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PaineWebber

Market Forecast

INVESTMENT POLICY

Growing Up

November 18, 1999

How Faster Growth Boosts the Market's Normal P/E

- P/Es expanded in 1990s because inflation slowed to a very low rate. But some of that disinflation also led to slower S&P 500 secular earnings growth rate as corporate pricing power evaporated.
- Because of heavy turnover *and* active management, S&P 500 has been transformed into a top-heavy, large-cap, fast-growth index.
- "Bottom-up" company-by-company or sector-by-sector analysis of companies in S&P 500 now supports case for a 7% secular earnings growth rate.
- Adjust inputs to quantitative valuation models. Raise secular earnings growth rate by 50 basis points, from 6.5% to 7.0%. Cut normal dividend payout ratio from 39% to 30%.
- Higher normal P/E multiple (raised from 26x to 30x) boosts year-end 2000 S&P 500 normal value from 1400 to 1600. This equates to a year-end 2000 DJIA of 12,500 (versus previous 11,500)—17,500 year-end '05 and 25,000 year-end '10.
- While now attractively valued when bogeyed versus inflation (on a P/E basis stocks at 96% of fair value), stocks still modestly overvalued relative to bonds and cash. Stock-bond probability now 30% (up from 24%). Stock-cash probability now 26% (up from 23%).
- An even more bullish outlook for growth stocks: Stocks with growth rates above market average benefit from both rise in market's P/E *and* an increasing relative P/E for growth.

Growing Up

In a recent report we wrote that "the bull market of the 1980s and 1990s has been fueled largely by falling interest rates leading to P/E multiple expansion" (see "Crosswinds," September 12, 1999). The primary catalyst behind the decline in rates, we noted, has been a secular decline in inflation. But, we continued, "with *secular* inflation already at *nil* levels, the secular bull market for bonds has simply run out of gas." Consequently, we argued that, going forward, "we won't have [inflation-driven] P/E to do the 'heavy lifting.' Price gains will essentially be limited to earnings growth."

Sustainable earnings growth is clearly faster than we had been assuming.

That's the bad news. The good news is that *sustainable* earnings growth is clearly faster than we had been assuming. Unlike in the early 1990s, when declines in the secular earnings growth rate accompanied declines in secular inflation expectations, for the reasons discussed below, *sustainable* earnings growth is now *faster* than it was in a *more inflationary* environment. This faster earnings growth boosts the market's normal P/E.

Six in '93: Lower Rates But N*ot* Higher P/Es

At the start of this decade, we predicted that the secular decline in bond yields that got under way in the 1980s would continue during the 1990s. In "Six in '96" (April 21, 1991) we argued that the "great rate retreat" was not about to end, but would instead proceed right through the mid-'90s. We projected that a drop in the inflation rate from near 5% to around 3%, coupled with real interest rates near the 1971-91 average of about 3%, would drive Treasury long bond yields down to the 6% level by 1996. That, we argued, would be enough to eventually boost the S&P 500's normal P/E multiple to 17.5x-20.0x, from 16.5x in 1991.

Chart 1: Actual CPI Inflation and Expected Secular Inflation

Six-month moving average CPI lagged one month. Expectation from PW valuation model

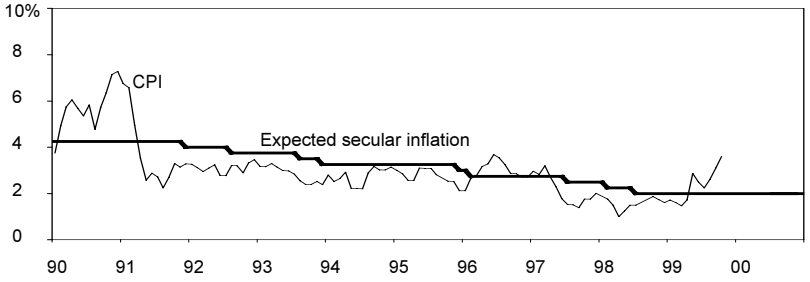
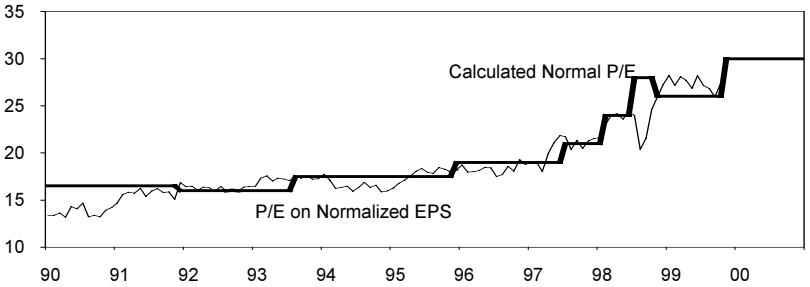


