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# **In Search of Certain Earnings**

## *Applying the ACE Portfolio Concept to Sectors*

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Financial Services Forum  
College of Management  
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## In Search of Certain Earnings

*Applying the ACE Portfolio Concept to Sectors*

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\*We have benefited from helpful comments from J. Clifford and Tony Rouzzo; CFAs at Reuters Stock Val.

## Abstract

Sector composites that have highly stable earnings streams allow the portfolio manager or analyst to derive “earnings certain” sector risk premiums. ACE (Approximately Certain Earnings) Sectors represent such baskets. Since sector pricing is influenced by earnings variability, obtaining risk premiums from standard sectors is contaminated. With knowledge of an EPS Stability measure, a composite engine, and the proprietary G-Model (or like DCF framework), we can discover companies within each sector that exhibit highly certain earnings. In practice, ACE Sectors can be used to derive current/historical “earnings certain” sector risk premiums, enhance sector rotation strategies, obtain sector implied growth rates, make risk adjustments for present value modeling, and construct improved valuation benchmarks.

Following Abate, Grant and Rowberry [2006], we apply the ACE<sup>i</sup> Portfolio concept to create ACE Sectors. Like the original ACE (Approximately Certain Earnings) Portfolio, ACE Sectors can be used for a variety of applications, but most importantly, they are excellent vehicles to extract “earnings-certain” sector risk premiums.<sup>ii</sup> With knowledge of our EPS stability measure, a composite engine, and the proprietary G-Model (a DCF-based framework; for applications, see Kitzelman [2004] or Rowberry [2002]), we can search for companies within each sector that exhibit highly certain earnings. In practice, ACE Sectors can be used to: (1) derive current and historical “earnings certain” sector risk premiums, (2) enhance sector rotation strategies, (3) obtain sector implied growth rates, (4) make useful risk adjustments for present value modeling, and (5) create improved valuation benchmarks.

#### The ACE Portfolio

Gould [1987, and reintroduced in 1997] pioneered the concept of The ACE Portfolio as a tool to derive an “earnings-certain” equity risk premium. He discovered that standard equity risk premia proxies were flawed for two primary reasons: (a) they normally were averages of historical values, and thus not “forward looking”; and (b) earnings variability in standard market proxies skewed risk premia calculations because price is “forward looking”; thus, it is impossible to determine what portion of equity risk premia change is due to anticipating earnings change as opposed to other macro factors. According to Gould, earnings variability impacts market pricing, so the creation of the ACE Portfolio eliminated most of the uncertainty related to earnings so a more pure prospective equity risk premium could be derived. In essence, the ACE Portfolio has “approximate earnings certainty”; therefore the derived prospective equity risk premium is not tainted by earnings uncertainty.

Specifically, Gould constructed the ACE Portfolio for the main purpose of generating an earnings certain equity risk premium. By creating an earnings certain portfolio, the market pricing associated with earnings uncertainty can be eliminated. A composite engine is used to create an equally weighted composite and then to run it through the proprietary G-Model. Market known variables used are interest rates and “approximately certain” earnings. Based on the current market price, the equity risk premium is determined. Some investment characteristics of the ACE Portfolio, including long-term price and earnings behavior and the market-implied “base (or non-diversifiable)” equity risk premium (K), are shown in Exhibit 1.

In the next section we provide an overview of the equity risk premium to the earnings certainty portfolio (ACE50), and we discuss the benefits of using ACE Portfolio concepts in investment analysis. Following that, we apply the ACE Portfolio concept to develop ACE sectors; with emphasis on the benefit of using approximate earnings certain (ACE) sectors in sector rotation, estimating implied growth rates, present value modeling, and the construction of improved sector benchmarks for relative valuation analysis. We then show how to estimate the equity discount rate for companies in the context of a sector-based, equity risk buildup approach. Finally, we conclude with some innovative financial products that could be developed using sector-based ACE portfolio concepts.

### The Base (Non-Diversifiable) Equity Risk Premium

Too often, practitioners’ assumptions for the equity risk premium are de-facto in nature. Analysts or portfolio managers apply the historical average to a valuation model. Unfortunately, the premium is usually fixed. Investors should recognize that the equity risk premium is quite

variable over time; see for example, Abate, Grant, and Rowberry [2006]. In practice, market pricing is determined by the following:

1. A risk-free interest rate
2. A base (or non-diversifiable) equity risk premium
3. Company specific risk adjustments
4. Current (near-term) earnings forecast
5. Estimation of a sustainable growth rate of earnings

By creating the ACE Portfolio, we can (largely) eliminate the variable of market pricing associated with three of the variables above: quality of earnings, current earnings level, and growth rate. The risk free interest rate is a given. We assume that current market pricing is efficient and then derive the prospective equity risk premium. The end result is a risk premium that explains what investors are demanding in order to hold equities versus the risk free interest rate. The prospective risk premium is variable over time and is a critical component of market pricing. Too many times analysts and portfolio managers discuss only one part of the overall equity discount rate, namely interest rates.

Interest rates have a definite impact on equity pricing, but are only half of the discount rate equation.<sup>iii</sup> Isolating and analyzing the interplay of the equity risk premium and interest rates allows for more focused analysis. As emphasized by Abate, Grant, and Rowberry, interest rates could be falling (rising), but a significant rise (decline) in the base (or non-diversifiable) equity risk premium can offset the perceived beneficial decline (detrimental rise) in the risk free rate. The reason interest rates are most solely used in the valuation of the market is a result of the wrong assumption that the risk premium is fixed. Exhibit 2 illustrates the long-term dynamics of the equity discount rate and current environment in the context of interest rates (5-year Treasuries), the base equity risk premium, and the overall discount rate to the ACE50 portfolio.

