



C A M B R I D G E A S S O C I A T E S L L C

U.S. MARKET COMMENTARY

S&P 500 EARNINGS: GAZING ACROSS THE ABYSS

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S&P 500 Earnings: Gazing Across the Abyss

At its heart, asset valuation involves assigning a present value to future cash flows: What price am I paying today for tomorrow's earnings? In our valuation work, instead of trying to forecast next year's profits, we are more focused on what price investors are paying today for what will likely be a sustainable level of earnings going forward. The current environment adds an additional layer of uncertainty and complexity to valuation analysis, which even under normal conditions is slightly more art than science. This comment reviews the questions surrounding earnings in the current environment, describes our process for normalizing earnings, reviews other factors (including interest rates and inflation) that influence our views on valuations, and provides our assessment of U.S. equity valuations today.

What Earnings?

The nature of the ongoing global recession, driven by a long overdue deleveraging of U.S. households (among others) and the Western financial system at large raises questions including: To what extent have past profits been ephemeral and simply driven by rising debt? What should investors expect for economic and profit growth going forward? More plainly, it remains unclear what the current level of earnings is, let alone tomorrow's.

U.S. equities have suffered mightily in the credit crisis, with the S&P 500 Index down some 57% from its 2007 peak at one point in March 2009. The hit to earnings from the crisis has been even more catastrophic; four-quarter trailing reported earnings per share (EPS)¹ collapsed 83% from second quarter 2007 to fourth quarter 2008. According to Standard & Poor's, final fourth quarter reported EPS for the S&P 500 were in the red at -\$23.25, bringing trailing four-quarter EPS for 2008 to \$14.88, the lowest level since 1987 in nominal terms (1947 in real terms!), implying decades of earnings have been wiped out. While massive losses at beleaguered insurer AIG accounted for 31% of the fourth quarter EPS losses, 138 S&P constituents reported negative earnings for the fourth quarter, highlighting how the pain has spread from the "financial" to the "real" economy.²

The collapse in earnings has sent traditional trailing price-earnings (P/E) ratios through the roof despite sharply falling equity prices, with record-high P/E ratios of 60.7 at the end of December and 45.5 at the March 9 low of 677 (based on fourth quarter 2008 final trailing EPS). The massive losses in the fourth quarter will make trailing reported EPS figures misleading and irrelevant over the rest of 2009. For example, while S&P estimates that quarterly EPS will be positive each quarter in 2009 at \$7.54, \$6.46, \$7.17, and

¹ This is the traditional earnings per share measure for the S&P 500 with official S&P history back to 1936. These reported EPS are earnings including all charges except "extraordinary items" as defined by U.S. generally accepted accounting principles (GAAP).

² Indeed, every S&P sector save consumer staples, health care, and utilities posted negative EPS for fourth quarter 2008.

\$7.48, respectively, if accurate this still implies that by third quarter 2009 four-quarter trailing EPS will be -\$2.08, the lowest and only negative four-quarter EPS on record (Table A). Based on such estimates, trailing P/E ratios will soon climb into the thousands and eventually turn negative.

Clearly, such earnings figures have been heavily influenced by financial sector write-downs and other corporate charges. While we are skeptical of the common Wall Street practice of focusing on operating earnings (which exclude write-offs and other non-core charges) due to their susceptibility to manipulation, today such measures can prove useful.³ Even on an operating basis, the news is not good. Operating earnings were negative in the fourth quarter at -\$0.09, bringing 2008 operating EPS to \$49.51, their lowest level since 2003 and down nearly 50% from their second quarter 2007 peak level of \$91.47. The current difference between reported and operating earnings—the so-called “GAAP gap”—is the largest since operating earnings appeared in the early 1980s (Tables B–D).

While the decline in earnings has been savage, the stock market today is clearly focused on *next year's earnings*, as it tries to look beyond the current losses in anticipation of future profits, having already discounted much of the current pain.

Looking forward, calendar year 2009 reported EPS are expected to rise to \$28.65 as last December's losses eventually fall out of the trailing figure. This calculation will leave EPS improved, but at their lowest level since 2002, assuming of course that S&P's current estimates do not prove too optimistic (Table A). Even on this basis, at the end of June the S&P traded at a P/E ratio of 32.1, not cheap by any means, while based on S&P's estimates of 2010 reported EPS of \$37.81, the market traded on a P/E of 24.3.

Forward operating earnings, based on bottom-up analyst forecasts, call for operating EPS of \$55.61 in 2009 and \$74.10 in 2010, implying the S&P at the end of June traded at “forward” P/E ratios of 16.5 and 12.4, respectively, ratios that are low relative to history. Meanwhile, less optimistic top-down estimates for operating earnings provided by S&P of \$43.03 for 2009 and \$46.60 for 2010 imply a 13% decline in operating EPS for 2009 and 8% growth in 2010, putting the market at prospective P/Es of 21.4 and 19.7, respectively, levels that are not quite so compelling.⁴

Table E summarizes various estimates of forward earnings and their respective P/E ratios. And herein lies the problem for investors today. With a range of EPS estimates from \$29 to \$74, how does one effectively value a market with such uncertainty around underlying fundamentals? Are operating earnings a better reflection of reality, or are they too optimistic, possibly ignoring what may be permanent losses? What

³ Please see our September 2002 Market Commentary *Making Sense of U.S. Equity Earnings*. As investment manager John Hussman recently remarked, “Investors may not fully understand the term ‘operating profit.’ Citigroup could burst into flames while Vikram Pandit sells lemonade in the parking lot, and Citi would still post an operating profit. Operating profits exclude what happens on the balance sheet.”

⁴ The difference between “bottom-up” and “top-down” estimates is that the former builds up an aggregate EPS estimate from average analyst forecasts for each company, while the latter is based on financial models that incorporate economic and other factors to derive an earnings figure. Bottom-up estimates have historically overestimated earnings.

level of earnings is sustainable? These questions, which heavily influence one's perception of value today, have no easy answer.⁵

Normalizing Earnings

While forward earnings are useful to get a sense of what expectations are priced into the market, they are also always in flux, and have historically proven overly optimistic and vulnerable to revision. Part of the heavy selling in early 2009 was due to the massive downgrading of earnings expectations for the upcoming year. Data are now “surprising” on the upside relative to these sharply downgraded expectations, which has played a role in spurring the recent rally.

Of particular concern to us is that although EPS have collapsed and on the surface seem “depressed,” the decline has been driven almost entirely by financial sector losses and is just beginning to spread meaningfully across other sectors (Table F). Thus, the scope for further earnings losses remains. Bottom-up analysts' expectations for 2010 seem aggressive at \$74, implying a return to early 2008 operating earnings levels.

In our valuation work, instead of trying to forecast next year's profits, we are more focused on what price investors are paying today for what will likely be a sustainable level of earnings going forward. Given the volatile nature of earnings, profit margins, and return on equity (ROE), all of which are clearly cyclical and mean-reverting, we seek to base our valuation measures on normalized earnings, or the level of earnings investors should expect over a full business cycle, adjusted for reversion to the mean.

We “normalize” earnings in three main ways:

- *Ten-year average inflation-adjusted earnings*: The average of quarterly earnings over the past ten years, which incorporates a full business/profit cycle of both peak and trough profits. This metric smoothes out short-term impacts on EPS and represents a reasonable expectation for a sustainable level of earnings.
- *Trend-line earnings*: The level of earnings determined by a simple linear-trend regression model based on historical real EPS growth. Earnings always revert to trend over a full profit cycle, thus trend-line earnings provide a steady measure toward which profits should gravitate.

⁵ Further complicating the picture is the fact that other equity index providers are reporting EPS and P/E ratios that look radically different from those based on S&P data. Most index providers adjust reported earnings for nonrecurring and extraordinary items. For example, the MSCI U.S. Index reports trailing EPS for March 31, 2009, of \$51.92; due to the inherent lags in company reporting, this reflects fourth quarter 2008 earnings rather than first quarter 2009. This figure is much closer to the \$50 per share S&P operating earnings than the \$15 per share reported earnings, even taking into account that these indices have slightly different constituents. Thus the P/E ratio for the MSCI U.S. Index was 14.6 at the end of March, compared to 53.6 for the S&P 500 (based on fourth quarter 2008 trailing EPS), despite a 99.7% correlation between returns for these indices since 1970. The Russell 1000® Index of large-cap U.S. equities also reported a March 31 P/E ratio of 14.4, with implied index EPS of \$57.89.

- *ROE-adjusted earnings*: The level of earnings generated by corporate assets compounding at their historic level of profitability. ROE is very cyclical, and earnings and P/E ratios should be adjusted for when ROE is both above and below its long-term average. This measure will show a more favorable P/E ratio when ROE is depressed (and therefore likely to rise) and a more expensive P/E when ROE is elevated relative to history (and likely to decline).

These metrics provide a stable estimate of underlying earnings, but they are still dependent on historical data and influenced by the recent past. If the past several years were indeed an aberration and future growth is to be much lower, our “sustainable” earnings estimates may be inflated and overstate current value. With that in mind, we can further adjust current normalized EPS to gain a better sense of where these measures may stabilize in the future, recognizing that this exercise is fraught with possible error.