Chart 2: S&P 500 P/E

P/E on normalized EPS and calculated normal P/E



Source: Bureau of Labor Statistics, Standard & Poor's, PaineWebber.

As we had anticipated, inflation slowed early in the 1990s (Chart 1) while real rates remained close to their 1971–91 average level. The disinflation that occurred between 1991 and 1993 did *not*, however, translate into higher normal P/E multiples (Chart 2).

Back to Finance 101

Why did P/E multiples stay relatively flat between 1991 and 1993 even though inflation slowed? Because earnings growth also slowed. To fully appreciate what happened, it's necessary to revisit some basic concepts in finance.

The classic dividend discount model equation states that the price of a stock is theoretically equal to the discounted stream of expected dividends:

$$P = \sum \frac{D\,(1+g)^t}{(1+R)^t}$$

where:

P = current price, D = current normalized dividend, g = secular long-term growth rate and R = equity discount rate.

Solving the infinite series and rearranging this classic dividend discount model, the normal P/E for the market (S&P 500) is calculated as:

$$\text{Market P/E} = \frac{\text{Dividend Payout Ratio}}{\text{Equity Discount Rate - Earnings Growth Rate}}$$

The equity discount rate is the sum of an inflation expectation and a real discounted rate of return from equities.

$$\text{Market P/E} = \frac{\text{Dividend Payout Ratio}}{(\text{Inflation Expectation + Real Discount Rate}) - \text{Earnings Growth Rate}}$$

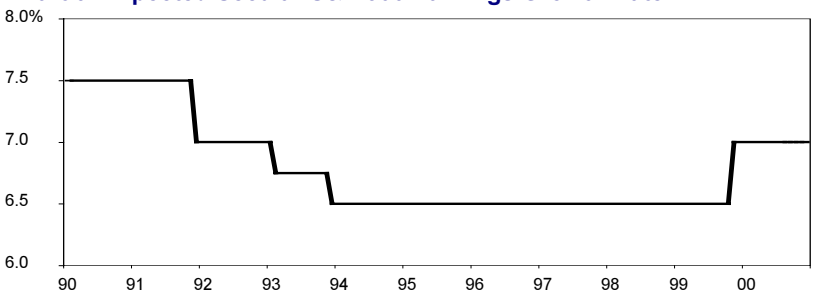
Let's assume that the real discounted rate of return from equities is constant. If we make this assumption, then the three variables in the above equation are:

- The dividend payout ratio.
- The inflation expectation.
- The earnings growth rate.

Throughout the 1990s, as disinflationary pressures spread, the expected rate of inflation declined steadily (Chart 1).

But, given that an increasingly difficult pricing environment squeezed corporate profitability, the expected secular S&P 500 earnings growth rate fell too (Chart 3).

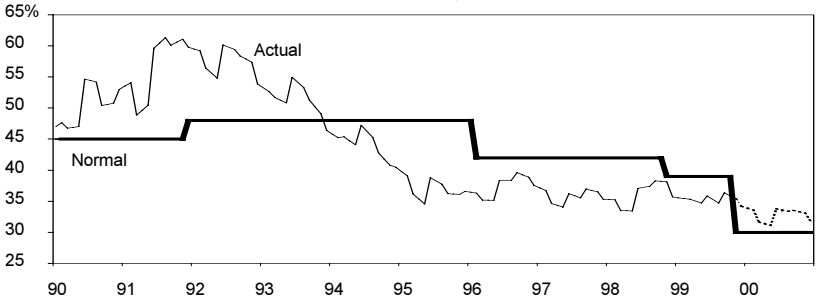
Chart 3: Expected Secular S&P 500 Earnings Growth Rate



Source: PaineWebber.