## ACE Portfolio Applications

Knowledge of the base equity risk premium (estimated in our portfolio analyses as the risk premium on the ACE50 portfolio) is helpful to portfolio managers and analysts in four key areas: namely, estimating market implied growth rates, tactical asset allocation, present value modeling, and relative valuation analysis. The role of the base equity risk premium in each of these areas is (briefly) described below:

### (1) Market Implied Growth Forecast

With the base equity risk premium, specific stock analysis can focus on market-implied, long-term growth implied by the current price. The market assumed growth forecast can then be tested against either the historical or projected fundamental growth rate of revenues and earnings.

### (2) Tactical Asset Allocation

A prospective equity risk premium allows for the evaluation of returns on different asset classes; stocks, versus bonds and cash. Judging the level of the equity risk premium versus its history allows the portfolio manager to determine if the market is expensive (low implied equity risk premium) or cheap (high equity risk premium).

### (3) Present Value Modeling

Present value modeling requires quality inputs. The risk-free interest rate decision is a matter of which maturity to use. The general risk premium usually presents the nebulous part of the equation. In our view, the prospective equity risk premium is the superior choice, because it is dynamic and market implied. With a starting point market discount rate that includes a refined risk premium, we believe that costs of capital rates are more reliable.



(4) As shown in Exhibit 3, the ACE Portfolio PE history represents an excellent proxy for valuation purposes. The ACE portfolio, which is composed of companies with high earnings stability, can be used to derive relative valuation metrics at the company, industry, and sector level. In this context, PE expansion or contraction can be mostly attributed to discount rate change instead of earnings variability. The S&P 500 Index, for purposes of relative valuation, is deficient because of earnings variability. Another reason the ACE Portfolio is an excellent benchmark is because it is created on an equally-weighted basis. The mainstream benchmarks suffer from being dominated by the larger companies. In our view, this market-weighted bias skews relative relationships.

#### Development of ACE Sectors

We now apply the “Approximate Certainty Equivalent” concept to standard S&P Sectors to create earnings certain sector baskets. Undoubtedly, some sectors have more certain earnings prospects in the classical sense than others. Growth sectors have more stable earnings than cyclical sectors. However, using statistical tools one can create approximately earnings certain sector proxies for even the most cyclical sectors. For the purpose of this paper, we call these ACE Sectors. The StockVal five-year EPS stability measure is used to construct these composites. The measure is simply defined as the mean estimate error percentage from a five-year least squares fit to an adjusted earnings stream. The maximum allowable mean estimate error (EPS stability) used in our sector screening analysis was 6.0%.

In practice, a mean estimate error value higher than 6.0% would have resulted in too many companies passing with variable earnings histories. A lower threshold would have been too restrictive. It is important to note that by screening on only historical earnings for the last

five years we have ignored forecast variability. For example, the last five years could have experienced very stable earnings, but forecast earnings for two years forward could move off the least square projected fit. Cyclical sectors will most likely exhibit this problem. However, for the most part, all ten S&P sectors can be transformed into “approximate certainty equivalent” earnings proxies by using well-known statistical tools.

### Role of EPS Stability Measure

Exhibits 4 and 5 illustrate the role of an EPS stability measure in our company screening within sectors. The graphs illustrate a long-term least squares fit to historical adjusted earnings per share. Alberto-Culver exhibits very low mean estimate error (high EPS Stability). For the last five years, Alberto-Culver earnings have been an almost perfect fit to the least squares’ fit. The mean estimate error (EPS Stability) has been 1.6%, indicating very stable historical earnings. In contrast, Exhibit 5 shows that National Semiconductor exhibits very high earnings instability. The mean estimate error is 295.0% (low EPS stability). Not surprisingly, some sectors had several companies pass the screen, while others have very few.

Sectors in which several companies passed the 6.0% EPS stability constraint include:

- Consumer Discretionary
- Financial
- Industrials
- Staples
- Utilities
- Healthcare
- Materials
- Technology

Sectors that had only a few companies pass include:

- Energy
- Telecom

### ACE Sector Risk Premiums

We create equally-weighted composites of the screened “approximately earnings certain” companies in each sector. The same uses of the ACE Portfolio concept can then be applied to ACE Sectors. At the sector level, the most interesting use is the concept of sector risk premiums. From each ACE sector, we can back out the implied risk premium. For example, the Consumer Staples-ACE Sector has the following known variables: interest rates and earnings or approximately certain earnings. For a sector implied risk premium, we vary the K (risk premium) until the adjusted sector price equals the model price. As shown in Exhibit 6, this is essentially a zero sector implied premium; for the Consumer Staples sector, the discount rate is 9.29%, which on November 22, 2006 was the same as the “market” (ACE50).

Not surprisingly, most sectors had a risk premium that was higher than the market (again, ACE50), while in two sectors, Energy and Telecom, investors are demanding less than the market. Exhibit 7 highlights the current market implied sector premiums on an absolute basis and relative to the general market (base) equity risk premium. The exhibit also shows the market-implied required return on equity for each sector. In the current context, the Energy-ACE Sector appears overvalued because investors are demanding less than the market risk premium. More specifically, the Energy-ACE Sector implied risk premium is  $-0.9\%$  versus the market. Investors are willing to own the sector for less prospective return than the market. It is important to note that the EPS Stability hurdle was increased to  $10.0\%$  for the Energy sector. Too few companies passed the  $6.0\%$  to make a valid benchmark.

In contrast, in the Consumer Discretionary-ACE sector, investors are demanding 1.4% in excess of the market (ACE50). The sector could be considered undervalued, or investors are expecting uncommon sector risks. Viewing and analyzing current sector-implied risk premium is useful to an extent, but much more valuable in the context of history. According to Gould:

“If  $K$  (the equity risk premium) is high relative to its historical norm, stocks are either attractive relative to bonds, or the market perceives some unusual risk for common stocks. If  $K$  is low relative to historical norms, stocks are either overpriced relative to current fundamentals and bonds are a more prudent risk-adjusted alternative, or investors for some reason are willing to hold common stocks at prospective total returns that may not appear reasonable near-term, but may be justified long-term.”