Ten-Year Average Real Earnings

Ten-year average real EPS currently stand at \$55.28, well above current trailing operating EPS. However, this figure would fall to \$52.86 by the end of 2009 and \$50 by the end of 2010 should S&P’s reported EPS estimates prove near the mark.⁶ Even assuming *0% growth* in annual earnings over 2011 and 2012, ten-year average EPS would remain around \$50.

Trend-Line Earnings

Looking at trend-line earnings, we achieve similar results for analysis based on both the post-1950 and post-1900 periods. Including S&P annual EPS estimates for 2009 and 2010, trend EPS could be expected to reach \$49 to \$50 by 2012. This occurs even though the long-term trend rate of EPS growth shifts lower. Trend-line analysis is somewhat beginning- and end-point sensitive, in that the regression line can shift in response to new data points. For example, based on the period 1950–2006, real EPS grew at 1.6% trend rate (an average annual compound rate of 2.5%), implying 2012 trend EPS of \$58.6. However, including the 2007–10 data points shifts the trend growth rate to 1.3%, implying 2012 EPS of \$49.6.

ROE-Adjusted Earnings

Given that S&P does not publish timely book value data, we typically use the MSCI U.S. Index to calculate ROE-adjusted P/E ratios for U.S. equities.⁷ ROE-normalized EPS based on MSCI data were \$61.85 at the end of March. However, this is based on an average ROE of 14.3% for the post-1974 period, which may be elevated due the growing influence of the financial sector. Given reduced leverage in the financial sector and possibly a period of lower overall corporate margins going forward (due to possible higher taxes,

⁶ What about operating earnings? We are reluctant to use “normalized” operating earnings as, these measures in a sense already make offsetting adjustments and have historically been biased upward relative to reported EPS, a bias that has grown since the late 1990s when “earnings management” came into vogue. For example, from 1984 to 1999, S&P operating earnings were on average 10% higher than reported EPS, compared to a 25% upward bias over 2000–07. Current ten-year average real S&P operating EPS stand at \$67.81, a number that seems unduly high.

⁷ Using the MSCI data also allows us to make consistent comparisons with ROE-adjusted P/Es for non-U.S. markets.

policies favoring labor over capital, etc.), a lower level of ROE seems appropriate.⁸ If we assume ROE shifts downward to 12% on a sustained basis (similar to long-term ROE in most other developed equity markets),⁹ then current ROE-adjusted EPS fall to \$52.03, in line with our other estimates.

In summary, it would seem that EPS in the low \$50 range is a reasonable estimation of normalized earnings in the current environment, a level that *appears* neither overly pessimistic nor optimistic (although may turn out to be so!).

What does this analysis tell us about market valuation today? Based on the assumption of sustainable earnings of \$50 per share:

- At the March 9 low of 677, the S&P traded at a P/E ratio 13.7, 0.3 standard deviation below its long-term normalized mean of 16.0, or in the 46th percentile of P/E ratios since 1910.¹⁰
- With the S&P 500 hovering around 900 over May and June (roughly where the index ended 2008), the market trades on a P/E ratio of 18.0, or 0.3 standard deviation *above* average, the 68th percentile of historical P/Es.

The main conclusion to draw is that by early March, U.S. equities were attractively priced, although not deeply undervalued. Following a market rise of over 40%, valuations today seem less compelling. However, even at a P/E ratio of 18, U.S. equities remain in what we would consider to be the upper end of the fair value range. Of course, our estimate of sustainable earnings could be way off the mark, with the S&P perhaps trading on more favorable P/E ratios.

What About the Level of Interest Rates and Inflation?

Many investors are skeptical of the concept that there is a static “fair value” P/E, arguing that the level of interest rates and inflation determines the fair value at any point in time. When interest rates are low, the market can theoretically support a higher multiple than when interest rates are high. Our dividend discount model (DDM), which calculates the intrinsic value of the market based on discounting the present value of future dividends, allows us to gauge the impact of interest rates and offers a second source of confirmation for our valuation analysis (Table G).

Our model indicates that the S&P 500 was undervalued in early March, but is now fairly valued. However, DDMs are highly sensitive to changes in interest rates and the assumed “equity risk premium,” or the compensation investors demand over bond returns. Thus, fair value fluctuates sharply depending on these two inputs, and it is unclear today what level of long-term Treasury yields is appropriate going forward.

⁸ While ROE is calculated as net income over net equity (book value), it can also be arrived at via the Dupont analysis of ROE = profit margins * asset turnover * leverage.

⁹ The historical ROE for the S&P Industrials (which excludes financials) is also roughly 12%.

¹⁰ Percentiles are calculated on the basis of 0 being the best and 100 being the worst.

- In early March—based on our normalized EPS of \$50, an equity risk premium of 4.0% (which is roughly the long-term average ex post equity risk premium since 1900), and the prevailing 30-year Treasury bond yield of 3.50%—the model generated an implied index level of 1,113 (with an implied fair value P/E ratio of 22), compared to the S&P 500's March 9 close of 676, implying the market was 39% undervalued.
- Using the 30-year Treasury rate of 4.5% seen in late June, the model implies fair value today of 798, leaving the S&P at 919 some 15% above implied fair value. Coincidentally, the fair value level of 800 for the S&P is consistent with a long-term multiple of 16 and normalized earnings of \$50 ($\$50 * 16 = 800$).
- On the other hand, should long-term Treasury yields rise another 50 basis points to 5.0%, fair value would fall back to 699 (with an implied fair value P/E ratio of 14) leaving the S&P at 900 some 32% overvalued.

Of course, the higher Treasury yields rise, the lower the present value of future earnings, and the lower the fair value of the market, but only if the equity risk premium remains constant. Indeed, some argue that the majority of the early rise in a market rally is attributable to a declining equity risk premium, as investors become more optimistic about the long-term outlook.

The current rally seems predicated on the view that a deep depression will be avoided, and that we may be approaching the nadir of the outright economic contraction. This poses an interesting trade-off—avoiding deflation today at the risk of higher future inflation. If rising interest rates become more a function of inflation fears, rather than improving growth conditions (which would be reflected in a falling equity risk premium), the implications are more negative for equities.

Table H shows the relationship between normalized real P/E ratios and ten-year average inflation. All secular market lows occur during major disruptions in prevailing price stability; in other words, rock bottom valuations have occurred amid extreme inflation or extreme deflation, with the former more deadly to equities than the latter. Tables I and J show the average P/E ratio amid different inflation percentiles and ranges. Only at the tails of the 5th and 95th percentiles do *average* P/E ratios fall to 10 or below. Low and steady inflation or even mild deflation is consistent with P/E ratios at current levels. If the Federal Reserve is successful in avoiding deep deflation and stabilizing growth without a sharp increase in inflation, P/E ratios of between 16 and 20 are justified historically. But if price stability is not maintained, today's multiples have more to fall.

Could Earnings Growth Surprise on the Upside?

A final factor in assessing current valuations is the potential for earnings growth. Higher P/E multiples can also be justified if earnings are poised to rebound, thus allowing the market to “grow” into its

current valuation (the rise in EPS offsets the future contraction in P/E multiples). Historically, nominal earnings have grown at a 5% annualized rate, while real earnings have grown at 2%. Is it safe to assume this will persist? Ironically, while one can certainly be negative on short-term earnings growth over this year and the next, given the collapse in all manner of EPS over the past year, it is reasonable to assume earnings growth (not the level of EPS itself) will be above average *over the intermediate term*. Table K shows historical real EPS growth; Table L presents the worst earnings periods and their subsequent five-year and ten-year earnings growth.

Of striking importance today is the experience during the Great Depression. Earnings fell a cumulative 75% over 1930–32. However, subsequent five-year and ten-year earnings growth were all above average. For instance, the ten-year period following 1931 encompassed both the tail end of the deflationary spiral (1932–33) and the high unemployment and heavy government intervention of the New Deal over the rest of the 1930s, not to mention the subsequent economic relapse recession of 1937–38. Yet the five-year average real annual growth rate in earnings was 11.3% and the ten-year earnings growth rate was 4.0%. While this period was no smooth ride for equity investors, it does illustrate the point that even amid a negative fundamental outlook, earnings growth can still rebound.

Again, the DDM can be helpful in this respect by solving for the implied EPS growth priced into the market over the next ten years.¹¹ For instance, assuming an equity risk premium of 3.5% and long-term Treasury yields of 4.5%, even with the S&P at 900 the market is only pricing in annualized earnings growth of 4.6% over the next ten years, not a heroic assumption given the recent collapse in earnings, and reflective of what was seen post-1931. Again, this is not to assert that earnings will be particularly robust in the near term, but that the market is *not* assuming a return to the double-digit earnings growth of the past few years. Therefore, while we remain conservative about the *strength* of any recovery in earnings, there will be an eventual recovery in earnings.

The Bottom Line: Current Valuations

Deciphering true value in the current environment is extremely challenging. While our normalized measures point to real EPS in the range of \$50 as feasible full-cycle estimates (which are higher than current top-down operating earnings estimates), any one of our assumptions could be flawed, so we cannot put high conviction on the precise level of current valuations.

