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Topical Study #54

How Fast Can
Earnings Grow?



Dr. Edward Yardeni
Chief Investment Strategist

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www.yardeni.com

Table 1: Stock Sector Track Record, Annual Performance (%)

Sector	10/25/2000	1999	1998	1997	1996	1995	1994	1993	1992
S&P 500	-7.1	19.5	26.7	31.0	20.3	34.1	-1.5	7.1	4.5
Basic Materials	-31.6	24.0	-8.0	7.0	13.2	21.6	6.3	18.5	8.9
Capital Goods	3.5	27.2	12.4	24.6	29.6	31.8	5.5	11.3	0.4
Communication Services	-27.5	17.4	49.3	37.1	-2.2	37.3	-6.9	10.3	11.0
Consumer Cyclicals	-29.1	20.9	34.5	34.6	13.9	21.2	-10.5	12.3	16.5
Consumer Staples	-1.7	-7.5	20.3	31.9	17.7	44.7	-9.6	15.1	8.7
Energy	7.8	16.2	-2.1	22.0	21.6	25.8	-0.3	11.1	-2.5
Financials	14.8	2.2	9.6	45.4	31.9	49.6	-6.7	8.5	19.9
Health Care	26.9	-9.3	42.6	41.6	18.5	54.5	9.6	-11.2	-18.2
Technology	-21.3	74.8	72.4	25.6	41.1	42.8	15.2	21.2	1.6
Transportation	0.3	-10.7	-3.0	27.8	12.6	36.8	-17.7	17.0	6.5
Utilities	37.2	-12.5	10.1	18.6	-1.9	34.9	-13.0	8.9	2.1

Table 2: Stock Sector Track Record, Percent Change Since 1992

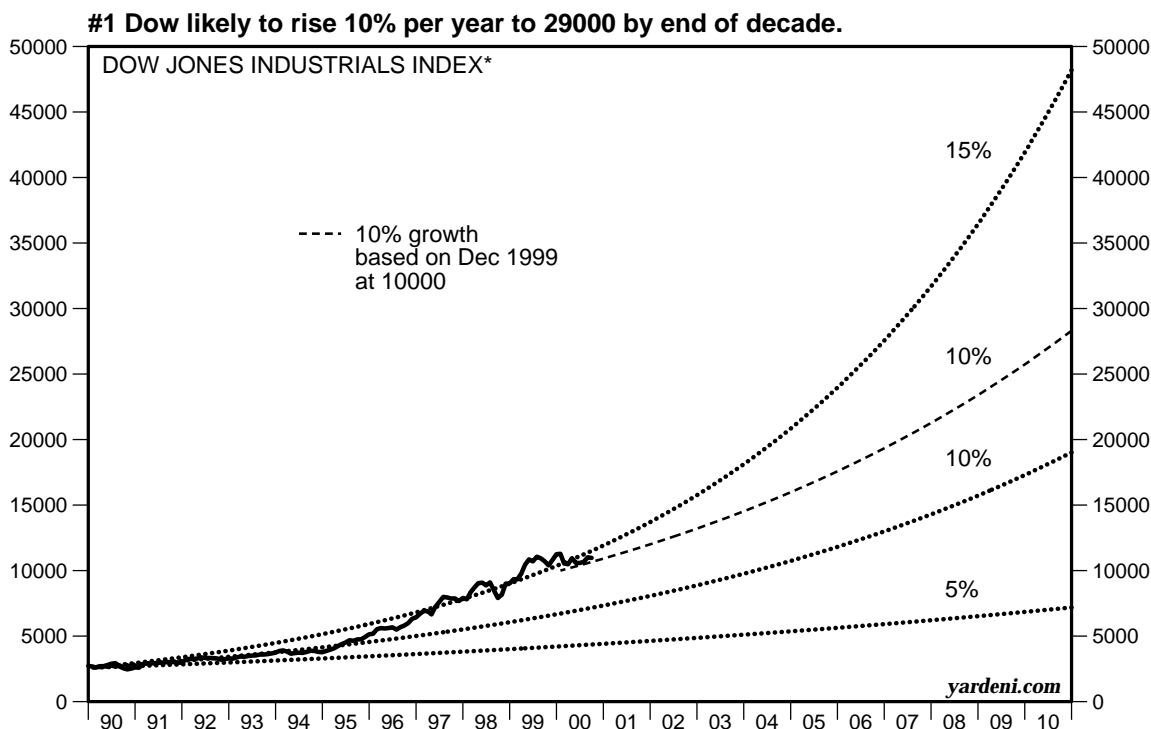
Sector	10/25/2000	1999	1998	1997	1996	1995	1994	1993	1992
S&P 500	227.2	252.3	194.7	132.7	77.6	47.7	10.1	11.8	4.5
Basic Materials	57.9	130.7	86.1	102.2	89.0	66.9	37.2	29.1	8.9
Capital Goods	271.5	258.8	182.1	151.0	101.4	55.4	17.9	11.7	0.4
Communication Services	166.9	268.2	213.6	110.1	53.2	56.6	14.1	22.5	11.0
Consumer Cyclicals	150.7	253.7	192.4	117.4	61.6	41.8	17.0	30.8	16.5
Consumer Staples	178.3	183.0	206.1	153.9	92.5	63.6	13.0	25.1	8.7
Energy	147.1	129.2	97.3	101.6	65.3	35.9	8.0	8.3	-2.5
Financials	348.0	290.1	281.7	248.4	139.6	81.7	21.4	30.1	19.9
Health Care	238.9	166.9	194.2	106.2	45.6	22.9	-20.4	-27.4	-18.2
Technology	750.1	980.8	518.5	258.8	185.7	102.5	41.8	23.1	1.6
Transportation	75.3	74.8	95.7	101.8	57.9	40.3	2.5	24.6	6.5
Utilities	100.9	46.4	67.3	52.0	28.1	30.6	-3.2	11.2	2.1

I. Rational Exuberance

Now that stock prices are falling, it may be a good time to reevaluate how high they can go by the end of the decade. I think we should remain rationally exuberant about the outlook for stock prices. It is irrational to expect that they can continue to rise at a compounded annual rate of 15% over the next 10 years, as they did over the past 10 years. I think 10% per year, on average, is a much more reasonable expected return. If so, then the Dow Jones Industrials Average, at about 10000 currently, should rise to 29000 by 2010—nearly a triple from here (Exhibit 1 below).