In addition, as investors were willing to be rewarded more in the form of stock price appreciation and less in the form of dividends (thanks, in part, to cuts in the capital gains tax), the S&P 500 normal payout ratio also declined—although, as Chart 4 illustrates, those declines didn't occur until late in the 1990s).

Chart 4: S&P 500 Normal and Actual Payout Ratio



Source: Standard & Poor's, PaineWebber.

The decline in the secular earnings growth rate (which *lowered* the normal market P/E) offset the decline in inflation expectations (which *boosted* the normal market P/E), resulting in a static market P/E multiple *in the early 1990s*. However, as we discuss below, *that was not the case for the remainder of the decade.*

The Mid-'90s: Disinflation Boosts P/Es

Disinflation continued to be a powerful force in the financial markets throughout the 1990s. For example, in 1993, inflation (as measured by the CPI) was running at a 3.0% annual rate. By 1998, inflation had slowed to just 1.6%. Consequently, the normal inflation expectation we used in our Equity Valuation Model fell from 3.25% in December 1993 to 2.0% in December 1998 (Chart 1). Reflecting the sharp decline in inflation expectations, the S&P 500's calculated normal P/E in our model expanded from 17.5x in December 1993 to 26.0x in December 1998 (Chart 2). Note, however, that unlike earlier in the decade, when declines in the inflation expectation were offset by declines in the expected secular earnings growth rate, since December 1993 *the earnings growth input had remained at a constant 6.5%* (Chart 3).

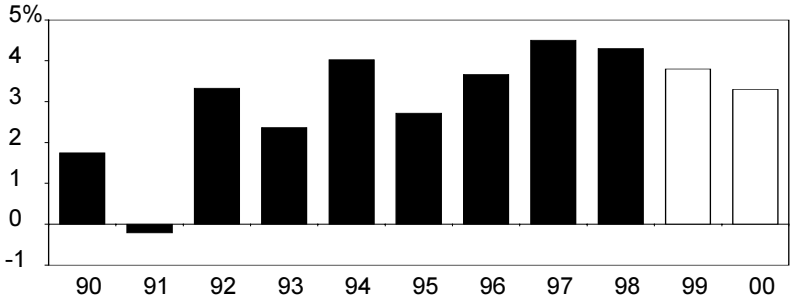
The *Really* New Profit Pattern

In "The New Profit Pattern" (December 6, 1998), we justified a secular S&P 500 earnings growth rate of 6-7% as follows:

- 2.7% blended real global GDP growth. (We accorded a 60% weight to the U.S. component of global GDP growth, and a 40% weight to the foreign component. We assumed a sustainable long-term rate of U.S. GDP growth of 2.5%, and a sustainable rate of foreign growth of 3.0%.)
- 2.0% inflation (i.e., corporate pricing power).
- 1.0% growth driven by spending free cash flow on acquisitions and share buybacks.
- 1.0% growth via very slight margin expansion.

One of those assumptions may now be too conservative. Specifically, the U.S. economy has continued to grow faster than most observers—ourselves included—had been assuming. For example, real GDP growth averaged 3.9% between 1994 and 1998, as compared to just 2.0% growth between 1990 and 1993 (Chart 5). Real GDP is forecast to grow 3.8% in 1999, and 3.3% in 2000.

Chart 5: U.S. Real GDP Growth



Source: Bureau of Economic Analysis, PaineWebber.