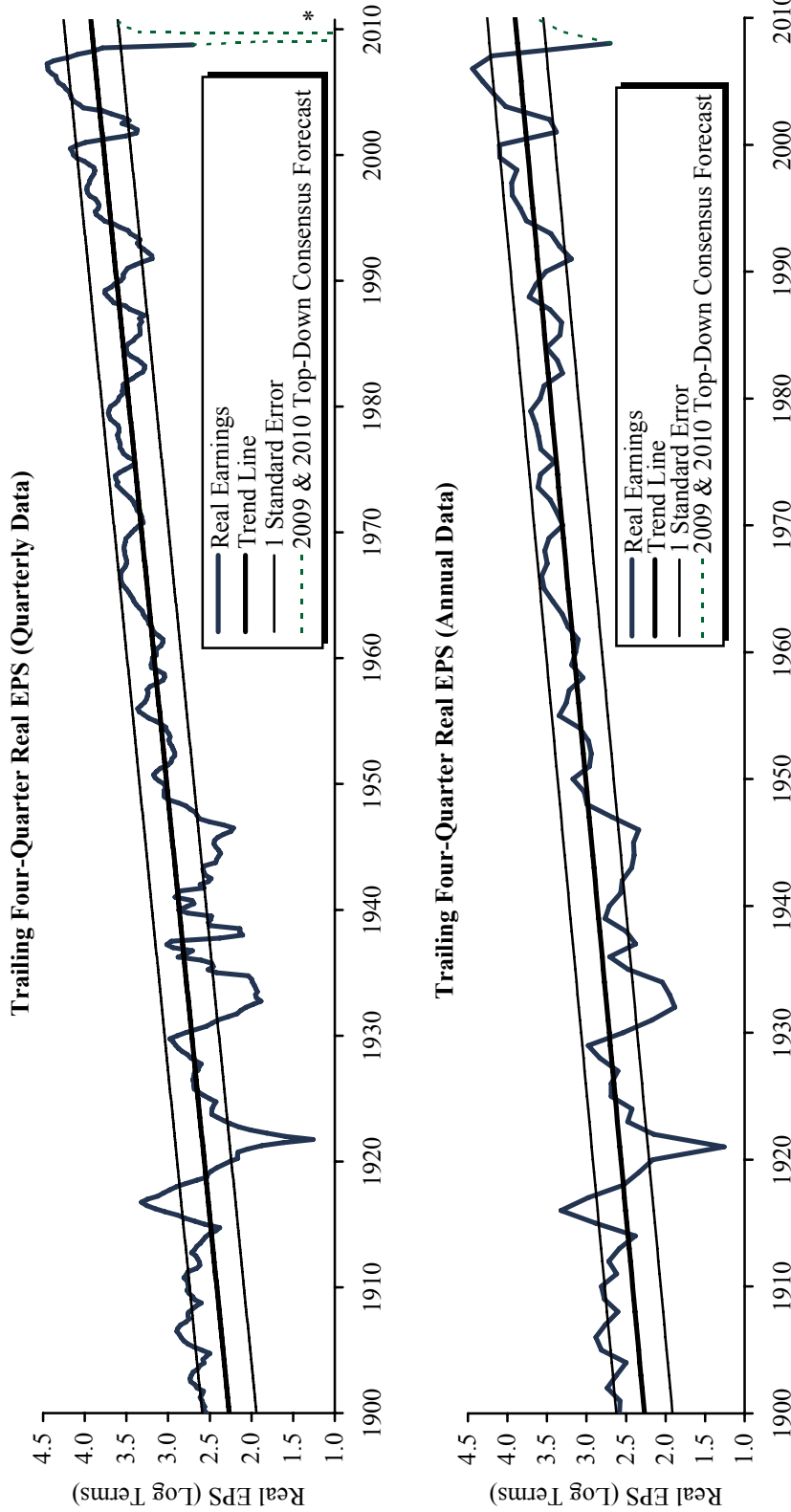
For instance, if future sustainable earnings are closer to \$70 per share, then perhaps U.S. equities did reach secular low levels of valuation back in March, with the market multiple falling below 10 and remaining cheap today. Conversely, if the market put the same multiple on EPS estimates of \$50, the S&P would need to decline below 500 to be deeply undervalued. Table M shows a range of implied S&P index levels based on assumptions of EPS and P/E multiples and shows a broad range of where we feel undervalued, fairly

¹¹ Our standard DDM assumptions are based on a long-term dividend payout ratio 55%, annualized nominal earnings growth of 5% over the next ten years, and a long-term earnings growth rate of 5% per year.

valued, and overvalued lie in the current environment. Based on our \$50 normalized EPS, fair value for the S&P is between 700 and 1,000.

Still, while we do not know at what level earnings will bottom, or what valuation investors will place on the market, we *do know* that corporate profitability will return at some point. Despite the current uncertainty surrounding earnings, we feel secure in saying that equities arguably reached the threshold of undervaluation in early March, but the current rally has clearly put U.S. equities back into the fair value range (Table N). Indeed, it seems the market may have fully discounted any tentative improvement in economic growth and earnings that may occur this year. The risk now is that both factors disappoint and fail to support the current level of valuations. In other words, despite our view that U.S. equities are fairly valued, the market may have run ahead of itself. Although valuations may not yet be flashing red, following the recent rally the market is not cheap in our opinion. Disciplined investors buy when the market is down sharply and sell when it soars. Diversify, rebalance, and repeat.

Table A
S&P 500 TRAILING FOUR-QUARTER REAL AS REPORTED EARNINGS PER SHARE (EPS)
1900-2010

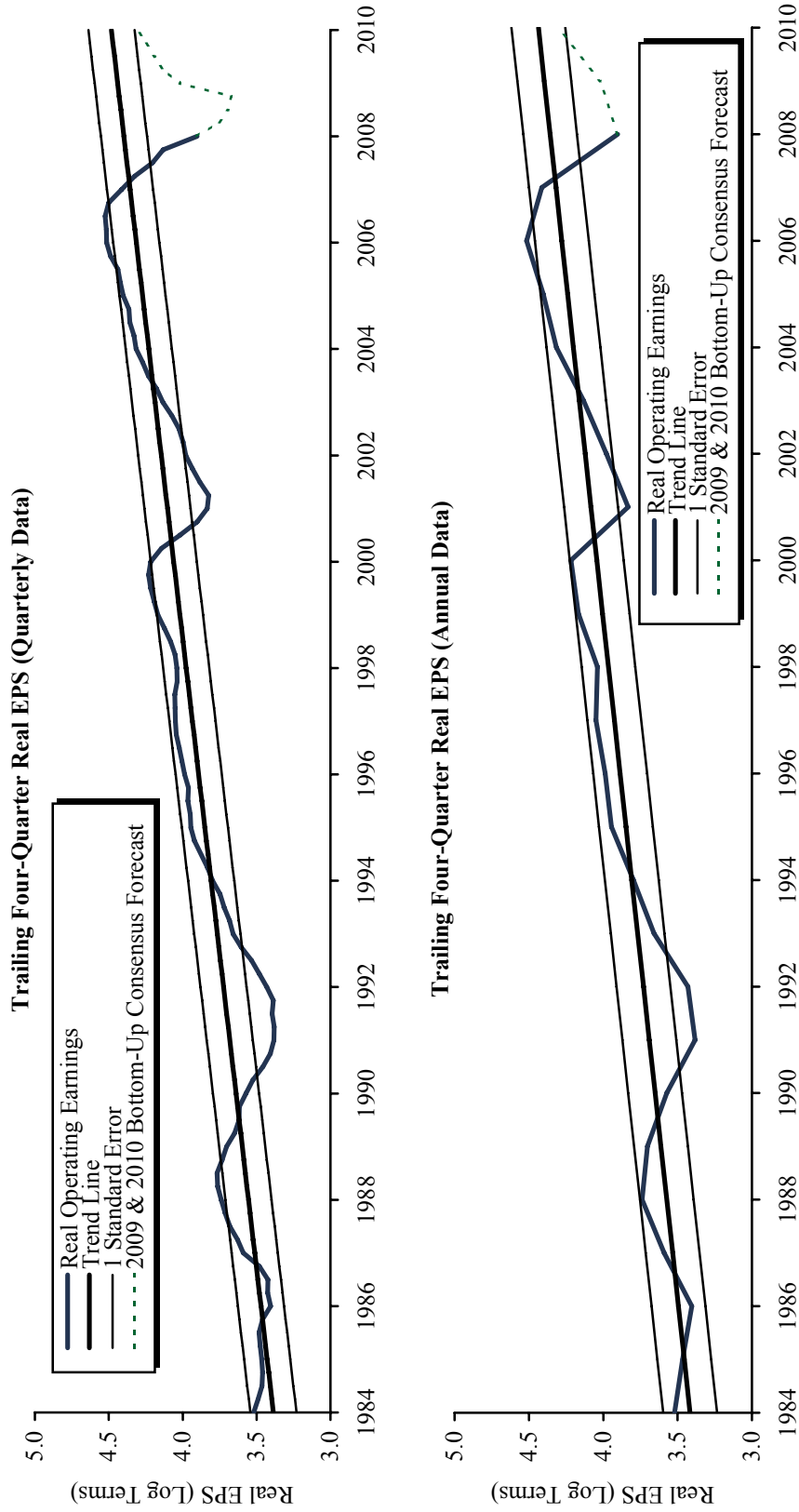


Sources: Standard & Poor's and U.S. Department of Labor - Bureau of Labor Statistics.