The bull market in stocks stimulated a bull market in books about stocks. With few exceptions, they've been mostly very bullish on the outlook for stock prices, predicting that the Dow would soar to 36000 by mid-decade and even 100000 by the end of the decade. To some observers, including the Chairman of the Federal Reserve Board, these best-selling predictions just raised concerns that "irrational exuberance" was creating a speculative bubble in the stock market.

The plunge in the tech-heavy Nasdaq this year confirms that there was lots of air in that market, which soared from 2700 a year ago to a record high of 5048 on March 10. The air is coming out, with the Nasdaq down close to 3000. The Dow Jones Industrials Average, on the other hand, has been relatively less manic. In fact, it has been trading in a flat trend between roughly 10000 and 11300 for about two years now. Excluding the technology sector, the S&P 500 index has also been in a flat trend for roughly two years.



* Growth paths are compounded monthly to yield 5%, 10%, and 15% annually.

Over the past five years, from 1995 through 1999, the S&P 500 stock price index rose 26% per year on average (Tables 1 and 2 on page 2). Since the start of 1992 through the end of last year, it was up 252%, led by a dramatic 981% jump in technology stocks. So far this year, the S&P 500 is down 7%, with technology down 21%. Many investors are losing their exuberance for stocks, especially the ones that have been most highly valued in recent years. The air is still coming out of lofty valuations that favored companies with price-to-earnings (P/E) multiples exceeding 50 and even 100 in some cases.

II. The Value Of Earnings

The great bull market of the 1990s was to an important extent a valuation rally. The P/E (using four-quarter trailing earnings) for the S&P 500 hit a high of 22 during the fourth quarter of 1961, up from a 1949 low of 6 (Exhibit 2). It then began a multi-year retreat, troughing at 7 during the fourth quarter of 1979 using trailing earnings data. It troughed at 6 during 1981 using 12-month forward expected earnings data, which first became available during 1978. We all know the causes of this ignoble retreat, including OPEC, inflation, misguided public policies, and the Vietnam War.

From the 1981 low, the P/E rose in a volatile fashion to 12 by the end of 1994. Then the party really got started, after the Republican Party revived political gridlock by winning a slim majority in the House of Representatives during the November 1994 elections for the first time since 1954. The P/E soared almost in a straight line to a record 25 during April 1999. The 108% jump in the forward P/E since the end of 1994 reflected a growing confidence that the pro-market policies—i.e., free trade and deregulation—of the Reagan and Bush years would continue under Clinton, thanks partly to gridlock.

Of course, the unleashing of global competition following the end of the Cold War also boosted valuations as both inflation and interest rates fell significantly. More recently, since the end of 1998, investors have been especially bullish about the prospects for technology companies. The P/E for this sector—which in the past was more or less equal to that of the overall market—soared well above the market's average to a peak of 47 during March 2000 (Exhibit 3). This was twice the market's P/E at the time. This divergence is now in the process of narrowing, though I doubt that it will be eliminated, since technology will continue to be the sector with the fastest earnings growth prospects.

The bottom line for the purposes of this study is that valuation multiples are unlikely to rise much if at all from current historically high levels over the decade ahead, even if inflation remains subdued and bond yields head lower. I remain a disinflationist. I expect that inflation will range between zero and 2% per year, on average, through the end of the decade. I am still more concerned about the prospects for deflation than reflation. I expect that the 10-year government bond yield will fall from 5.7% currently to 5% next year and 4.5% in 2002.¹

¹ See my *Topical Study #53*, "The Case for Bonds," August 21, 2000 at <http://www.yardeni.com/topical.asp>

However, I believe that stock market investors are ahead of bond investors: Current valuation levels are more in line with a bond yield of 4.5% than 6%.² If deflationary forces—unleashed by highly competitive global markets—push government yields lower, they are also likely to lower expectations for earnings growth. Finally, corporate bond yield spreads, which also impact valuation levels, may remain relatively wide in this scenario as investors recognize that a less exuberant outlook for corporate profits means increased default risk.

Technology valuation multiples may stay high, but I doubt they are going higher over the remainder of the decade. I am a long-time bull on the outlook for the industry. Back in March 1995, in “The High-Tech Revolution in the US of @,” I observed:

I first started to write about the High-Tech Revolution in the January 7, 1993 issue of my *Weekly Economic Analysis*. I wrote, “the US economy is on the threshold of a major Technological Revolution, led by the personal computer. This revolution will continue to boost productivity well above the anemic growth of the 1970s and 1980s.”

I am more convinced than ever that our economy is rapidly evolving in a very positive direction. Real incomes will grow at a faster pace along with productivity. Bearish problems like the federal and trade deficits will be overshadowed by the bullish consequences of the High-Tech Revolution.

I am especially bullish on the stock prices of high-tech companies. During February of this year, they accounted for 11% of the market capitalization of the S&P 500, up from 7% during 1992. As high tech becomes a bigger and bigger share of the economy, this capitalization ratio should at least match, and will probably surpass, the 1984 high of 17% of the S&P 500.