In turn, the current sector premiums can be evaluated in a manner similar to this, but without a prospective implied sector premium history the normal range cannot be determined. Normal ranges for some sectors can very well be much higher or lower than the 2.0%-4.0% base premium for the market. However, with (our) statistical tools, one can construct ACE sectors and thereby create a history of implied risk premiums. The appendix displays absolute and relative PE histories and implied sector risk premiums.

Use of ACE Sectors

Like the ACE Portfolio, ACE sectors have several benefits for investors; including enhanced sector rotation capabilities, obtaining improved sector-implied earnings growth forecasts, enhanced present value modeling, and the creation of improved sector benchmarks for relative valuation purposes. ACE Sectors benefits are (briefly) described below:

#### (1) Sector Rotation

Sector implied risk premiums allow for more disciplined sector rotation strategies. The extent of how much a sector's risk premium is higher or lower than the general market will assist portfolio managers in making sector bets. Expected sector returns can also be derived from a more specific sector risk premium. Once a history is created for each sector's risk premium, the extent of how it compares to normal values can create opportunities for over- or under-weighting sectors.

#### (2) Sector Implied Earnings Growth Forecast

The process of deriving a market implied long-term growth forecast for an individual company is useful for testing what level of growth the market is paying for. The ACE Portfolio (notably ACE50) is used to create the general prospective equity risk premium that can be applied to each equity. All factors are held constant in the valuation equation except the long-term growth rate. The growth rate is increased or decreased until the model price (from G-Model, or DCF/EVA frameworks like Grant [2003] and Abate, Grant and Stewart [2004]) equals the market price. From this exercise, we have an implied growth rate. A further refinement to the process would be to adjust the discount rate for the individual security to reflect a sector risk premium. From the sector-adjusted starting point discount rate, a market implied growth forecast could be derived.

#### (3) Present Value Modeling

Having sector-adjusted risk premiums to apply to company specific analysis can enhance present value modeling. A sector premium risk adjustment can be applied to standard market and company risk assessments. Therefore, the equity discount rate for a company can be a blend of company, sector, and market risk premiums. We illustrate equity risk components to the discount rate in the next section.

#### (4) ACE Sector Valuation Benchmarks.

As noted before, ACE Sectors do not suffer from large company bias because they are equally weighted. In addition, the approximately certain earnings stream makes the valuation exercise more useful. The forward PE relationship is not distorted by the earnings variability of the benchmark. Exhibit 8 shows the Health-ACE Sector absolute and relative forward PE to the S&P 500 over the last ten years.

#### Required Return using ACE Sectors

Before concluding, we illustrate the overall equity discount rate for selected healthcare companies in the context of a sector-based, equity risk buildup approach. Exhibit 9 shows that the overall required return consists of four key elements: two macro factors, including the risk-free rate and base risk premium to the ACE portfolio (ACE50); plus a sector premium relating to high-earnings-certainty companies within the Healthcare ACE Sector; plus a company specific risk premium based on firm characteristics such as size, leverage, and abnormal earnings volatility; see for example Abate, Grant and Rowberry [2006]. This sector-based, equity risk buildup approach can be applied to all companies. To this end, we illustrate price relatives, sector risk premiums, and related fundamentals for all ten ACE Sectors in the Appendix.