If we were to raise our assumption about the sustainable rate of long-term U.S. GDP growth to 3.25%—and continue to assume that the 40% of non-U.S. global GDP still grows at just a 3.0% sustainable rate—that would boost the blended real GDP growth rate to 3.2%. That change would *directly* raise the secular S&P 500 earnings growth rate by about 50 basis points, to 7.2%. Faster GDP growth also suggests a little extra in terms of margin expansion and generation of free cash, suggesting a secular earnings growth rate actually closer to 7.5%.

A Bottom-Up Perspective of S&P 500 Secular EPS Growth

But, as we have repeatedly argued (see, for example, "What Is the S&P 500?" March 14, 1999), the S&P is *not* simply a GDP surrogate. So, it is more valid to do a "bottom-up" analysis of the S&P's secular earnings growth rate (which, as shown below, supports the "top-down" analysis of the S&P's growth rate.)

Consider the companies that are the 50 largest S&P 500 firms in terms of earnings, *not* market capitalization (see Appendix 1 for a listing of the companies). These companies account for:

- 51.7% of total S&P 500 earnings.
- 52.9% of total S&P 500 market capitalization.
- 38.5% of total S&P 500 sales.

This list is biased in favor of fast growers, because if a company has been growing rapidly over the past five years it is more likely to make the list than if it has been doing poorly. For example, there are 20 firms that are in the top 50 *in terms of sales* that do not make this list. The five-year weighted earnings growth of these 20 firms is only 4.9%, substantially less than the 12.5% weighted growth rate of the top 50 in terms of earnings.

Driven by heavy M&A, turnover in the S&P 500 is at record levels, and the sectors that have been gaining share in the index (e.g., technology and financials) are faster growing than the sectors losing share (e.g., cyclicals, energy and commodities). The S&P 500 is, in effect, an actively managed, top-heavy, large-cap growth stock wannabe fund.

This raises an important point. As we noted in "What Is the S&P 500?" the S&P is an *actively* managed portfolio. Driven by heavy M&A, turnover in the S&P 500 is at record levels, and the sectors that have been gaining share in the index (e.g., technology and financials) are *growing faster* than the sectors losing share (e.g., cyclicals, energy and commodities). As we wrote in our March report, the S&P 500 is, in effect, "an actively managed, top-heavy, large-cap growth stock wannabe fund."

The 50 largest S&P 500 firms in terms of earnings have the following key characteristics:

	Weighted Rate
5-year CAGR EPS growth	12.5%
Consensus EPS growth rate	11.6

So, for these companies, their recent earnings growth is actually *above the consensus secular growth rate*, suggesting that the consensus growth rate may be conservative. Nevertheless, some of these companies are likely to "blow up" and have surprisingly poor earnings because of, for example, excess industry capacity, changing government regulation, shifting consumer tastes, financial shocks or currency fluctuation. Only seven of the 50 companies are tech companies that get good top-line growth from building the infrastructure of the Internet economy. However, even when one looks at these 50 companies and gives a "hair cut" to some of the consensus growth rates, *one still gets a weighted average growth rate of over 10%*, using the level of earnings as the weight.

As noted, these companies account for 52% of S&P earnings, and the list is biased in favor of fast growers. Conspicuously absent from the "top 50" are such slow-growing sectors as utilities, papers, metals and (except for Philip Morris) foods. *For the total S&P 500 to have a growth rate of only 6.5%, the other 48% of the index would have to grow at under a 3% rate.* This looks low.

Table 1: S&P 500 Industry Sectors
Estimated 1999 net income and secular earnings growth rate

	1999 est. Income	Est. secular Earnings growth
Aerospace	$4.6bn	3%
Capital goods	7.7	6
Commodities	16.6	3
Consumer Cyclical	23.9	4
Consumer Non durables	31.6	7
Diversified	22.6	10
Energy	22.7	4
Financials	101.7	8
Healthcare	37.3	10
Media	3.4	7
Retailing	23.5	6
Services	13.5	10
Technology	52.4	11
Telecom	30.1	7
Transportation	6.6	4
Utilities	16.8	2
Total / Weighted Rate	**$414.3bn**	**7.4%**

Source: FactSet and PaineWebber.