I remain convinced that technology earnings will grow rapidly—maybe 25% to 35% per year, on average, over the next 10 years for the S&P 500 tech sector. However, investors are starting to realize that even the best-managed companies are not likely to succeed year after year, quarter after quarter. Even the best managements can screw up. Indeed, prolonged success almost inevitably sets the stage for a setback, either because complacency sets in or because the momentum of success makes it much harder for management to change and to respond quickly to new opportunities and challenges. In other words, even Intel can stumble. Many tech companies like Intel have been priced for perfection, as though they could keep innovating and grow their earnings without any setbacks. “Let’s get real,” is the message of the market this year.

² See my “US Stock Valuation Models,” <http://www.yardeni.com/public/stkvalu.pdf>. This research product is updated weekly.

III. Earnings Driven

If P/E levels are not likely to rise from here, then the outlook for stock prices will be completely determined by the outlook for earnings. Without a significant rise in valuations, it is irrationally exuberant to expect that stock prices can more than triple again to 36000 by 2005—as they did during the previous five years. In fact, I would argue that the upward revaluation of earnings during the 1990s was an overdue catch-up for the significant undervaluation during the troubled 1970s (Exhibits 4 and 5). Times are so good now, that it is likely that investors' moods will turn less exuberant rather than even more so.

So what is the potential for earnings growth? Reported S&P 500 earnings rose in a growth range between 5% and 7% since the 1960s through this year. During the early 1990s, they fell to the bottom of this range to \$15.91 per share (using a four-quarter sum). Since then, they are up 226% to \$51.92 per share, which puts them at the top of the growth range since 1960 (Exhibit 6). Should we conclude that the best is still to come? Can earnings growth break out of its long-term range?

Rebasing the growth range to the start of 1990, and widening the upper bound to a 10% compounded rate, shows that S&P 500 operating earnings rose at a 5% rate during the first half of the 1990s and then a bit better than 7% during the second half of the decade (Exhibit 7). Seems like any way you slice it and dice it, 7% is about the fastest earnings can grow. So perhaps even my 10% outlook is too exuberant.

IV. Gaining Share

In the long run, profits can't grow faster than nominal GDP. They can significantly do so in the short run, but then the profits growth cycle falls below economic growth until the average spread between the two is zero. If profits do extend their winning streak for too long, corporate profits would grab a bigger and bigger share of national income. This isn't sustainable either because political forces fueled by a "worker backlash" would intervene or else workers wouldn't have enough income to buy what they are producing.

The average spread between the yearly percent change in corporate after-tax profits and the yearly percent change in nominal GDP since 1960 is only 120 basis points (Exhibit 8). Empirically, profits have grown faster than GDP, but not by much.

So the trend growth rate in earnings should be determined by the trend growth in nominal GDP, which I expect will be 6% per year on average over the next 10 years, with inflation of 2% and real output growth of 4%. I'm inclined to believe that there might be a percentage point less inflation and a percentage point more growth. But that's still 6%, which isn't 10%.

So how can I convince you that earnings and stock prices can rise 10% per year (Table 3)? The economy's overall earnings probably won't rise much faster than 6% per year over the foreseeable future. However, the S&P 500 measure might do it. So far, this measure has moved in step with GDP corporate profits (Exhibit 9). However, it could grow faster under the following assumptions:

- 1) Standard & Poor's is constantly adding winners to its composite and subtracting losers. Ten years ago, there were 48 tech companies in this index. Now there are 78. If technology earnings continue to grow faster than overall GDP earnings, then the S&P 500 earnings measure might very well grow faster than 6%.
- 2) The companies in the S&P 500 might gain market share both at home and overseas. They've certainly been doing that here in the US. Incorporated businesses now produce 57% of real GDP in the United States, an all-time record and well above the previous decade's low of 50% during 1993. However, because they are passing enormous productivity gains to their consumers by providing better goods and services at affordable prices, their share of nominal GDP, at 54%, is still well below the record 57% in the early 1980s (Exhibit 10).
- 3) Profit margins are at record highs currently for the S&P 500. They might continue to rise (Exhibit 11). Given the recent profits disappointments caused by higher oil prices and the weak euro, I won't press this point too hard. However, the strength of both the economy and productivity have surprised even the New Economy optimists. Maybe they'll continue to do so over the next 10 years.

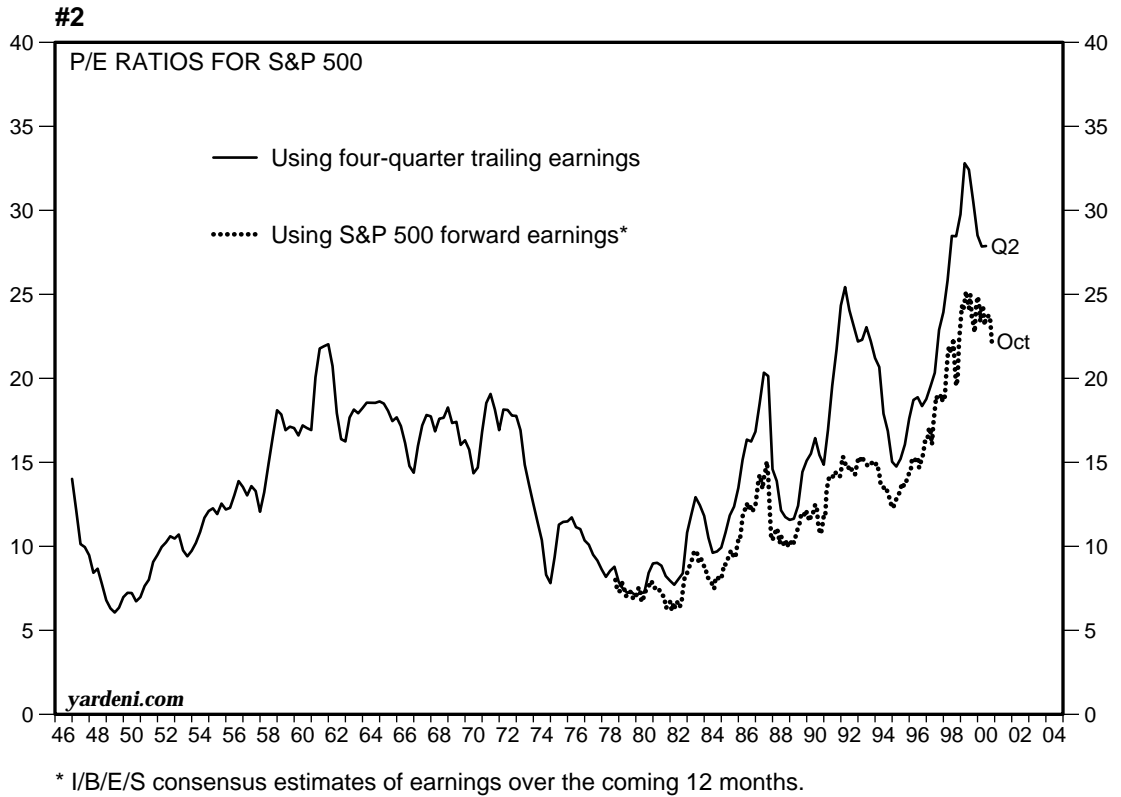
Table 3: Dow Jones Industrial Average Using Different Appreciation Assumptions*