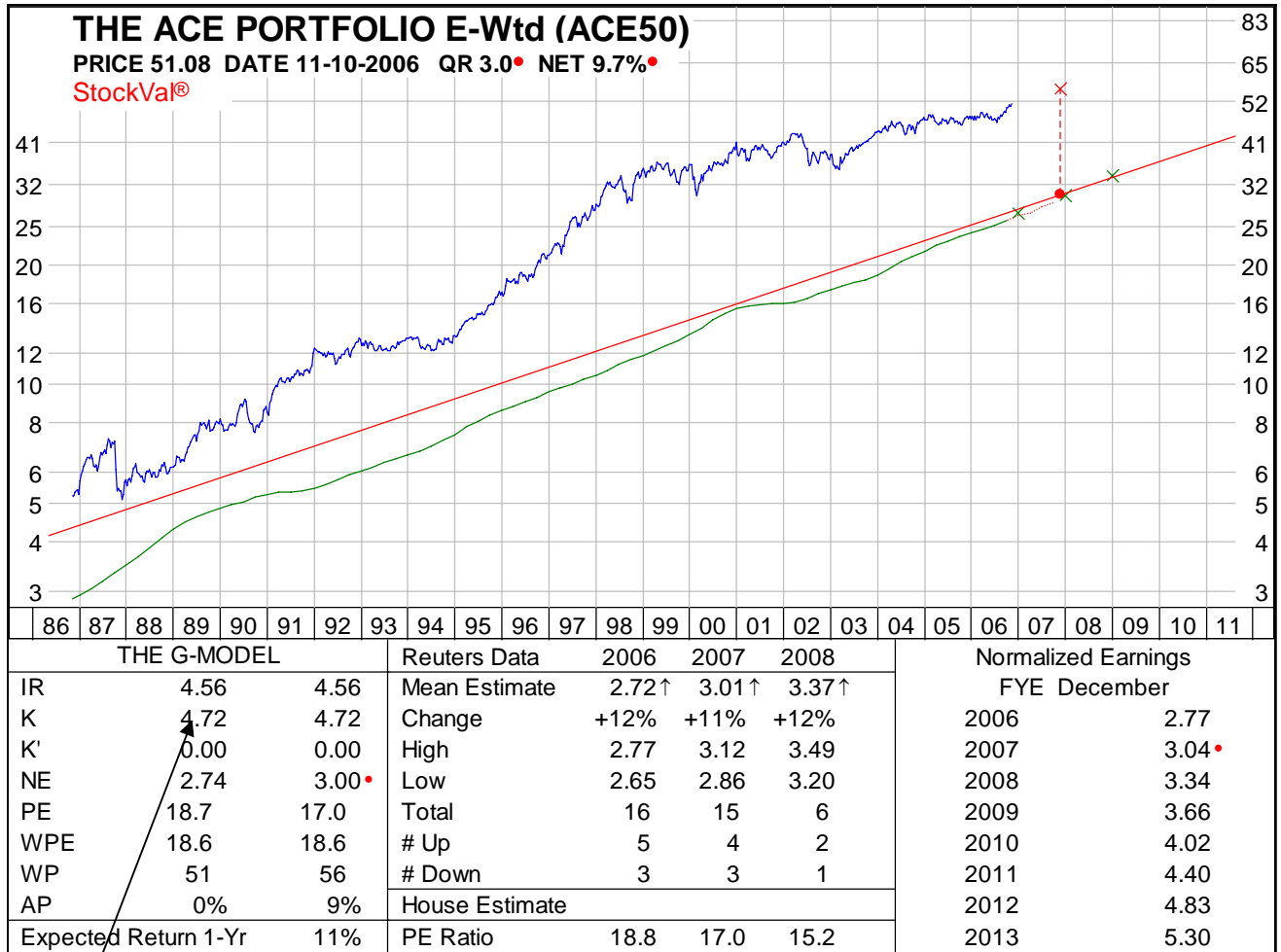
## Summary

The creation of sector composites that have highly stable earnings streams allow the portfolio manager or analyst to derive “earnings certain” sector risk premiums. ACE (Approximately Certain Earnings) Sectors represent such baskets. Since sector pricing is especially influenced by earnings variability, obtaining risk premiums from standard sectors is contaminated. With knowledge of an EPS Stability measure, a composite engine, and the proprietary G-Model (or like DCF framework), we can discover companies within each sector that exhibit highly certain earnings. As we explained, ACE Sectors can be used for:

- Deriving current/historical “earnings certain” sector risk premiums
- Enhancing sector rotation strategies
- Obtaining sector implied growth rates
- Making useful risk adjustments for present value modeling
- Improved valuation benchmarks

Moving forward, it would be helpful to have a historical reference for what constitutes a high or low risk premium by sectors, across perhaps periods of sector expansion and contraction. A better understanding of what constitutes a normalized sector premium could then be used to enhance investment strategy in the context of sector rotation, present value modeling, and improved relative valuation analysis. Moreover, the concept of ACE sectors with high earnings certainty (compared with traditional sectors with low or unconstrained earnings visibility) could be used to develop innovative financial strategies and products: such as sector-ACE efficient frontiers, sector-ACE ETFs, and related ACE derivatives (options and futures); which in principle would be driven by sector duration effects.

