trading it ahead of the market. This is obviously a difficult task, because it requires an investor to compete with and outperform the information-producing industry, one that is highly competitive. The informational efficiency of the market is high, therefore, and it is difficult for the individual investor to consistently outperform the market in the short run. Indeed, the only way that this can be accomplished is to have access to reliable inside information. This does not imply, however,

that stock market investing is not worthwhile for the average investor. Even without beating the stock market, the real returns available have generally been quite attractive (see column 1 of Tables 1 and 2). Indeed, in the 13 decades covered in Table 2, negative real returns have been realized only in the 1910-1919 period.

Stock prices over the long run follow an upward trend, one that is characterized by random fluctuation around it. In other words, stock prices are subject to a random walk with a positive drift. This drift is no surprise – it is necessary to compensate investors for the risks of holding stocks. The key to making prudent investment decisions about the stock market and portfolio decisions about how to allocate investments between stocks, bonds, and alternative investments is an understanding of the factors that affect the long-run stock market drift. The reason that this line of inquiry is intriguing is that unlike short-run price movements, there is some evidence to suggest that the changes in the drift can be anticipated.

As the data in the last column of Table 2 show, the drift in real stock prices is usually positive. In the past 13 decades,

there have only been three in which real price growth was negative: 1910-19; 1940-49; and 1970-79. For the remaining century of the record, the drift has been positive, even though its growth rate has been highly variable. Although real price appreciation in most periods has been in single digits, there have been three in which real stock prices rose at extraordinary double-digit rates: 1920-29; 1950-59; and 1990-99. The key issue is whether these long-run variations can be anticipated.

Unlike short-run fluctuations in stock prices, there is some evidence to suggest that long-run price movements can be anticipated to some degree. Robert Shiller put together a long-run series of the S&P price/earnings ratio stretching from 1881 through January 2000. That ratio reached extraordinarily high levels in 1901, 1929, and 1966. The current S&P price/earnings ratio of 28.9 also falls into that category.

Shiller's time series also shows periods of extraordinarily low price/earnings ratios. His work is of particular interest, because he detects a relationship between extraordinarily high and low price/earnings ratios and real stock market returns over the next 10 years. When the price/earnings ratios are very high, the ensuing decade's real returns on stocks are relatively low and vice versa.

Shiller's findings suggest that the new conventional wisdom – that stocks are the only place to be for the long-run and that it is senseless to try to time the market, even in the long-run – might not be prudent wisdom. Indeed, Shiller's contrary view suggests that it is wise to be mostly out of the stock market when everyone else is in and price/earnings ratios are extraordinarily high, and that it is prudent to be in the market when the price/earnings ratios are extraordinarily low.

This is nothing more than a variant on the old song, buy low, sell high, which is, of course, music to the ears of value investors. Those are the folks who claim, like me, that the current market is overvalued by 30% to 50% (See "Bubbles and the external account," in our September 27, 1999, issue).

It is important to mention that getting the timing right on changes in the long-run drift of the market is, at best, tricky. For example, it has been a year since I wrote about the S&P's overvaluation, and the S&P Index has climbed another 13%. However, the fundamental valuation measures are what they are, and trading against fundamentals is imprudent. It is wise to be safe rather than sorry.

For those who have embraced a safety-first investment style and have been holding US Treasury Inflation Protected Securities (TIPS) during the past year, the 13% S&P gain should be cut in half for a perspective on how much better you would have done in the stock market as opposed to your much safer TIPS.

This brings me to the equity premium. The equity pre-

mium is the difference between the return on a market portfolio of stocks and a risk-free interest rate. As column 4 of Table 1 shows, over the period from 1872 to 1999, that premium has averaged 5.73%. This has led some, such as Jeremy Siegal, to suggest that stocks are the place to be for the long run. In short, nothing beats dollar averaging in the stock market, a message that has been widely disseminated and accepted. In surveys of investors, both Shiller and Bradford Cornell have found that the vast majority of investors agree that over the long run, stocks will earn much higher returns than bonds and that they should be mostly invested in stocks.

But this isn't the end of the story. The 1990-1999 equity premium, at 12.92%, is very high (see column 3 of Table 2). And some, like James Glassman and Kevin Hassett, argue that as people realize stocks aren't as risky as once thought, the equity premium will even go higher. Consequently, they make the case that current traditional valuations are not overdone and that investors should continue pouring all their spare cash into stocks.