	5%	7%	10%	15%
2000	10500	10700	11000	11500
2001	11025	11449	12100	13225
2002	11576	12250	13310	15209
2003	12155	13108	14641	17490
2004	12763	14026	16105	20114
2005	13401	15007	17716	23131
2006	14071	16058	19487	26600
2007	14775	17182	21436	30590
2008	15513	18385	23579	35179
2009	16289	19672	25937	40456
2010	17103	21049	28531	46524

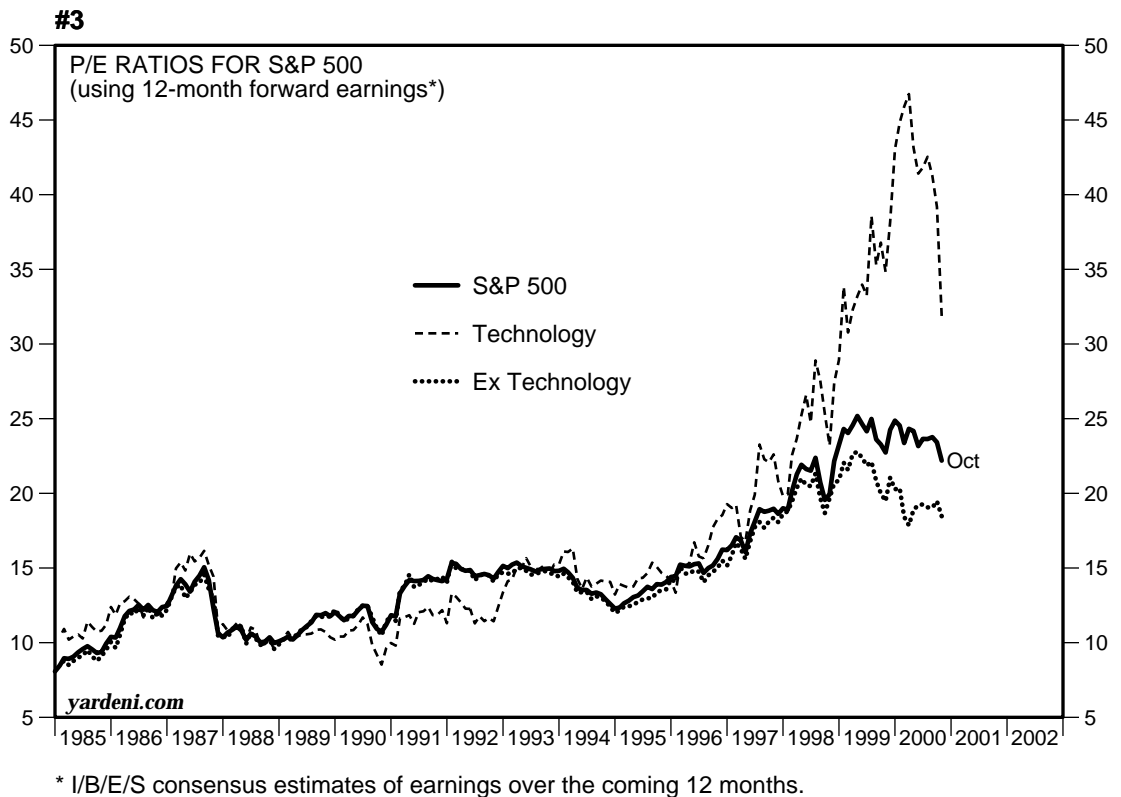
*Growth rates applied to a starting value of 10000 in Dec 99, compounded monthly.