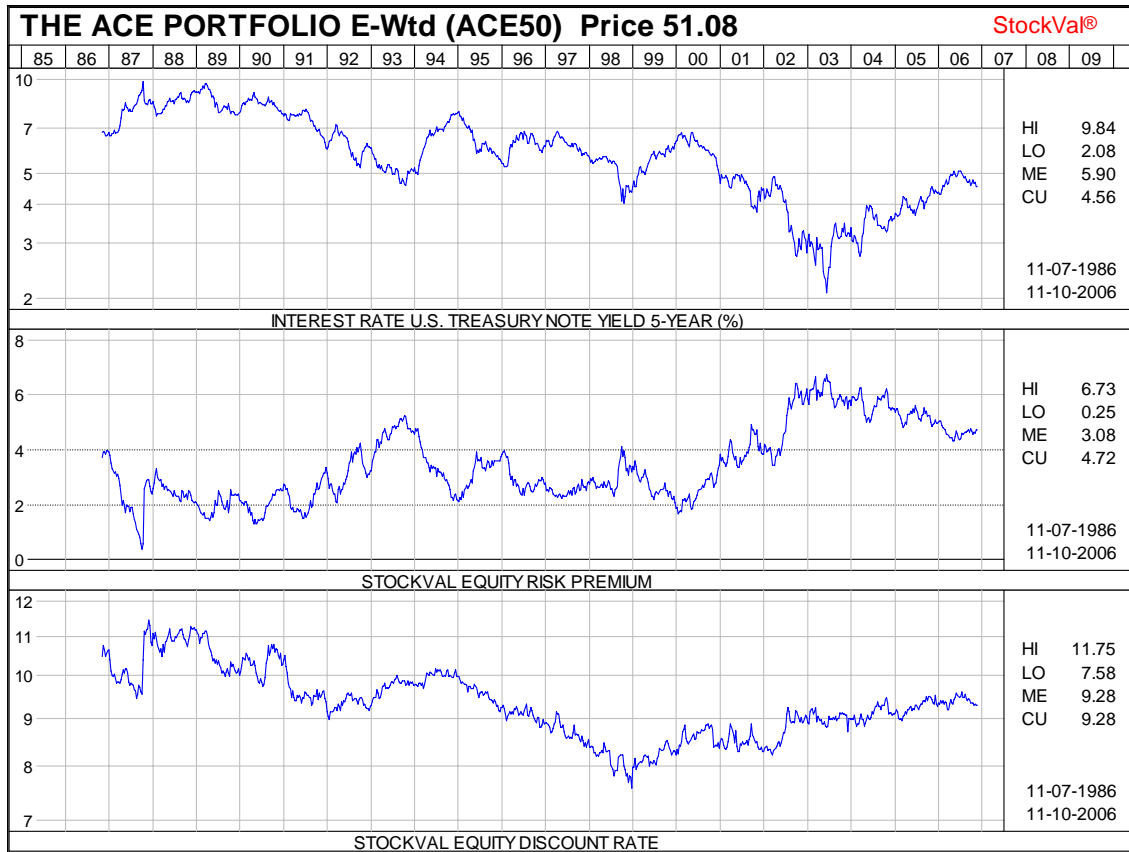
Exhibit 1: The ACE Portfolio



Equity Risk Premium %



Exhibit 2: Key Discount Rate Factors



### Exhibit 3: ACE as Relative Valuation Benchmark

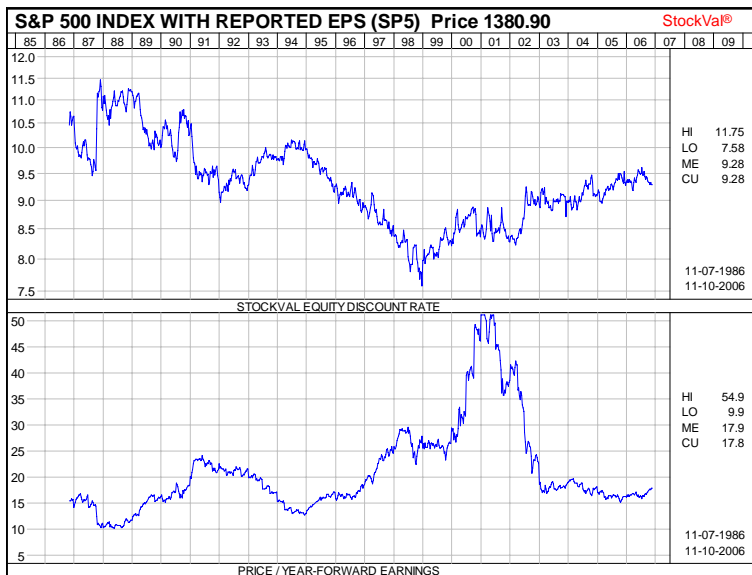
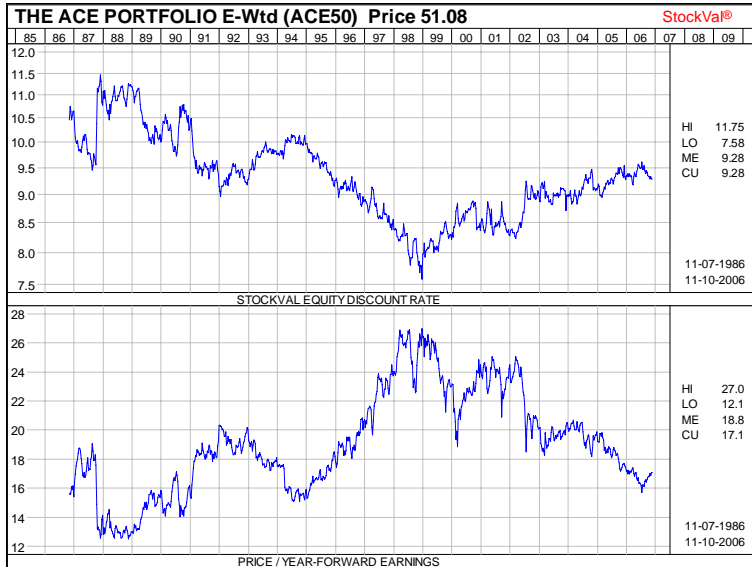