Of course, the problem with a stock-by-stock approach is that you cannot know in advance that a company's earnings are about to stagnate, whether it is IBM in 1984 or Coca-Cola in 1996. When one takes a sector perspective and assigns reasonable (and probably conservative) growth rates to 16 sectors, we get *a growth rate of 7.4%* using the growth rates and weights shown in Table 1. So 7.0% seems a plausible, if somewhat conservative, assumption for secular S&P 500 EPS growth. Obviously, everything else being equal, raising the secular earnings growth rate will *boost* the market's normal P/E.

We're Cutting the Normal Dividend Payout Ratio Too

We are also cutting the market's normal dividend payout ratio from 39% to 30%. This continues a trend that has been under way throughout the 1990s (Chart 4). As we noted at the time of the last adjustment to the payout ratio, "in the late 1990s, dividend growth has lagged very strong earnings growth, pushing the payout ratio down to record post-war lows. This 'normal' payout ratio is *not* likely to rise materially any time soon" (see "A Little Less Dividend," November 5, 1998).

In the late 1990s, dividend growth has lagged very strong earnings growth, pushing the payout ratio down to record post-war lows. This "normal" payout ratio is not likely to rise materially any time soon.

Although the actual payout ratio was 36% at the time of that report, we adopted a conservative stance and trimmed the normal S&P payout ratio in our Equity Valuation Model to 39% from 42%. But with the actual payout ratio continuing to drift lower over the last 12 months—and expected to fall further still in the coming years (Chart 4)—it seems prudent to trim the normal payout ratio to 30%. (In "A Little Less Dividend" we cited several factors behind the steady decline in the payout ratio. Another factor, as mentioned above, is the transformation of the S&P 500 into a top-heavy, large-cap growth stock index.) Everything else being equal, that cut by itself would *lower* the market's normal P/E.

A Higher S&P 500 Normal Value for 2000 . . .

To summarize, we have:

Year-end 2000 S&P 500 normal value is 1600, versus our previous normal value of 1400. That equates to a year-end 2000 DJIA of 12,500 (versus a previous 11,500).

- Raised the secular earnings growth rate from 6.5% to 7.0%.
- Lowered the normal dividend payout ratio from 39% to 30%.

These changes have the following effects:

- In calculating the normal market P/E, the increase in the secular earnings growth rate overwhelms the cut to the normal payout ratio, so that *the market's normal P/E rises from 26x to 30x.*
- On a P/E basis, stocks are now at 96% of fair value (versus 110% before the normal P/E was raised).
- The net effect of raising the secular earnings growth rate but cutting the normal payout ratio is to *raise* the discounted rate of return from stocks by about 15 basis points.
- Raising the discounted rate of return from stocks *modestly* increases their attractiveness versus the fixed income alternatives.
- Multiplying the new normal P/E of 30x by $53.50 in normal EPS suggests a year-end 2000 S&P 500 normal value of 1600, versus our previous normal value of 1400. That equates to a year-end 2000 DJIA of 12,500 (versus a previous 11,500)—17,500 year-end '05 and 25,000 year-end '10.

These changes do not *materially* change our stock market outlook. Before the input changes, stocks were modestly overvalued both on a P/E basis and relative to bonds and short-term rates (Chart 6). While now moderately attractively valued when bogeyed versus inflation (i.e., on a P/E basis), stocks are still modestly overvalued relative to bonds and cash (Chart 7). The probability that stocks outperform bonds is now 30% (up from 24%). The probability that stocks outperform cash is now 26% (up from 23%). Our asset allocation weightings are now 52% stocks, 33% bonds, 15% cash (versus 51% stocks, 34% bonds, 15% cash). But it's still *very difficult* to argue that stocks are either as compellingly cheap as they were at their recent 1998 lows (Chart 8) or, conversely, as egregiously overvalued as they were back at their 1987 highs (Chart 9).