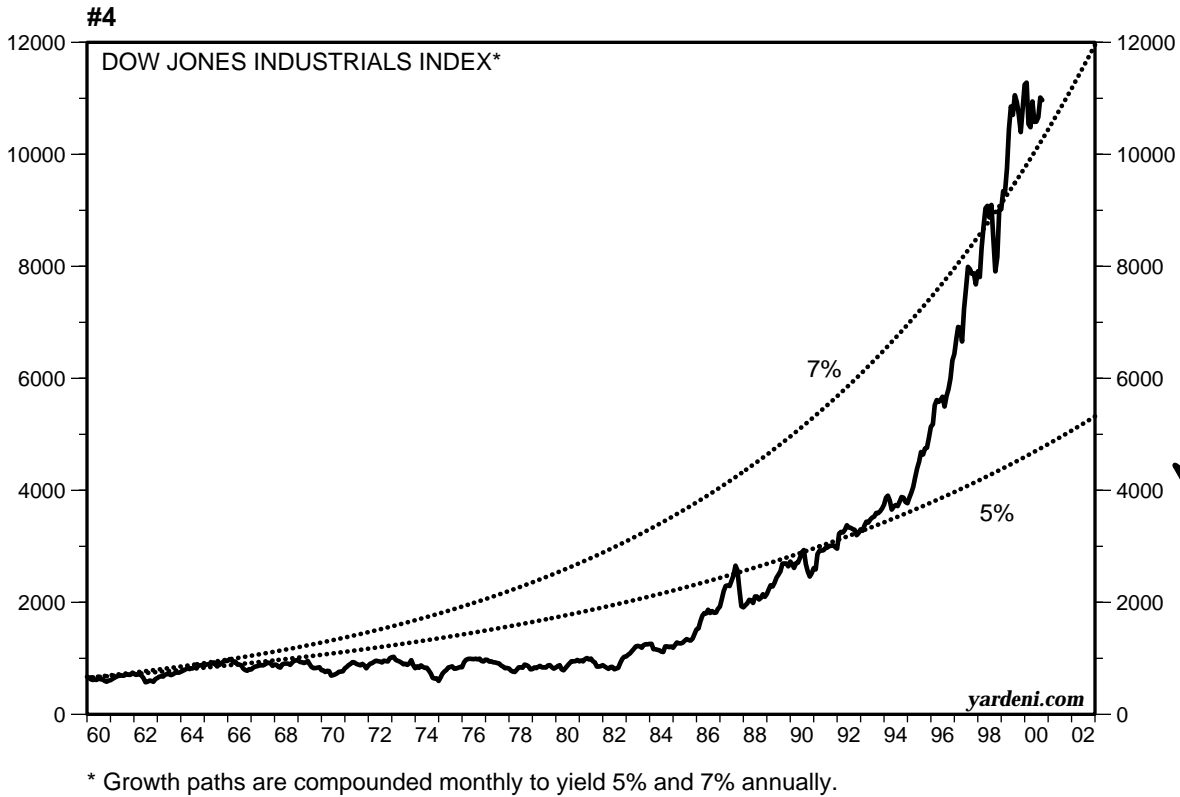
- P/E Ratios -



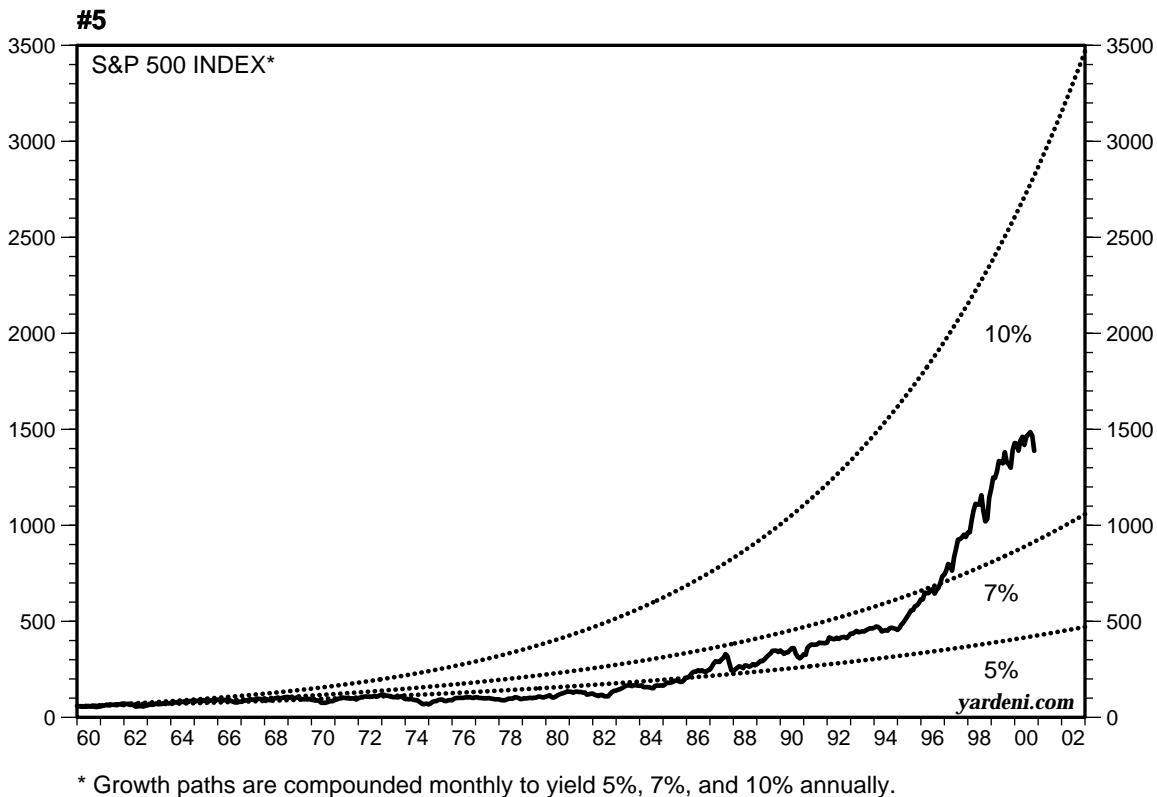
Earlier this year, until Sept/Oct tech wreck, earnings valuation was at record level reflecting low inflation and interest rates and a promising outlook for earnings. It also reflected some irrational exuberance especially for tech stocks, which are now correcting the excess.