Notes: Top graph shows quarterly trailing real EPS, while the bottom graph shows calendar year-end real EPS. Data are shown in logarithmic terms. Real earnings are adjusted to December 2008 dollars and include 2009 and 2010 top-down consensus estimates. The trend line is based on a simple linear regression trend model.

* The third quarter 2009 trailing four-quarter estimate is a negative number.

Table B
S&P 500 TRAILING FOUR-QUARTER REAL OPERATING EARNINGS PER SHARE (EPS)
1984–2010



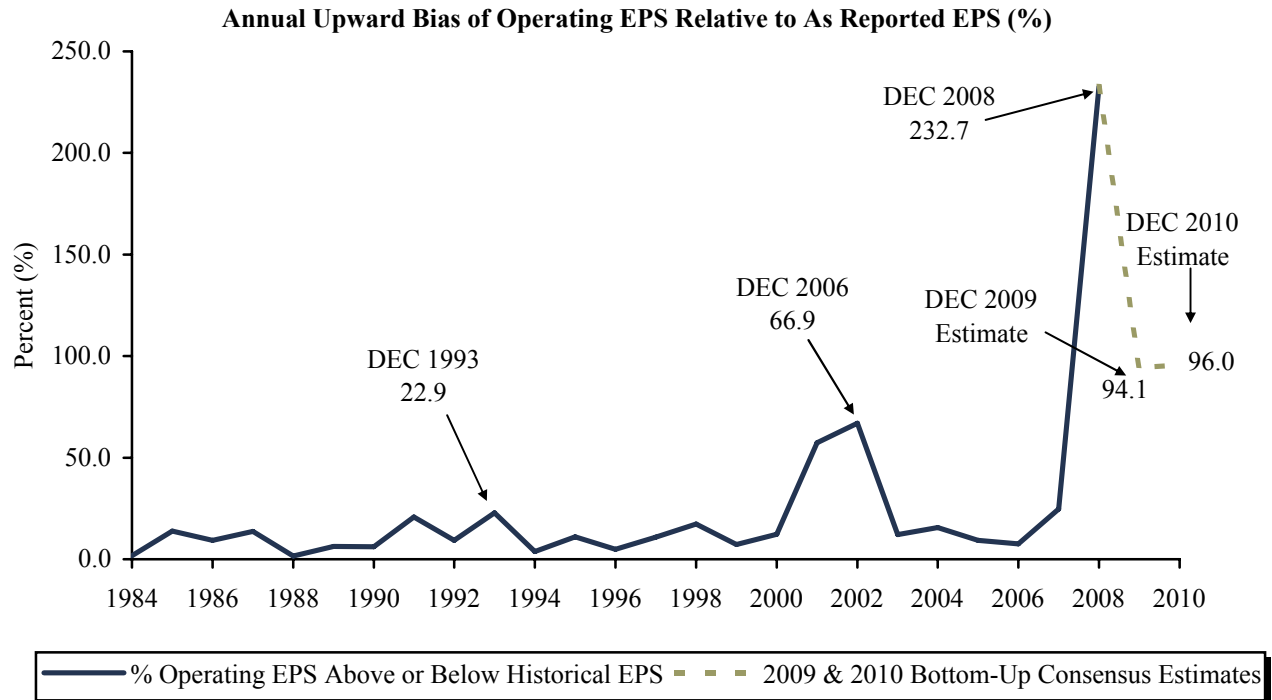
Sources: Ned Davis Research, Inc. and U.S. Department of Labor - Bureau of Labor Statistics.

Notes: Top graph shows quarterly trailing real EPS, while the bottom graph shows calendar year-end real EPS. Data are shown in logarithmic terms. Real earnings are adjusted to December 2008 dollars and include 2009 and 2010 bottom-up consensus estimates. The trend line is based on a simple linear regression trend model.

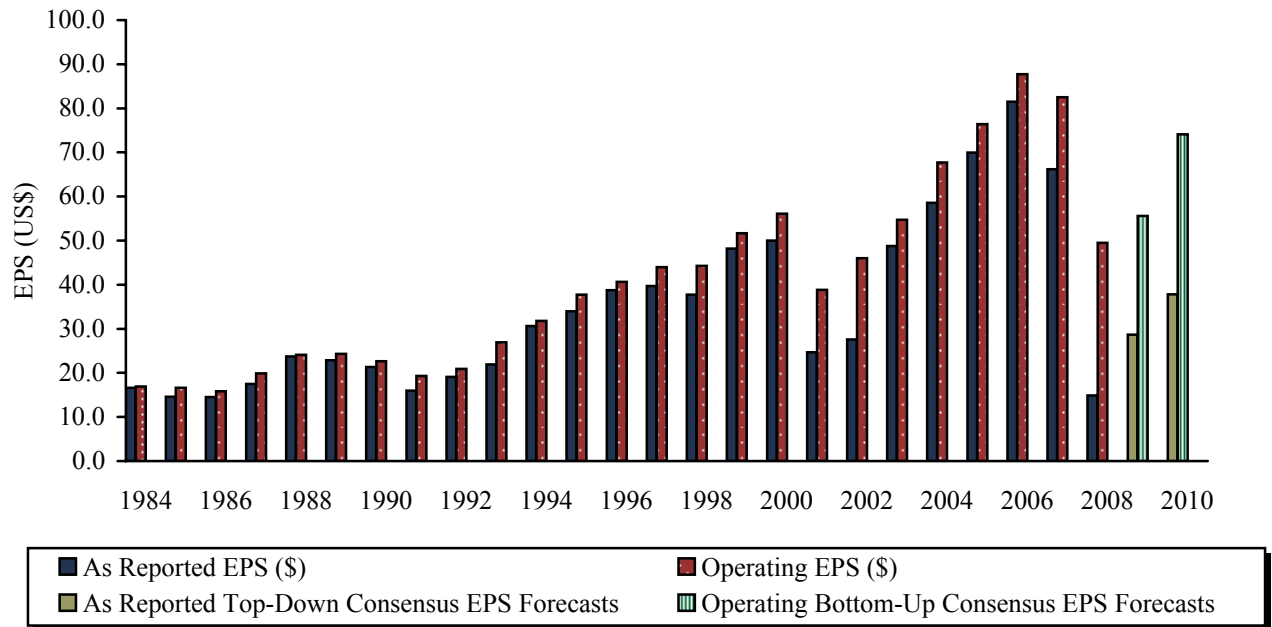
Table C

S&P 500 AS REPORTED AND OPERATING EARNINGS PER SHARE (EPS)

1984–2010



S&P 500 As Reported and Operating EPS



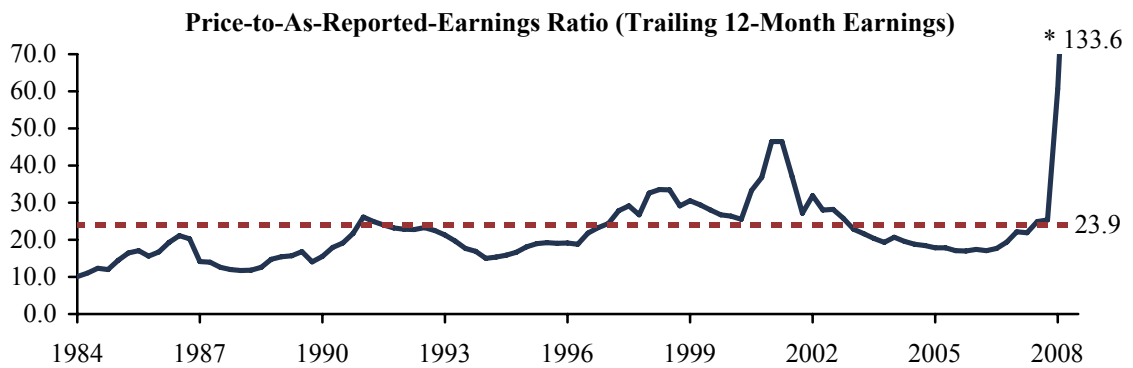
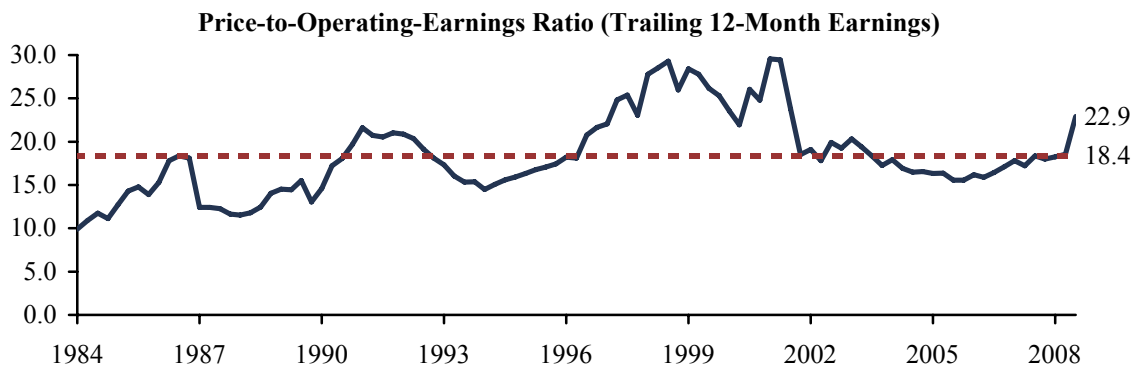
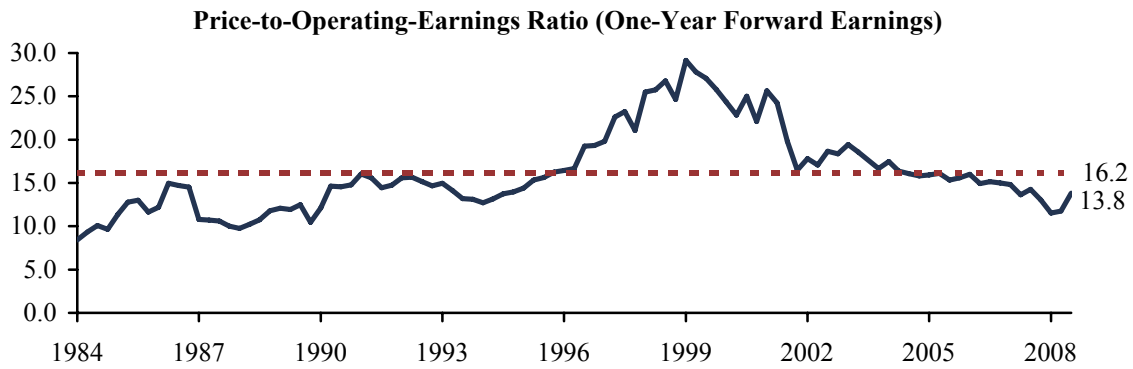
Sources: Ned Davis Research, Inc. and Standard & Poor's.