Exhibit 4: Alberto-Culver: High EPS Stability

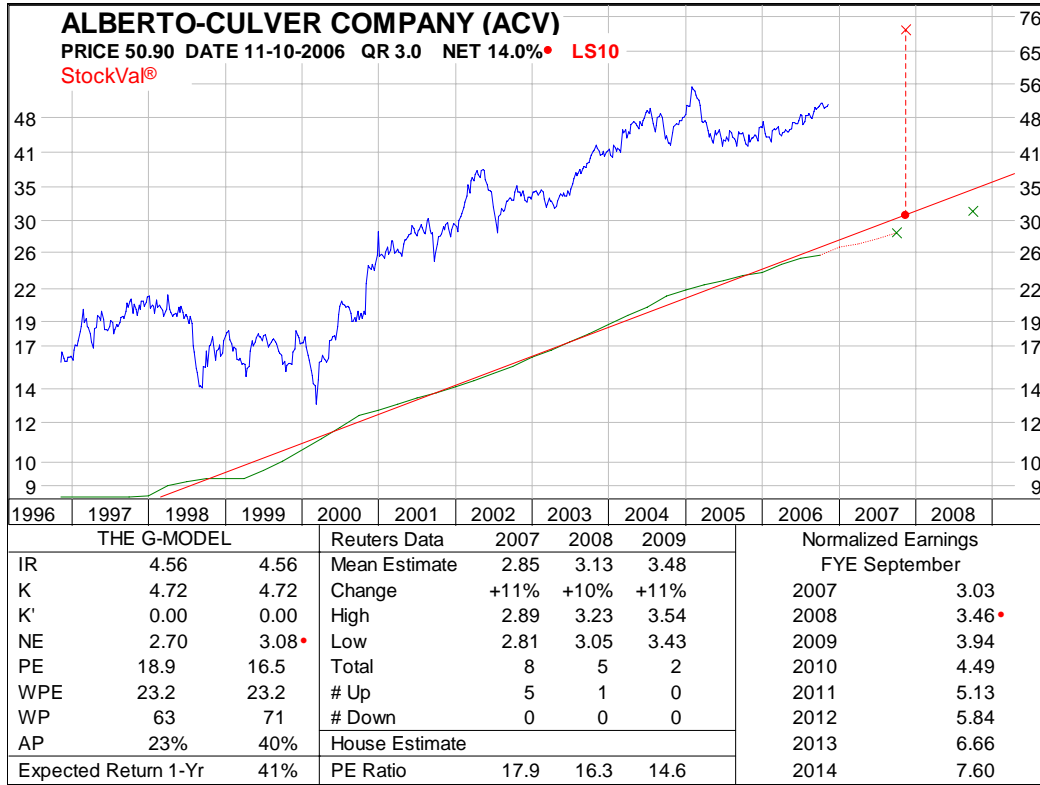


Exhibit 5: National Semiconductor: Low EPS Stability

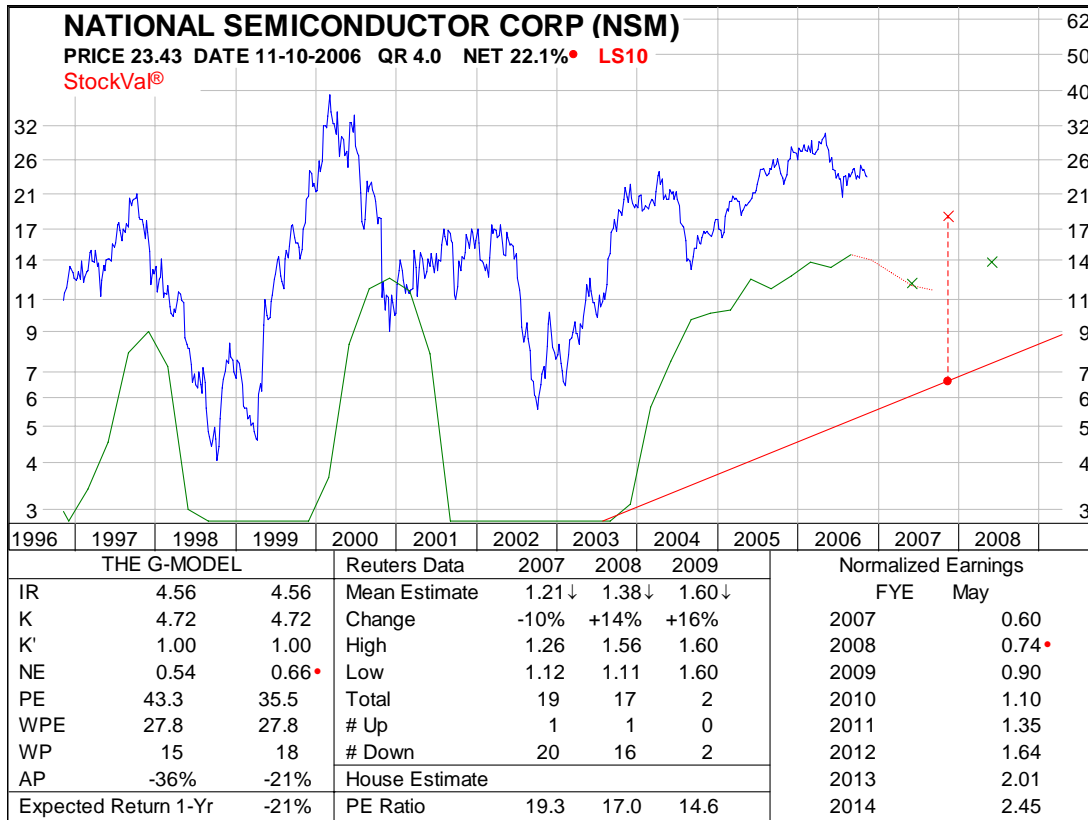


Exhibit 6: Staples-ACE Sector

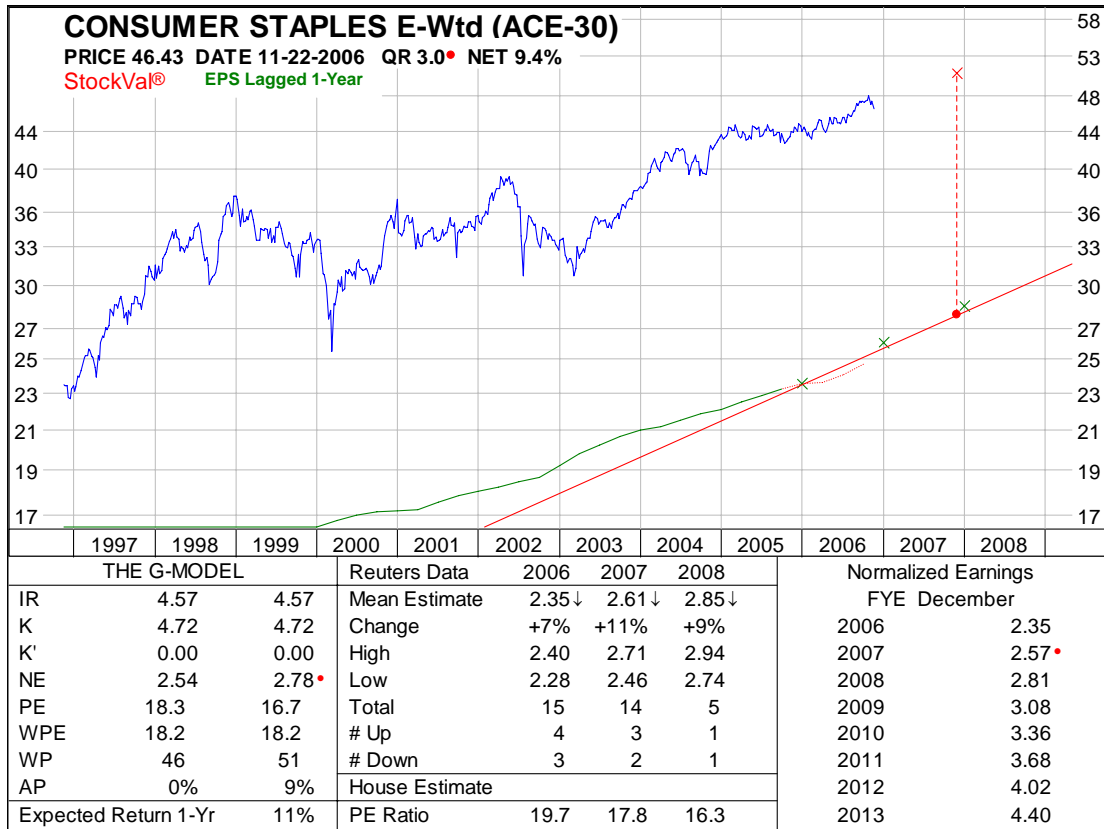


Exhibit 7

**Sector Implied Required Return on Equity/Sector Premiums (Nov 2006)**

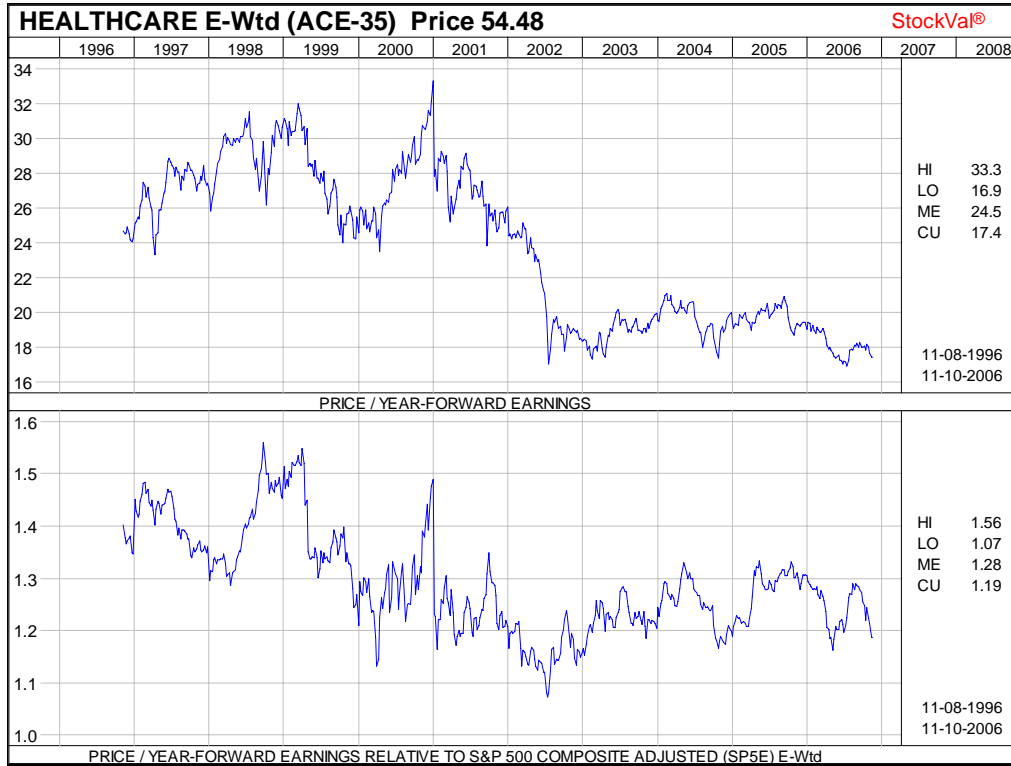