Chart 6: Stock Market Gauges*—Before Input Changes

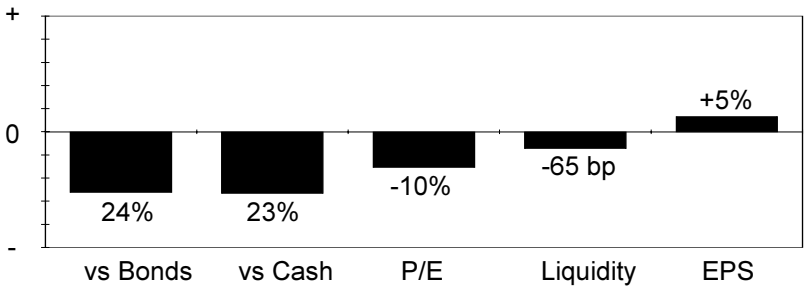


Chart 7: Stock Market Gauges*—After Input Changes

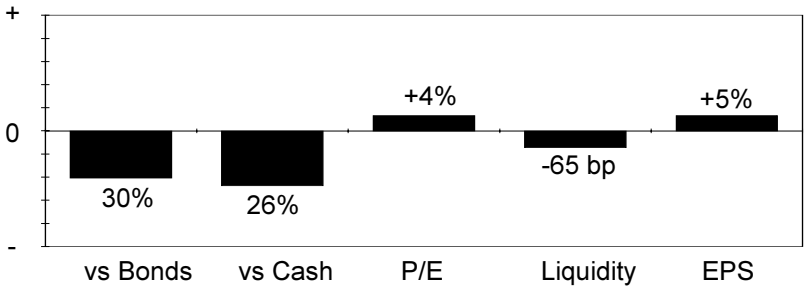


Chart 8: Stock Market Gauges*—the 1998 Bottom

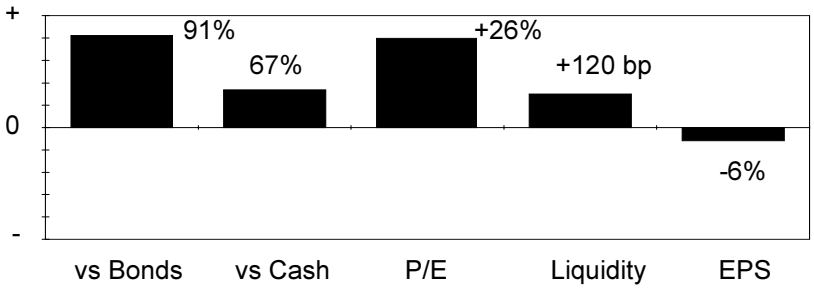
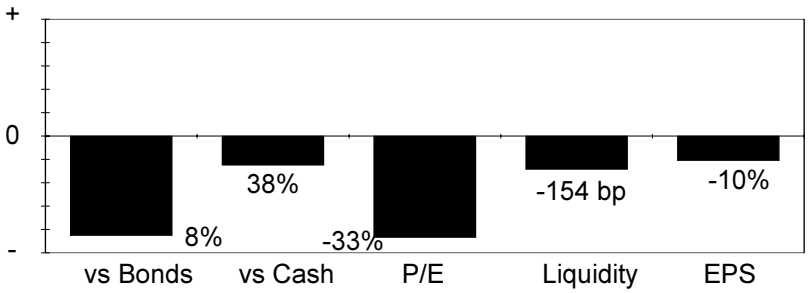


Chart 9: Stock Market Gauges*—the 1987 Top



*0 represents a neutral stock market gauge. The closer the bar to + the more attractive stocks are. The closer the bar to - the more unattractive stocks are.

Source: PaineWebber.

These changes do not materially change our stock market outlook. Before the input changes, stocks were modestly overvalued both on a P/E basis and relative to bonds and short-term rates. While now attractively valued when bogeyed versus inflation (i.e., on a P/E basis), stocks are still modestly overvalued relative to bonds and cash.

. . . and an Even More Bullish Outlook for Growth Stocks

These changes are particularly bullish for growth stocks. Stocks with growth rates above the market average benefit from both the rise in the market's P/E and an increasing relative P/E for growth. As faster secular earnings growth drives the market P/E higher (Charts 10a and 10b), the relative P/E of high-growth stocks expands. Therefore, the P/E of high-growth stocks rises at a faster rate than that of the market (Charts 11a and 11b).