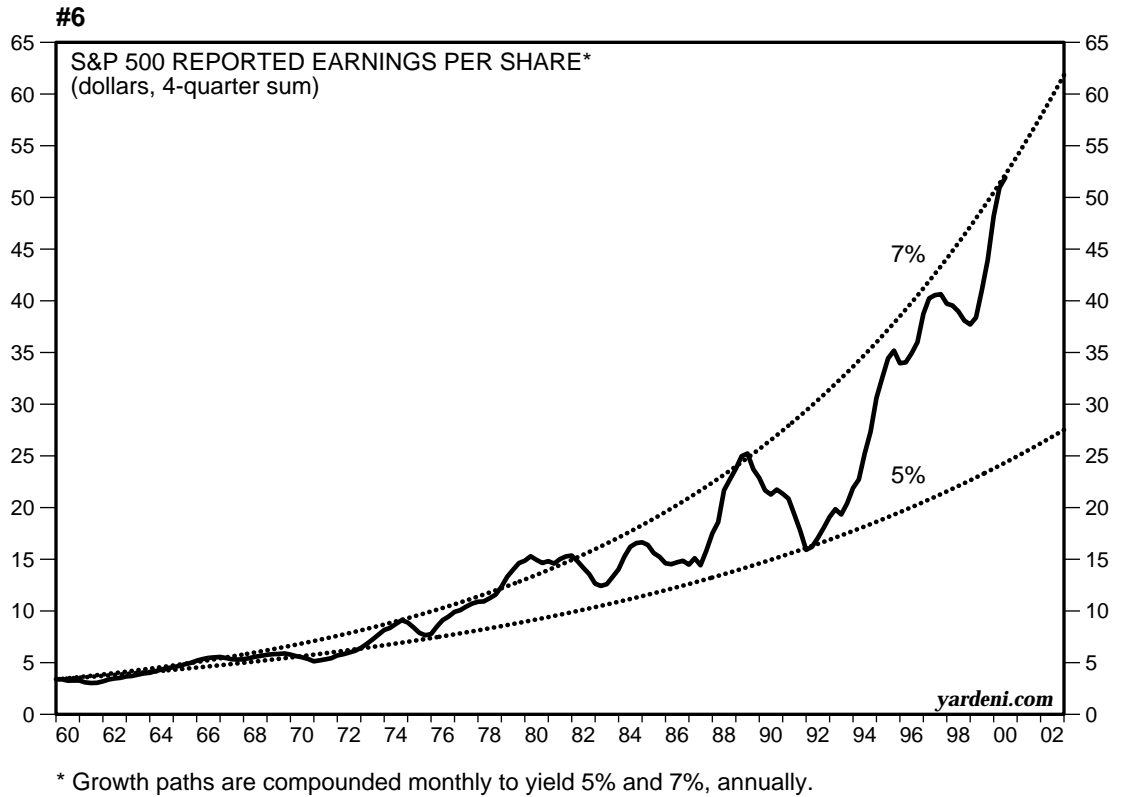
- Stock Price Trends -



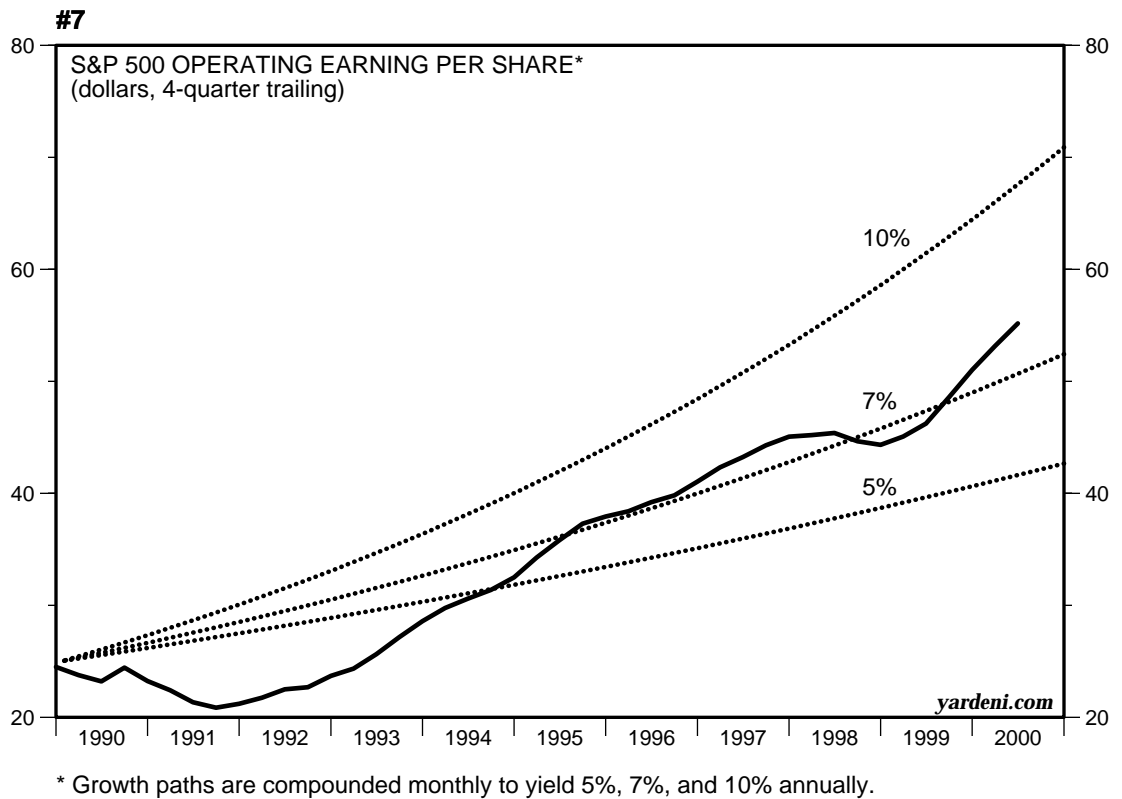
Stock market played catch-up during the 1990s after stagnating in a flat trend during the troubled period from the mid-1960s through the mid-1980s.