Notes: Graphs represent calendar year-end data. Data include bottom-up consensus 2009 and 2010 operating earnings estimates. Operating EPS above or below historical as reported EPS is calculated as $(\text{Operating EPS} - \text{Reported EPS}) \div \text{Reported EPS}$.

Table D

S&P 500 PRICE-EARNINGS RATIOS

December 31, 1984 – June 30, 2009



— Price-Earnings Ratio - - - Average

Sources: Ned Davis Research, Inc., Standard & Poor's, and the U.S. Department of Labor - Bureau of Labor Statistics.

Notes: Graphs represent quarterly data. Operating earnings are income from products (goods and services) and exclude corporate mergers & acquisitions, financing, layoffs, and unusual items. As reported earnings are income from continuing operations, also known GAAP.

* The June 30, 2009, price-earnings ratio has been capped for scale purposes.

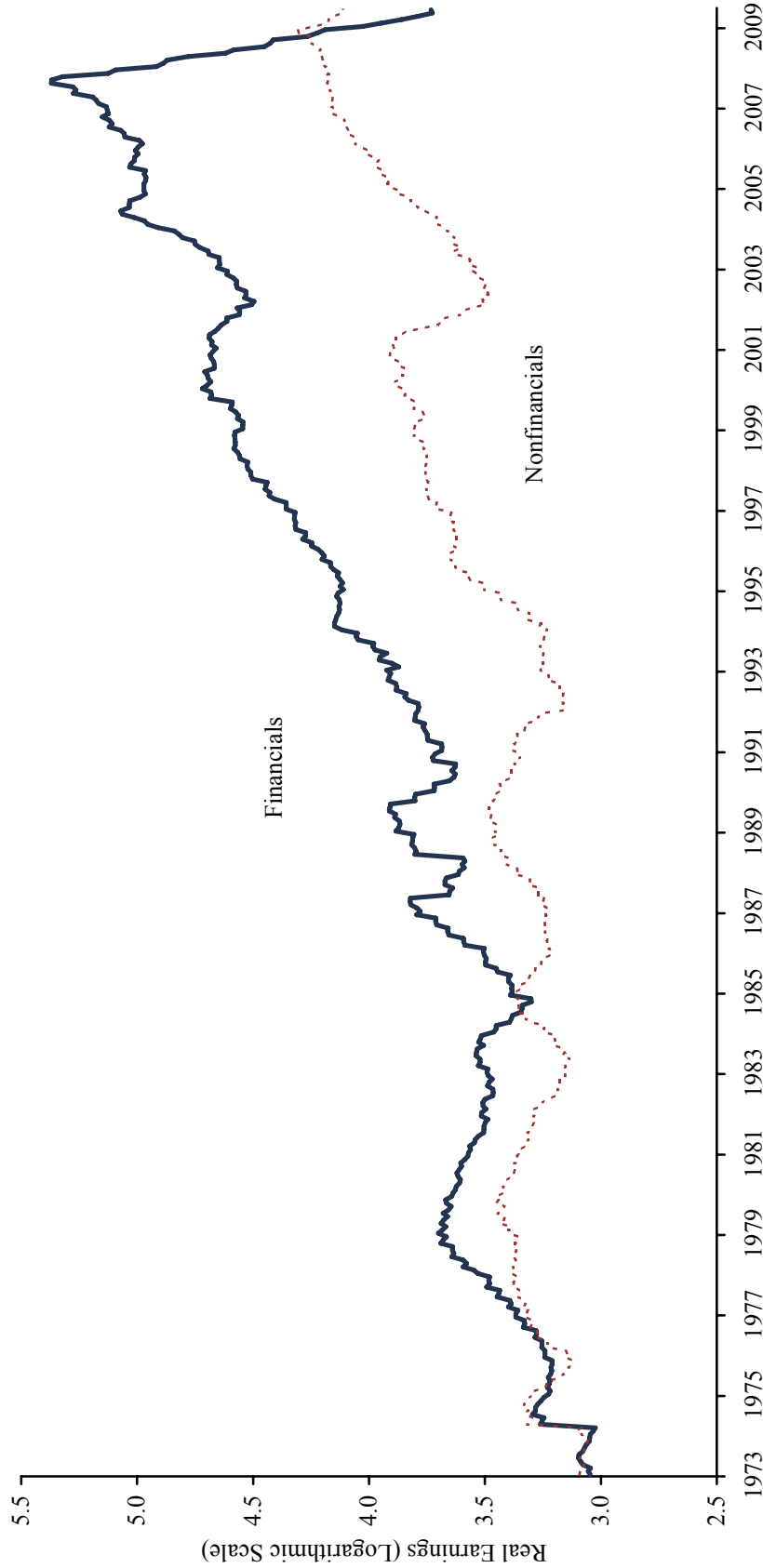
Table E**S&P 500 EARNINGS PER SHARE ESTIMATES AND ASSOCIATED
PRICE-EARNINGS RATIOS**

		<u>December 31, 2008</u>	<u>March 9, 2009</u>	<u>June 30, 2009</u>
S&P Price Level		903	677	919
2008 EPS (final)				
		P/E Ratio		
Reported EPS	\$ 14.88	60.7	45.5	61.8
Operating EPS	\$ 49.51	18.2	13.7	18.6
2009 EPS Estimates				
		Forward P/E		
Reported (S&P Top-Down)	\$ 28.65	31.5	23.6	32.1
Operating (Consensus Top-Down)	\$ 43.03	21.0	15.7	21.4
Operating (Consensus Bottom-Up)	\$ 55.61	16.2	12.2	16.5
2010 EPS Estimates				
		Forward P/E		
Reported (S&P Top-Down)	\$ 37.81	23.9	17.9	24.3
Operating (Consensus Top-Down)	\$ 46.60	19.4	14.5	19.7
Operating (Consensus Bottom-Up)	\$ 74.10	12.2	9.1	12.4
Normalized EPS				
		Normalized P/E		
Current	\$ 55.13	16.4	12.3	16.7
C A Prospective	\$ 50.00	18.1	13.5	18.4

Sources: Cambridge Associates LLC, Standard & Poor's, and Thomson Datastream.

Notes: Earnings estimates provided by S&P. Top-down estimates are derived from economic and financial models, while bottom-up estimates are the aggregation of analyst estimates for each company. Normalized earnings are the trailing ten-year average of inflation-adjusted reported EPS. C|A prospective normalized earnings are an estimate of where normalized earnings may trend over the intermediate term.

Table F
DATASTREAM UNITED STATES INDEX EARNINGS PER SHARE
January 31, 1973 – June 30, 2009



Source: Thomson Datastream.

Notes: Earnings data are calculated using Datastream price-earnings ratio data. Real earnings are adjusted to May 2009 dollars.