Chart 10a: S&P 500 P/E vs inflation
assuming 6.5% market growth, 39% payout

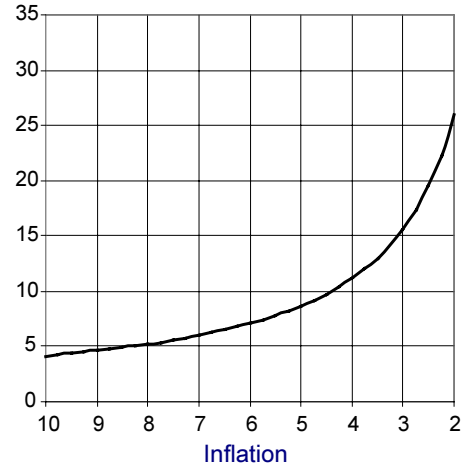


Chart 10b: S&P 500 P/E vs inflation
assuming 7.0% market growth, 30% payout

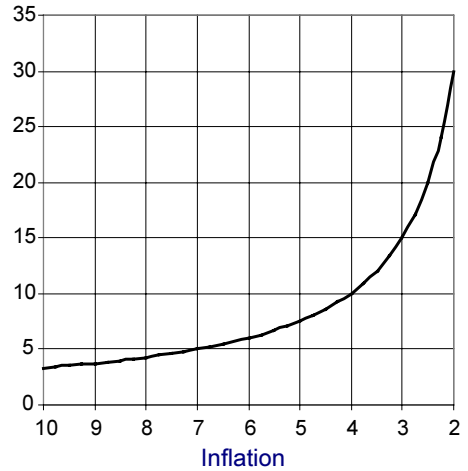


Chart 11a: 15% gr stock's P/E vs inflation
assuming 6.5% market growth, 39% payout

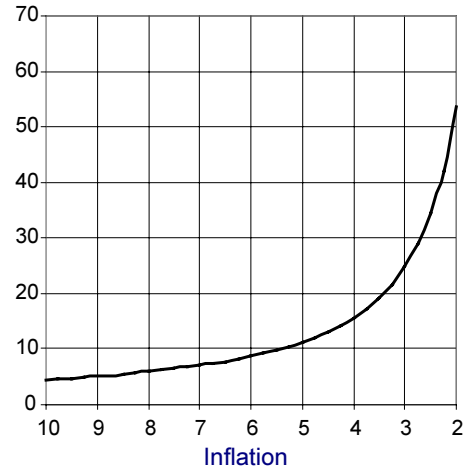
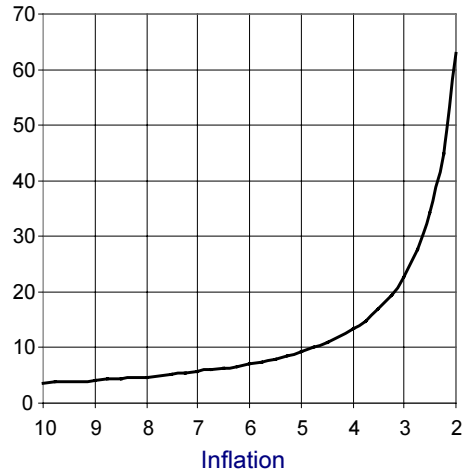


Chart 11b: 15% gr stock's P/E vs inflation
assuming 7.0% market growth, 30% payout



Source: PaineWebber.