To get a handle on all this, we must introduce a fundamental valuation model, one that was first developed by John B. Williams in 1938 and is now associated with Myron Gordon:

$$\text{Today's Stock Price (P)} = \frac{\text{Next Year's Dividend (Div)}}{\text{Discount Rate (r) - Dividend Growth Rate (g)}}$$

The discount rate contains an interest rate that is linked to a risk-free yield and a risk premium. This premium reflects an investor's perceptions of risk. If he is worried about the future, the risk premium component of the discount rate is high. If he is optimistic, it's low.

Suppose next year's dividend is \$5, its expected dividend growth rate is 10%, and the discount rate is 13% (a 6% yield on short-term commercial paper plus a 7% risk premium). In this case the stock's value today is \$166.67 (that is,  $\$5/(0.13 - 0.10)$ ).

Now suppose the discount rate decreases slightly, from 13% to 12% – we'll assume the risk premium drops to 6% from 7%. Assume everything else (the dividend payout, the commercial paper yield, and the expected dividend growth rate) remains the same. Then, overnight, the value of the stock would jump from \$166.67 to \$250 – a 50% increase on a small change in the discount rate. This can be calculated by a short-cut in the following way:

$$\text{Ratio of Price Level after to before} = \frac{0.13 - 0.10}{0.12 - 0.10} = 1.5$$

Then, if we know that the original price was \$166.67, all we have to do is multiply the original price by 1.5 to obtain \$250, the price after a risk premium drop from 7% to 6%.

It is this type of structural change and calculation that drives Glassman and Hassett to their optimistic conclusions about the equity premium and stocks. Indeed, they argue that a rational risk premium reduction has fueled the bull market of the 1990s and that it will continue to fuel the market as the risk premium approaches zero. No wonder they predict that the Dow will soar to 36,000.

I would advise caution, however, when considering the Glassman-Hassett risk premium reduction story. The risk premium component of the discount rate in the Williams-Gordon valuation model cannot be observed directly; whereas, the risk-free yield can be observed. Knowing this, we can employ the historical data in the valuation model and historical changes in the S&P index to get a rough handle on the direction and magnitude of the change in the risk premium required to generate the observed changes in the S&P Index.

The S&P index has increased by 4.09 times since 1990. As a rough calculation, if we use the data in Table 2 for the average real risk-free interest rate (column 2) and the average real dividend growth rate (column 6), and abstract from the risk premium, we obtain the following:

$$\text{Ratio of Price Level after to before} = \frac{0.0500 - 0.0188}{0.0255 - 0.0170} = 3.67$$

Since the dividend growth rate was about the same at the end of the period as it was at the beginning, the ratio of the price level after to before is almost completely accounted for by a decline in interest rates in the 1990s. This crude calculation suggests that almost 90% of the S&P's rise can be accounted for by an almost 50% drop in the average level of real interest rates, from the 1980s to the 1990s, the rest being accounted for by a fall in the risk premium.

Admittedly, this calculation, which is based on decade-long averages, is very crude. It does, however, suggest that the Glassman-Hassett risk premium reduction story is probably overdone. The crude calculation also suggests that the unobservable risk premium, which is a residual number in the calculation, moves around over time, depending on whether investors are optimistic and willing to hold relatively risky assets or whether they are pessimistic and not willing to do so.

Just consider the last three decades. In the 1970s, the real risk-free interest rate was much lower than in the 1960s, and so were the realized returns on stocks (see columns 2 and 3 of Table 2). This implies that the risk premium rose dramatically from the 1960s to the 1970s. In the 1980s, the real risk-free interest rate rose dramatically, and so did the realized returns on stocks. This implies that the risk premium fell dramatically from the 1970s to the 1980s. In the last decade, the

real risk-free interest rate fell sharply, and realized stock returns increased modestly, exceeding the high level of the 1980s.

As the crude calculation performed above suggests, the risk premium continued to fall from the 1980s to the 1990s and helped propel realized returns to higher levels in the 1990s. However, the risk-premium-drop in the 1990s was probably modest and much less than advertised by some of the more bullish financial commentators. *Indeed, most of the higher realized returns in the 1990s (vs. the 1980s) were generated by lower real risk-free interest rates.*

Let's come back to the equity premium story and the relative returns on stocks versus risk-free paper. This story is primarily about stocks versus bonds. However, it does indirectly generate information about changes in the realized returns on stocks and in the drift of stock prices, because changes in the size of equity premiums are positively correlated with changes in realized returns on stocks and stock prices.