Table G**DIVIDEND DISCOUNT MODEL VALUATIONS****S&P 500 Implied Fair Value, Percentage Under/Overvalued, and Implied Fair Value P/E Ratio****March 9, 2009**

S&P 500 Price Level	676.5			
Assumed Long-Term Treasury Yield	3.5%	Equity Risk Premium		
		<u>3%</u>	<u>4%</u>	<u>5%</u>
Implied Fair Value	1,847	1,113	798	
% Under/Overvalued	-63.4	-39.2	-15.2	
Implied Fair Value P/E	36.9	22.3	16.0	

June 30, 2009

S&P 500 Price Level	919.3			
Assumed Long-Term Treasury Yield	4.5%	Equity Risk Premium		
		<u>3%</u>	<u>4%</u>	<u>5%</u>
Implied Fair Value	1,113	798	622	
% Under/Overvalued	-17.4	15.3	47.7	
Implied Fair Value P/E	22.3	16.0	12.4	

June 30, 2009

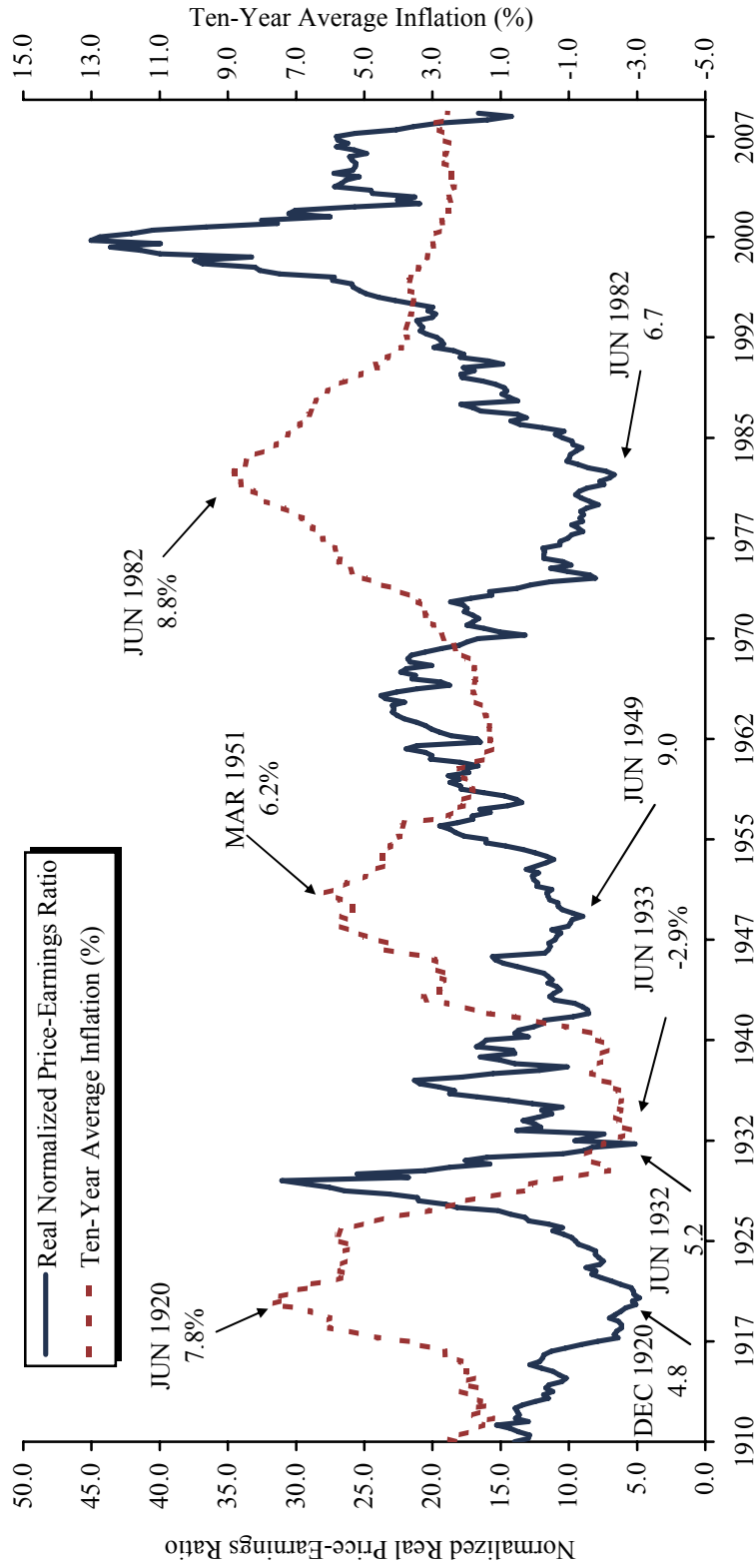
S&P 500 Price Level	919.3			
Assumed Long-Term Treasury Yield	5.0%	Equity Risk Premium		
		<u>3%</u>	<u>4%</u>	<u>5%</u>
Implied Fair Value	929	699	561	
% Under/Overvalued	-1.0	31.5	63.9	
Implied Fair Value P/E	18.6	14.0	11.2	

Other Key Assumptions

Long-Term Dividend Payout	55%
Long-Term EPS Growth	5%
Next Ten-Years' EPS Growth	5%
Assumed Normalized EPS	\$50

Sources: Cambridge Associates LLC, Standard & Poor's, and Thomson Datastream.

Table H
S&P 500 NORMALIZED REAL PRICE-EARNINGS RATIOS AND TEN-YEAR AVERAGE INFLATION
1910-2009



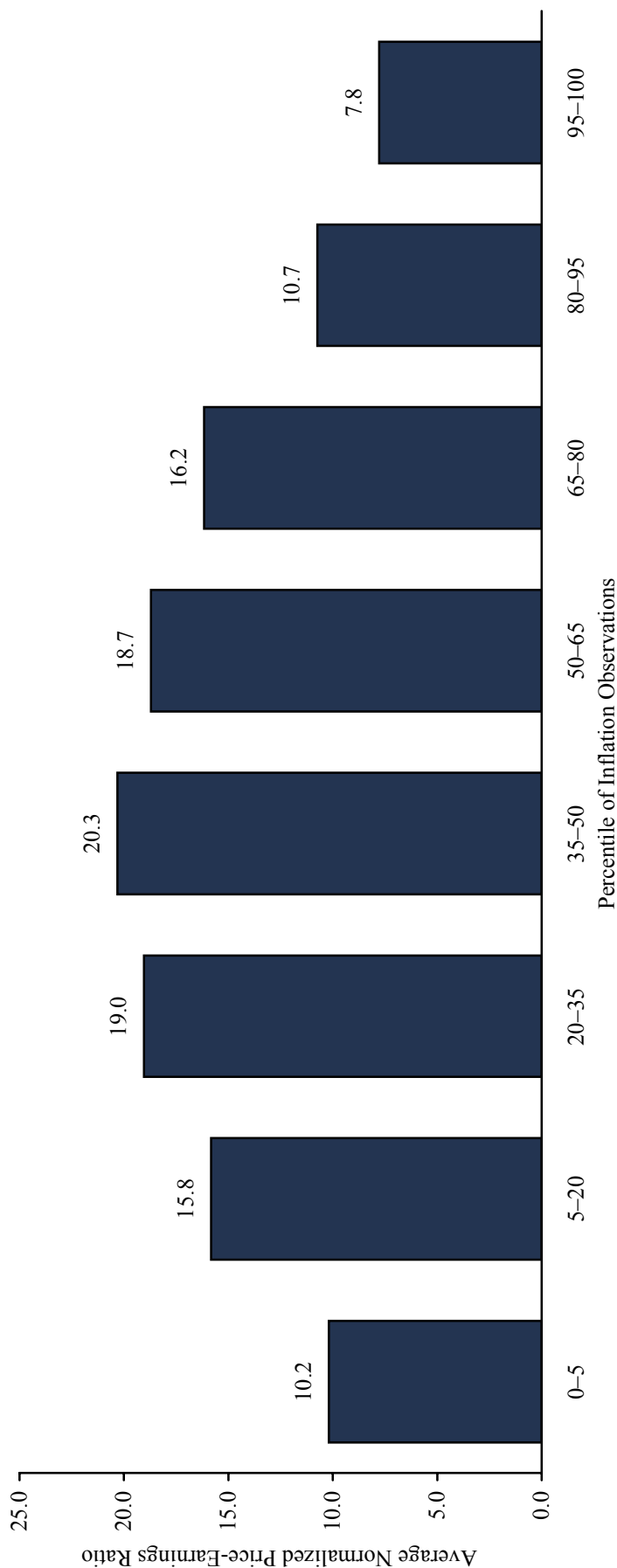
Sources: Standard & Poor's and U.S. Department of Labor - Bureau of Labor Statistics.

Notes: Graph represents quarterly data through June 30, 2009. CPI-U data are as of May 31, 2009. Earnings are as of March 31, 2009, and are preliminary. Normalized real price-earnings ratios for the S&P 500 are calculated by dividing the current index value by the trailing ten-year average of real earnings.