- Earnings Trends -

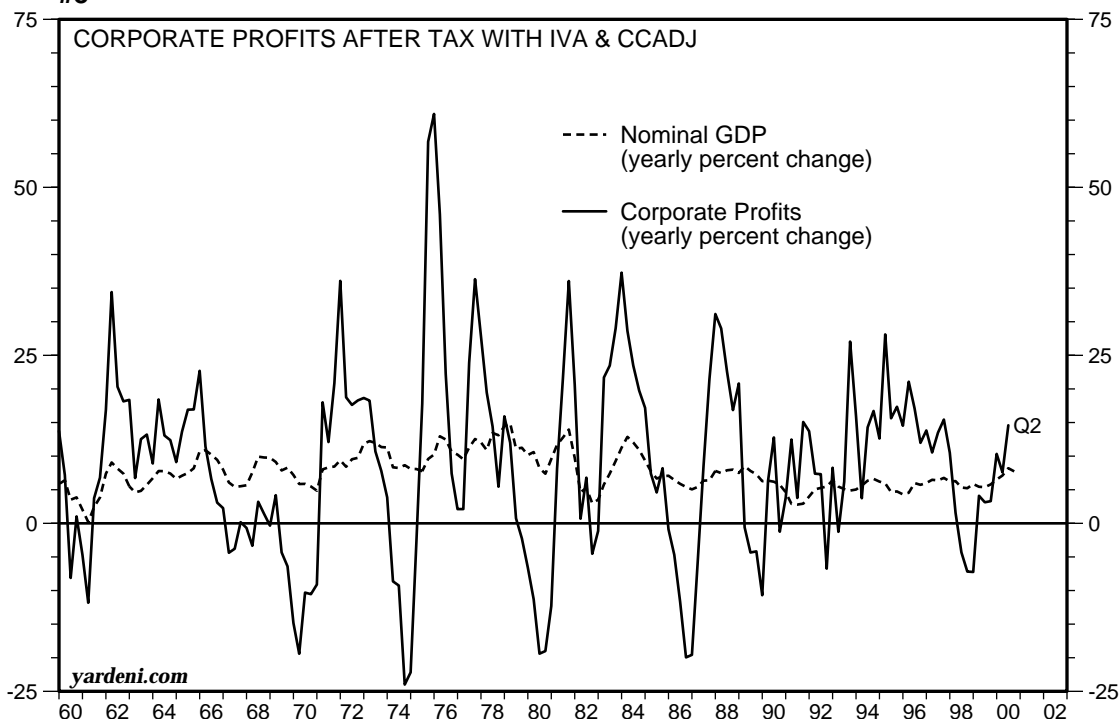


Historically, S&P 500 earnings have grown at a 5% to 7% compounded annual rate.



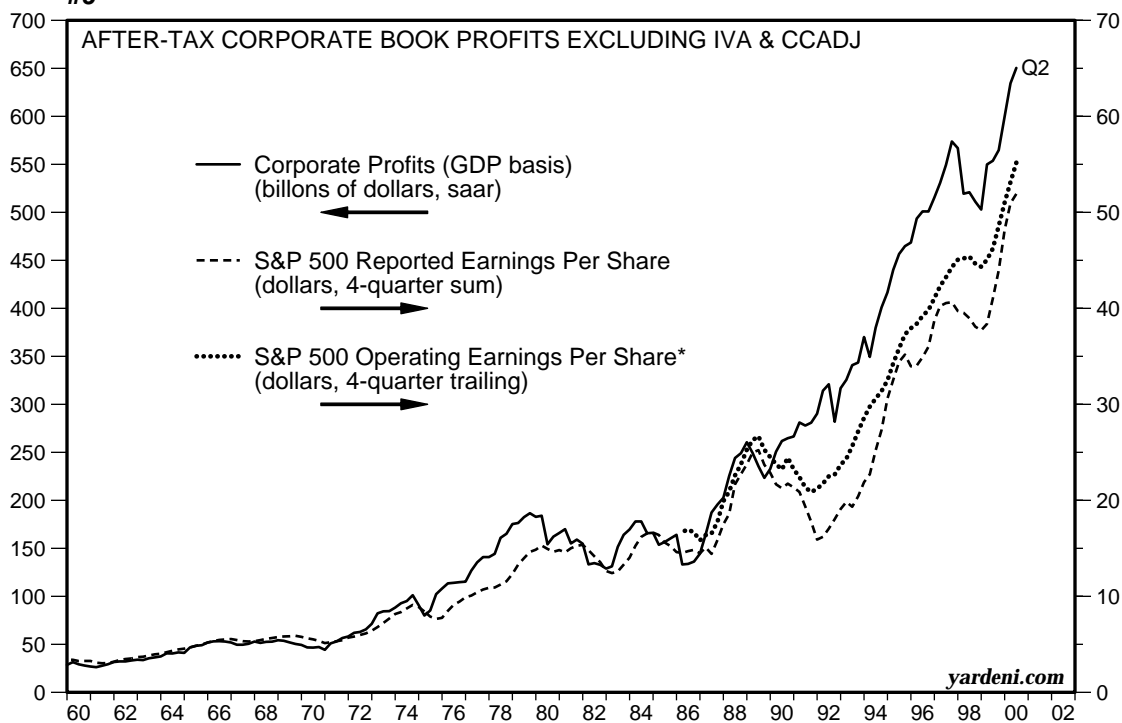
- Profits -

#8



On average, GDP profits don't grow faster than nominal GDP.