To understand further the equity premium, we must make a clear distinction between the realized equity premium that is observed after the fact and the expected equity premium that is calculated for the same time period. As the data in column 3 of Table 1 show, the realized equity premium over the 1872-1999 period was 5.73%. If we split the full time series, we see that the premium for 1872-1949 was 4.1% and that it jumped to 8.28% in the 1950-1999 period.

In general, the idea of a premium doesn't cause much of a problem. After all, stocks are more risky than risk-free paper and returns should, therefore, be higher. What causes a problem and gives rise to what academics call the equity premium puzzle is the fact that the premium has been so much higher than it should have been, particularly over the past 50 years. To calculate an expected equity premium – what it should have been – the expected returns on stocks must be calculated and the risk-free return subtracted from it (see columns 2, 4 and 5 of Tables 1 and 2).

Fama and French employed the Williams-Gordon valuation model to determine the expected equity returns and to calculate the expected equity premiums. The values for dividends, discount rates, and dividend growth rates that they employed in the model have been tested and retested, and the results they obtained are realistic and statistically robust. In addition, the results they obtained are consistent with those obtained in other studies reported by Cornell.

For the full period (1872-1999), the realized equity premium was 5.73%, nearly 60% above what it should have been. If we look at the 1872-1949 period, the picture is a bit different, however. The calculated expected equity premium was 3.79%, only slightly below the realized premium of 4.1%. For the 1950-1999 period, the equity premium puzzle

is a big puzzle. The realized premium was 8.28%, and the expected premium was only 3.4%. *Since World War II, stocks have outperformed risk-free paper by much more than they should have.*

So what gives? Why have stocks performed so much better, relative to risk-free paper, than they should have over the past 50 years? After painstakingly analyzing the data, Fama and French have come to the conclusion that stock investors have had a great string of good luck during the past 50 years. Like all strings of luck, it probably won't last forever. Indeed, research reported in Cornell's book suggests that a continuation of luck for another 50 years is not probable. It would imply that the growth rate for the value of common stocks will outpace the GDP growth rate by a sizeable margin. Consequently, by 2050, the value of common stocks will be at least 10 times greater than GDP, and the annual return on stocks will equal or exceed real GDP by 2050. This scenario is not plausible. After all, how could the annual returns on stocks exceed GDP?

For those who aren't satisfied with Fama and French's story of a good run of luck for the past 50 years, I recommend Cornell's book. He analyzes the various components of the Williams-Gordon valuation model to see whether changes in the discount rate, primarily the risk premium, or changes in the dividend growth rate could continue to generate outsized stock returns (an equity premium puzzle). Cornell concludes with a strong note of skepticism about the plausibility of continued declines in the risk premium or upticks in dividend growth rates. He also throws cold water on the notion that stocks have inherently become (or will become) less risky.

In addition, Cornell cautions that after 2010 the baby boomers will probably liquidate large chunks of their stock portfolio's as they begin to retire. Consequently, what has been a positive demographic story, with baby boomers piling into stocks, will probably reverse itself in a decade. Not surprisingly, Cornell concludes his exhaustive survey of the literature by saying that all fundamental indicators "point in the direction of a lower equity risk premium in the future." This is in line with the Fama-French story.

Drawing the various threads together, I come to the following conclusions

1. Based on fundamentals, stocks are overvalued.
2. Following Shiller, the valuations are at extraordinarily high levels, suggesting that they will be followed by 10 years of sub-par stock returns.