	Absolute %	Relative to Market (ACE 50 discount rate of 9.28%)
Telecom	8.28	- 1.00
Energy	8.38	-0.90
Staples	9.28	0.00
Utilities	9.48	0.20
Materials	9.68	0.40
Financials	9.78	0.50
Technology	10.08	0.80
Industrials	10.28	1.00
Healthcare	10.38	1.10
Consumer Disc	10.68	1.40

Historical Perspective:

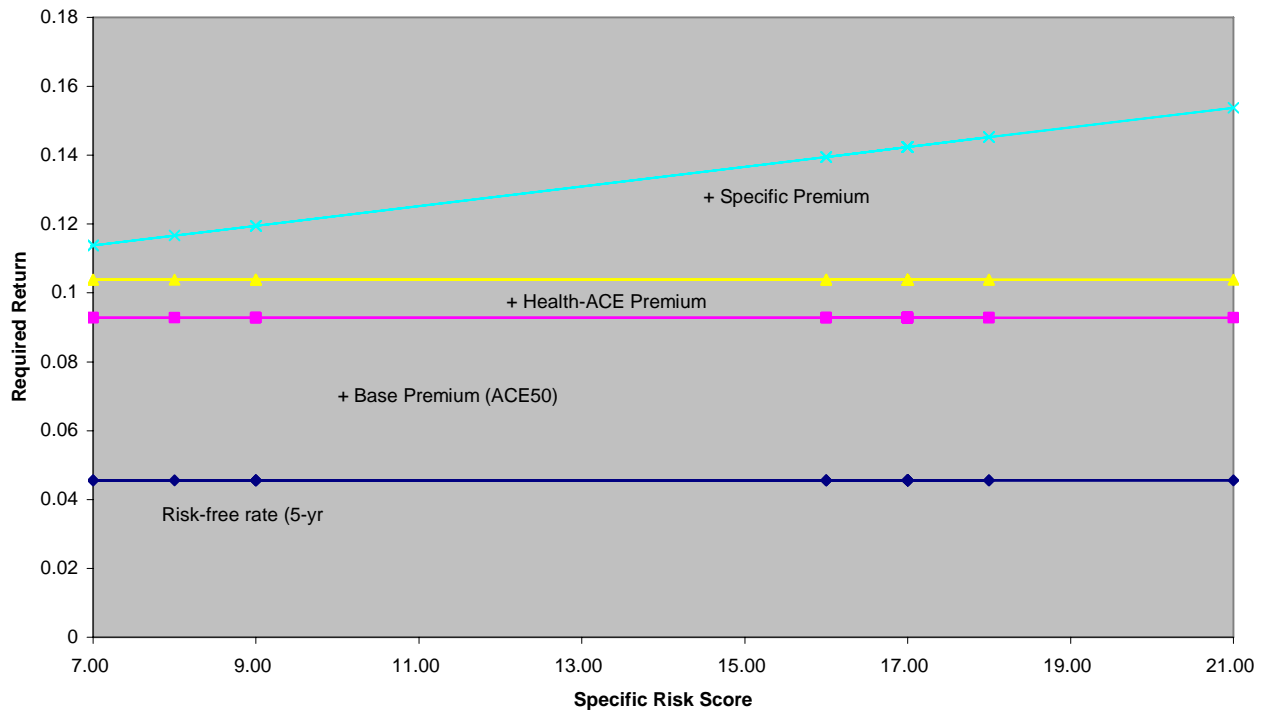
Implied Required Return on Equity/Sector Premiums (Oct 2000)