Appendix 1: 50 Largest S&P 500 Companies in Terms of Earnings

Sorted by estimated 1999 earnings

Company	Ticker	11/17 Price	% of S&P 500 EPS	5 year EPS CAGR	Consensus Long term Growth rate
General Electric [3,6]	GE	$141.19	2.5%	13.2%	13.0%
Citigroup [3]	C	56.25	2.2	n/a	11.0
Bank of America [3]	BAC	66.56	1.9	9.2	10.0
Microsoft [2]	MSFT	85.00	1.9	40.9	22.0
Philip Morris	MO	25.94	1.9	12.7	11.0
SBC Communications [3]	SBC	51.63	1.9	9.3	10.0
Intel [2]	INTC	74.75	1.8	24.9	17.5
Ford [3]	F	52.63	1.7	3.7	4.0
AT&T [3]	T	47.31	1.7	0.9	8.0
Intl Business Machines [3]	IBM	93.25	1.6	24.3	10.5
Merck	MRK	77.25	1.4	15.5	10.0
Exxon	XON	80.25	1.4	5.1	5.5
Wal-Mart	WMT	58.88	1.3	16.5	13.0
General Motors	GM	71.06	1.3	6.4	5.0
American International Group	AIG	110.31	1.2	15.0	13.0
Bell Atlantic [3]	BEL	65.19	1.1	10.3	9.0
Chase Manhattan [3]	CMB	81.88	1.1	16.1	10.0
Royal Dutch Pet	RD	64.69	1.0	3.6	7.5
Johnson & Johnson	JNJ	105.63	1.0	14.0	11.0
Bristol Myers Squibb [3]	BMY	75.88	1.0	12.4	12.0
Bank One [3]	ONE	38.13	1.0	11.7	10.0
Procter & Gamble [3]	PG	109.00	1.0	12.0	11.0
Lucent Technologies [3]	LU	76.75	0.9	n/a	17.0
Morgan Stanley Dean Witter [3]	MWD	121.43	0.9	n/a	12.0
Fannie Mae [3]	FNM	69.56	0.9	13.7	12.0
BellSouth [3]	BLS	44.81	0.9	13.9	8.0
MCI Worldcom [2]	WCOM	88.50	0.9	30.6	27.0
Wells Fargo [3]	WFC	47.13	0.9	13.1	11.0
GTE [3,7]	GTE	76.69	0.8	7.9	8.0
First Union [3]	FTU	41.31	0.8	5.4	9.0
Hewlett-Packard	HWP	78.00	0.8	15.4	13.0
Pfizer	PFE	33.81	0.8	19.1	16.0
Coca-Cola	KO	59.94	0.8	5.4	13.0
Cisco Systems [2]	CSCO	84.75	0.7	41.3	27.0
Tyco International	TYC	44.25	0.7	35.3	17.5
Fleet Boston [3]	FLT	41.63	0.6	9.0	9.0
Du Pont	DD	62.25	0.6	4.8	8.0
Mobil	MOB	105.31	0.6	4.1	6.0
Abbott Laboratories	ABT	37.31	0.6	11.9	11.0
Lilly (Eli) & Co	LLY	75.06	0.6	17.3	13.0
American Express [3]	AXP	154.63	0.6	15.1	13.0
American Home Products	AHP	52.44	0.6	7.1	11.0
Home Depot	HD	79.94	0.5	27.5	22.0
Chevron	CHV	96.56	0.5	5.2	7.5
Allstate [3]	ALL	28.13	0.5	47.0	8.0
Boeing [3]	BA	42.57	0.5	12.4	12.0
Merrill Lynch [3]	MER	85.12	0.5	18.8	10.0
Schering-Plough	SGP	56.88	0.5	18.6	14.0
Fed Home Loan Mtg [3]	FRE	53.94	0.5	18.2	14.0
McDonalds [3]	MCD	46.12	0.5	10.9	10.0
Weighted rate			51.7%*	12.5%	11.6%

*Cumulative percent of S&P 500 EPS

Source: FactSet and PaineWebber.

2 PaineWebber Incorporated makes a market in this security.

3 PaineWebber Incorporated has acted in an investment banking capacity for this company.

6 General Electric owns over 20% of the outstanding stock of PaineWebber Group and has a representative on the board. General Electric has agreed to certain voting limitations. PaineWebber Group is the parent of PaineWebber Incorporated.

7 A director of this company acts as a consultant to PaineWebber Incorporated.