3. The equity premium puzzle exists, but its continuation at current levels is not plausible, suggesting that the outsized equity premium will narrow in the future and that realized equity premiums will more closely approximate expected premiums, as they did in the 1872-1949 period.
4. Given the first three points, it follows that stock prices are vulnerable and investors' portfolios should not be overweighted in stocks. Indeed, they should probably be underweighted.
5. The cash freed up by lightening up on stocks should be redeployed into TIPS, commodities, foreign exchange, and other so-called alternative investments.
6. But, alas, it isn't quite that simple. We anticipate that inflation expectations will catch up with inflation and that real interest rates will fall from current levels. That is a positive for stocks, because the real risk-free rate is a component of the discount rate in the Williams-Gordon valuation model. Consequently, for items 4 and 5 to hold, the risk premium will have to rise, not continue falling. Is this possible? If the longest expansion in history hits any bumps in the road, it is not only possible, but probable.
7. All of this brings me back to our position in TIPS and why they are attractive. Ten-year TIPS are yielding 3.98% (real). As shown in column 4 of Table 2, that yield, which is a bird in the hand, is almost exactly what the expected real yield on stocks was in the 1990s (4.26%) and what the average expected real yield on stocks was for the past 30 years (4.3%). TIPS will, therefore, yield about 4% over the next 10 years if held to maturity and if real interest rates don't change. This yield is what is expected from the stock market using the Williams-Gordon valuation model. If, as we note in item 6 above, real interest rates decline from their current levels, stock valuations will increase, holding all else in the Williams-Gordon model constant. But if that real interest rate-decline occurs, it will generate a capital gain for holders of TIPS. A safety-first strategy, therefore, makes an investment in TIPS a compelling strategy.

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*Steve H. Hanke is a Professor of Applied Economics at The Johns Hopkins University in Baltimore, a regular columnist of Forbes magazine, and Chairman of the Friedberg Mercantile Group, Inc., in New York.*

**Table 1 – Real Equity Premium and Related Data for the S&P Portfolio (1872-1999)\***

	1	2	3	4	5	6	7	8
Years	Realized Stock Returns	Realized 6-month Commercial Paper Returns	Realized Equity Premium	Expected Stock Returns	Expected Equity Premium	Dividend Growth	Earnings Growth	Stock Price Growth
1872-1999	8.97	3.24	5.73	6.88	3.64	2.15	4.22	4.24
1872-1949	8.10	4.01	4.10	7.79	3.79	2.49	4.98	2.80
1950-1999	10.33	2.05	8.28	5.45	3.40	1.61	3.04	6.49

\* “Real” means of Annual Values of Variables. These data represent a very small and select set of the more non-technical data contained in the paper by Fama and French. Some numbers don’t match, because they were rounded to two decimal places.

Source: Fama and French

**Table 2**

**Real Equity Premium and Related Data for the S&P Portfolio (1872-1999, 10 Year intervals)\***

	1	2	3	4	5	6	7	8
Years	Realized Stock Returns	Realized 6-month Commercial Paper Returns	Realized Equity Premium	Expected Stock Returns	Expected Equity Premium	Dividend Growth	Earnings Growth	Stock Price Growth
1872-1879	10.87	9.66	1.21	6.88	-2.78	0.47	3.56	4.46
1880-1889	9.28	8.09	1.20	9.89	1.80	4.71	1.98	4.10
1890-1899	5.96	4.65	1.31	3.92	-0.73	-0.38	7.80	1.66
1900-1909	8.80	2.62	6.18	10.89	8.27	6.43	3.49	4.34
1910-1919	-2.44	-2.79	0.34	0.06	2.85	-5.33	-2.81	-7.84
1920-1929	21.42	11.22	10.20	17.70	6.48	11.67	18.22	15.39
1930-1939	6.69	3.92	2.77	5.71	1.79	0.44	1.46	1.42
1940-1949	4.81	-4.18	8.99	7.12	11.30	1.52	5.83	-0.79
1950-1959	17.78	0.35	17.43	8.07	7.71	2.87	2.68	12.59
1960-1969	5.97	2.20	3.77	6.28	4.08	3.07	3.16	2.76
1970-1979	0.24	0.13	0.10	2.38	2.24	-1.47	3.00	-3.62
1980-1989	12.17	5.00	7.17	6.27	1.27	1.88	0.46	7.78
1990-1999	15.46	2.55	12.93	4.26	1.71	1.70	5.91	12.92

\* “Real” means of Annual Values of Variables. These data represent a very small and select set of the more non-technical data contained in the paper by Fama and French. Some numbers don’t match, because they were rounded to two decimal places.

Source: Fama and French

## References

For readers who are interested in exploring the issues addressed in this article, and many others related to the stock market, the following references are recommended:

Cornell, Bradford. *The Equity Risk Premium: The Long-Run Future of the Stock Market*. New York: John Wiley & Sons, Inc., 1999.

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Friedberg's Commodity & Currency Comments  
P.O. Box 866, Suite 250  
BCE Place, 181 Bay Street  
Toronto, Ontario, Canada  
M5J 2T3  
(416) 364-1171

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