Table I

NORMALIZED PRICE-EARNINGS RATIOS AND INFLATION

First Quarter 1910 – Fourth Quarter 2008



	Lowest Inflation				Highest Inflation			
	0-5	5-20	20-35	35-50	50-65	65-80	80-95	95-100
Percentile (396 observations)								
Range of Annual Inflation	(15.8) – (6.4)	(5.1) – 0.7	0.7 – 1.8	1.8 – 2.8	2.8 – 3.7	3.8 – 6.0	6.0 – 12.7	13.1 – 23.7
Number of Observations	19	60	59	60	59	59	60	20
Range of Normalized Price-Earnings Ratios	5.2 – 17.6	7.6 – 31.0	7.7 – 43.6	4.8 – 45.0	7.5 – 42.1	7.3 – 44.4	5.3 – 17.4	5.1 – 11.5

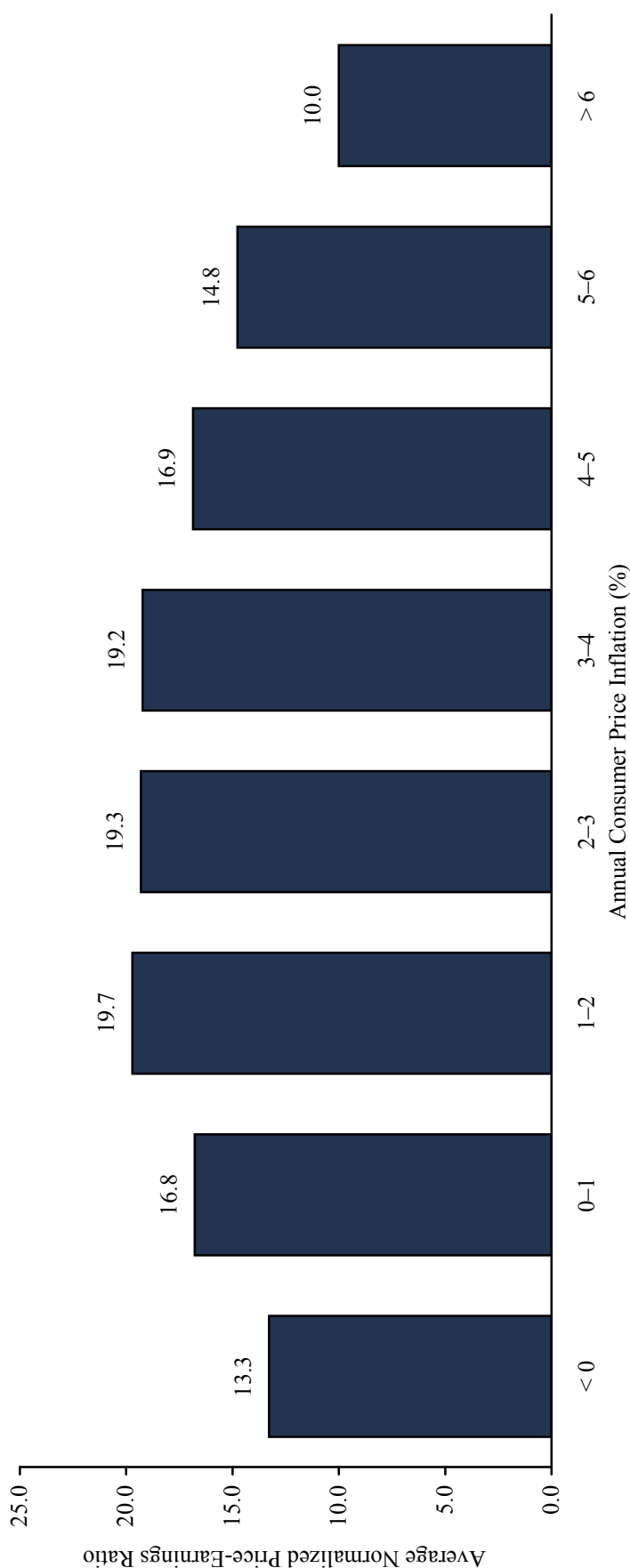
Sources: Standard & Poor's and U.S. Department of Labor - Bureau of Labor Statistics.

Notes: Normalized real price-earnings ratios for the S&P 500 are calculated by dividing the current index value by the annualized average real earnings for the trailing ten years. Inflation data are represented by CPI-U.

Table J

NORMALIZED PRICE-EARNINGS RATIOS AND INFLATION

First Quarter 1910 – Fourth Quarter 2008



Inflation (396 observations)	< 0	0-1	1-2	2-3	3-4	4-5	5-6	> 6
Range of Normalized Price-Earnings Ratios	5.2 – 27.6	8.0 – 31.0	7.7 – 43.6	4.8 – 45.0	7.5 – 44.4	9.0 – 25.6	7.3 – 21.4	5.1 – 17.4
Number of Observations	56	32	60	67	52	30	19	80
Percentage of Observations	14.1%	8.1%	15.2%	16.9%	13.1%	7.6%	4.8%	20.2%

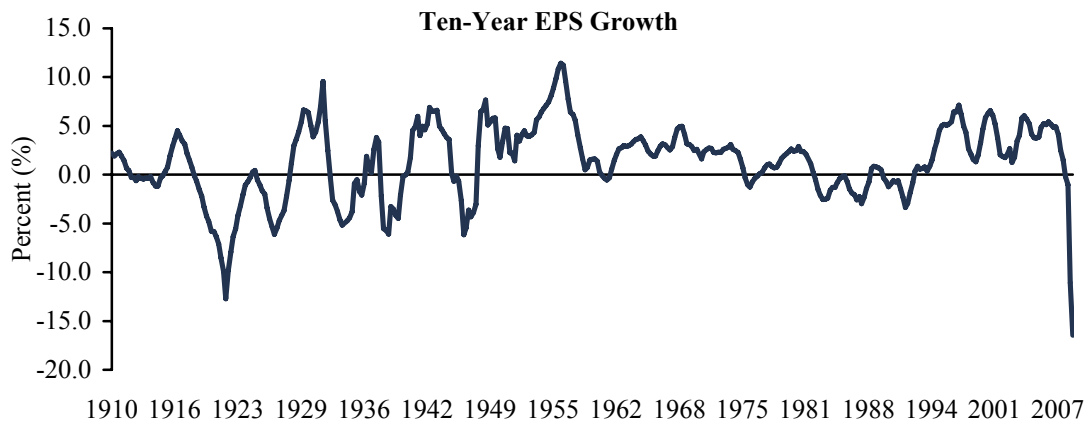
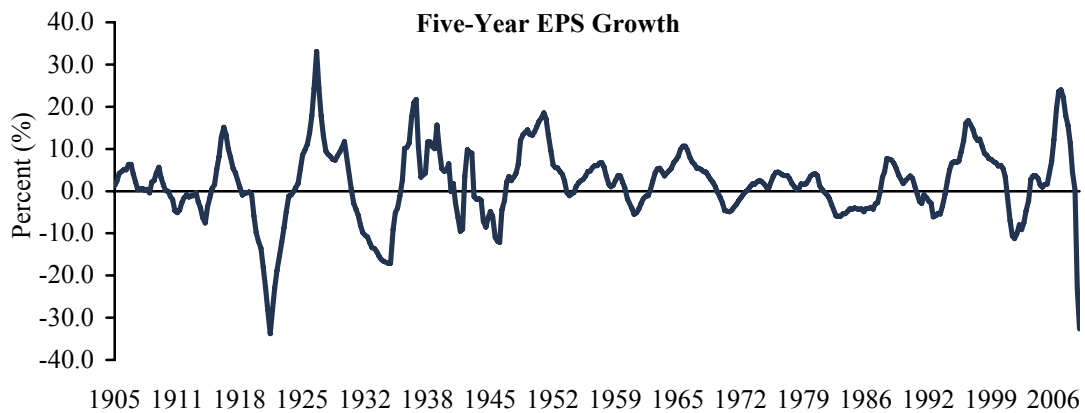
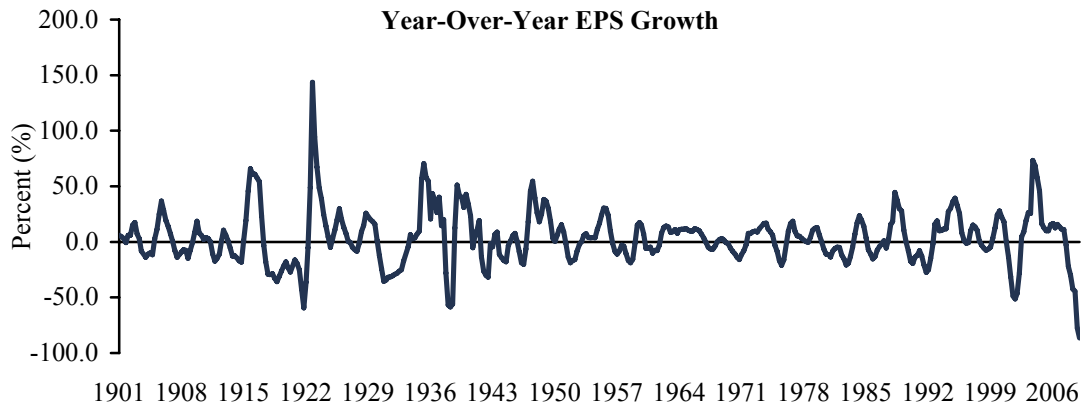
Sources: Standard & Poor's and U.S. Department of Labor - Bureau of Labor Statistics.

Notes: Normalized real price-earnings ratios for the S&P 500 are calculated by dividing the current index value by the annualized average real earnings for the trailing ten years. Inflation data are represented by CPI-U.

Table K

S&P 500 REAL EARNINGS PER SHARE GROWTH

1901–2009



Source: Standard & Poor's.

Notes: Table uses quarterly data. Rolling periods longer than one year represent the average annual compound growth rate.