#9

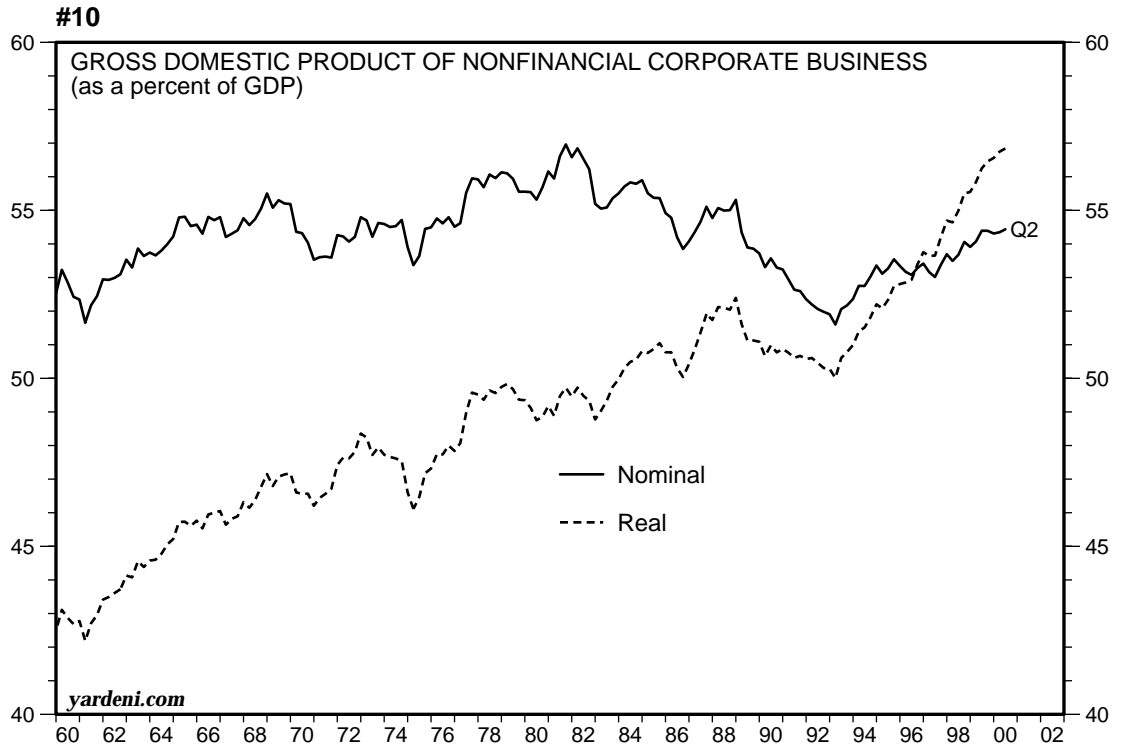


In the future, S&P 500 earnings might grow faster than GDP profits if the index continues to include more tech stocks.

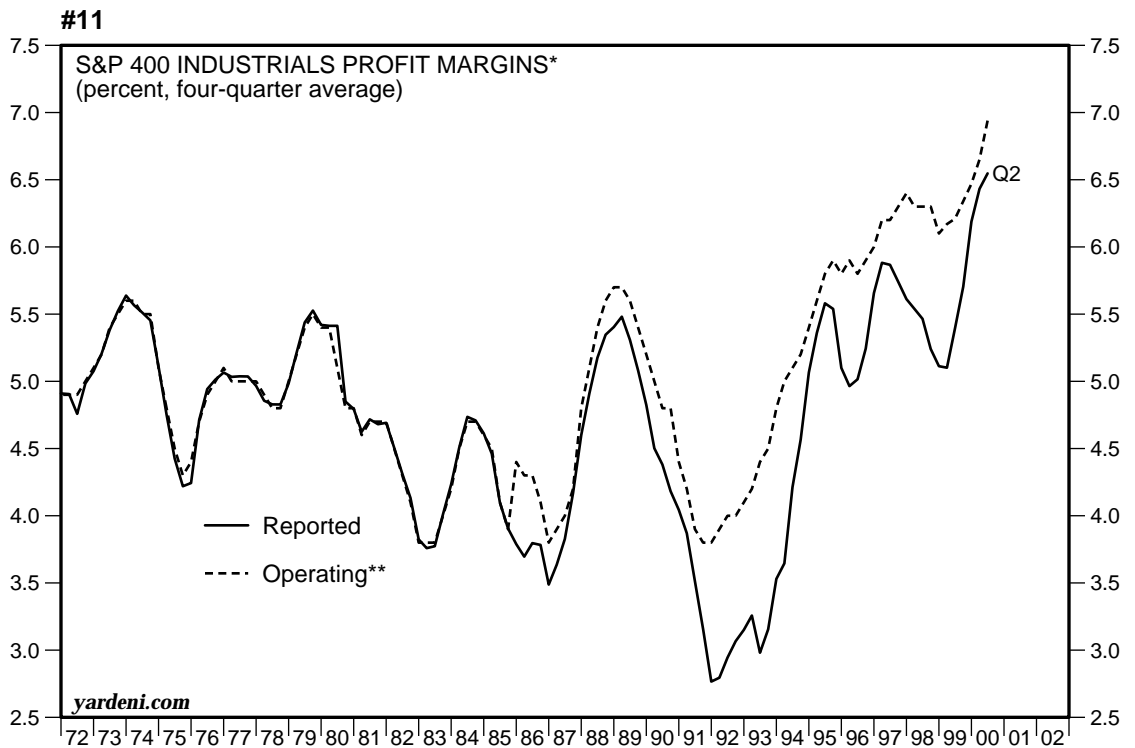
* Excludes write-offs.

- Corporate Business -

Corporations continue to gain market share. They now account for a record 57% of real GDP.



Profit margins continue to rise into record territory.



* Earnings (after taxes) divided by sales.

** Includes write-offs.