Table L

25 WORST REAL EARNINGS PER SHARE GROWTH PERIODS AND SUBSEQUENT GROWTH

1900–2008

Date	Worst Calendar Years			Worst Five-Year Periods			Worst Ten-Year Periods		
	Calendar Year Growth	Subs Five- Year Growth	Subs Ten- Year Growth	Trailing Five- Year Growth	Subs Five- Year Growth	Subs Ten- Year Growth	Trailing Ten- Year Growth	Subs Five- Year Growth	Subs Ten- Year Growth
2008	-77.5	---	---	-33.8	33.1	9.6	-12.7	33.1	9.6
1921	-59.3	33.1	9.6	-23.2	---	---	-11.1	---	---
2001	-51.4	23.7	---	-17.1	15.7	3.6	-6.1	11.1	3.9
1918	-35.8	-1.1	3.0	-16.2	11.7	4.9	-5.5	-9.8	0.2
1930	-35.6	-1.3	1.7	-15.3	9.5	-2.6	-5.2	9.5	-2.6
1931	-30.7	11.3	4.0	-13.6	11.1	3.9	-4.3	11.7	4.9
1917	-29.2	-15.3	-3.7	-13.4	10.4	6.9	-3.8	1.8	6.6
1937	-28.1	3.5	3.0	-10.6	23.7	---	-3.7	15.7	3.6
1991	-27.4	16.1	1.9	-9.8	11.3	4.0	-3.6	-13.4	-2.2
1932	-25.1	10.4	6.9	-9.1	15.6	---	-3.4	13.3	9.6
1982	-20.7	3.2	0.4	-7.5	-0.9	0.4	-3.3	16.1	1.9
1951	-18.9	6.1	1.5	-7.2	13.5	7.1	-2.6	-1.4	5.1
2007	-18.8	---	---	-5.9	16.6	9.9	-2.6	10.4	6.9
1914	-18.3	-0.9	0.4	-5.9	3.2	0.4	-2.4	-2.4	6.4
1919	-18.0	1.8	6.6	-5.3	7.3	0.8	-2.2	7.3	0.8
1911	-17.5	15.1	-12.7	-5.3	8.9	5.8	-2.1	3.5	3.0
1975	-16.3	3.7	-0.7	-5.1	15.1	-12.7	-2.1	-7.2	2.6
1920	-16.2	11.1	3.9	-4.9	3.6	5.2	-2.0	4.9	-0.7
1970	-15.9	2.2	2.9	-4.6	2.2	2.9	-1.5	-2.9	-2.1
1958	-15.7	5.4	5.0	-4.5	13.3	9.6	-1.4	3.2	0.4
1985	-15.4	3.6	5.2	-4.3	-2.4	6.4	-1.3	-2.4	5.0
1908	-14.9	-0.4	-0.7	-4.1	8.3	1.6	-1.2	3.7	-0.7
1941	-13.5	-4.5	4.0	-4.0	2.8	2.6	-1.1	-0.9	0.4
1913	-12.7	-1.0	-1.1	-3.8	4.2	1.7	-0.8	7.3	-5.2
1990	-12.1	6.8	6.1	-3.0	9.7	2.7	-0.7	2.8	2.6
Average	5.8	5.8	2.1	Average	10.3	3.4	Average	4.8	2.5
Max	33.1	33.1	9.6	Max	33.1	9.9	Max	33.1	9.6
Min	-15.3	-15.3	-12.7	Min	-2.4	-12.7	Min	-13.4	-5.2
% Positive	69.6	69.6	77.3	% Positive	91.7	90.9	% Positive	66.7	75.0

Sources: Standard & Poor's and U.S. Department of Labor - Bureau of Labor Statistics.

Notes: Table uses calendar year data. Growth periods longer than one year represent the average annual compound growth rate.

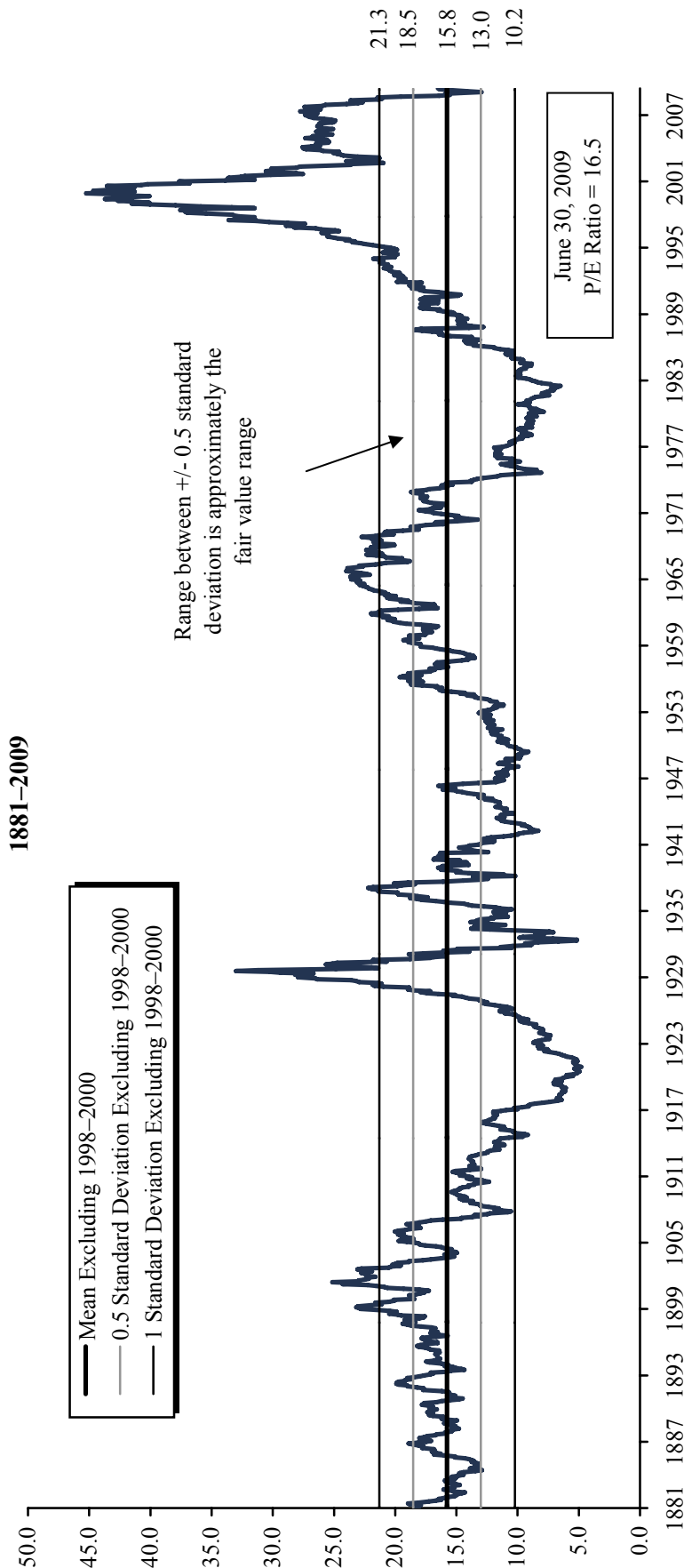
Table M
**IMPLIED S&P 500 INDEX VALUES FOR HYPOTHETICAL EARNINGS PER SHARE
AND PRICE-EARNINGS RATIOS**

S&P 500 P/E Ratio	S&P 500 Earnings Per Share (US\$)											
	25	30	35	40	45	50	55	60	65	70	75	80
						Undervalued						
6	150	180	210	240	270	300	330	360	390	420	450	480
8	200	240	280	320	360	400	440	480	520	560	600	640
10	250	300	350	400	450	500	550	600	650	700	750	800
12	300	360	420	480	540	600	660	720	780	840	900	960
						Fairly Valued						
14	350	420	490	560	630	700	770	840	910	980	1,050	1,120
16	400	480	560	640	720	800	880	960	1,040	1,120	1,200	1,280
18	450	540	630	720	810	900	990	1,080	1,170	1,260	1,350	1,440
20	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400	1,500	1,600
						Overvalued						
22	550	660	770	880	990	1,100	1,210	1,320	1,430	1,540	1,650	1,760
24	600	720	840	960	1,080	1,200	1,320	1,440	1,560	1,680	1,800	1,920
26	650	780	910	1,040	1,170	1,300	1,430	1,560	1,690	1,820	1,950	2,080
28	700	840	980	1,120	1,260	1,400	1,540	1,680	1,820	1,960	2,100	2,240

Source: Cambridge Associates LLC.

Note: The outlined areas represent Cambridge Associates' view on the range for undervalued, fairly valued, and overvalued, respectively, in the current environment.

Table N
S&P 500 NORMALIZED REAL PRICE-EARNINGS RATIOS



Sources: Robert Shiller, Standard & Poor's, and Thomson Datastream.

Notes: The calculation of the mean and standard deviation of real normalized P/E ratios excludes the 1998–2000 period to minimize the distortion caused by the final years of the technology bubble on long-term valuation norms. Even after excluding this period, standard deviations remain somewhat elevated, with our traditional fair value parameters of 1 standard deviation around the mean containing 68.3% of the P/E observations. Therefore, we use 0.5 standard deviation around the mean to capture fair value. For more information, please see our forthcoming report *U.S. Historical Capital Market Valuations*. Graph is based on monthly data. Normalized real price-earnings ratios (Shiller P/E ratio) for the S&P 500 are calculated by dividing the current index value by the rolling ten-year average of inflation-adjusted earnings. Monthly earnings are interpolated from actual quarterly reported EPS. Real earnings are deflated in terms of May 31, 2009, dollars. Historical data before 1936 provided by Professor Robert Shiller.