	Absolute %	Relative to Market (ACE50 discount rate of 8.74%)
Energy	7.38	-1.36
Healthcare	8.23	-0.51
Technology	8.86	0.12
Utilities	8.91	0.17
Materials	9.21	0.47
Staples	9.46	0.72
Telecom	10.46	1.72
Financials	10.66	1.92
Industrials	11.51	2.77
Consumer Dis.	11.86	3.12

### Exhibit 8: Health-ACE Sector: Valuation Benchmark



**Exhibit 9**  
**Required Return on Health Care Companies:**  
**Sector-ACE Buildup Model**





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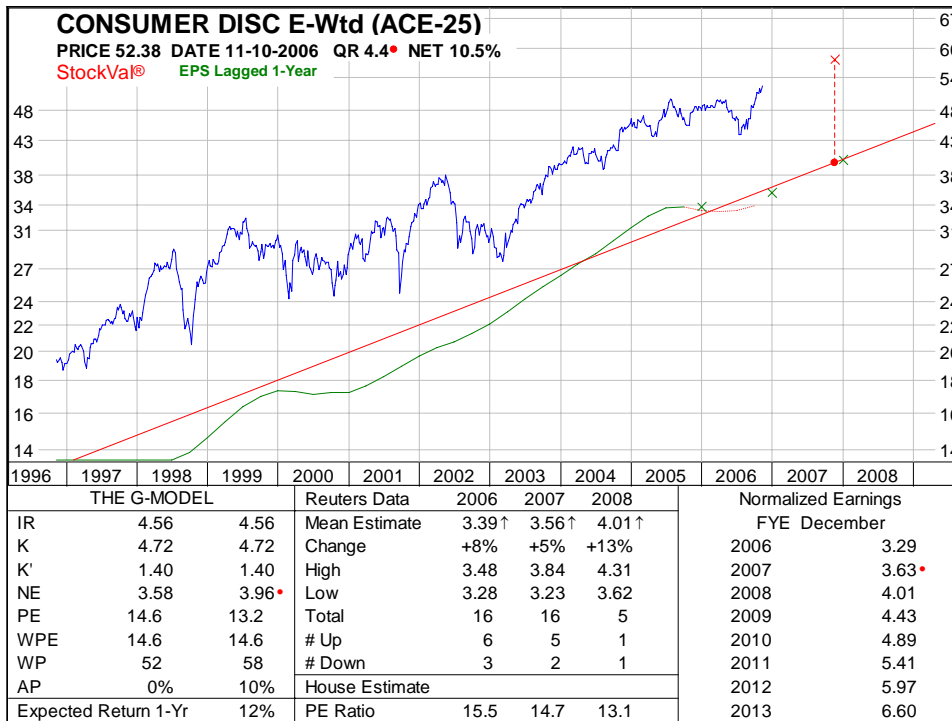
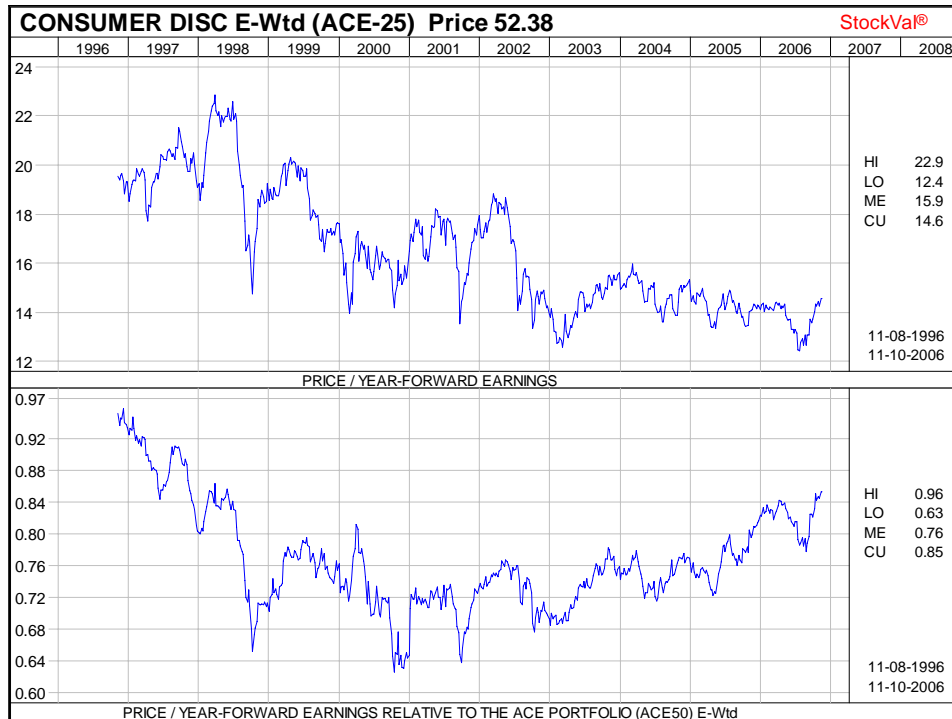
Kitselman, Buddy. "Using the G-Model to Calculate the Market-Implied Growth Rate of a Company." *StockVal*, December 2004.

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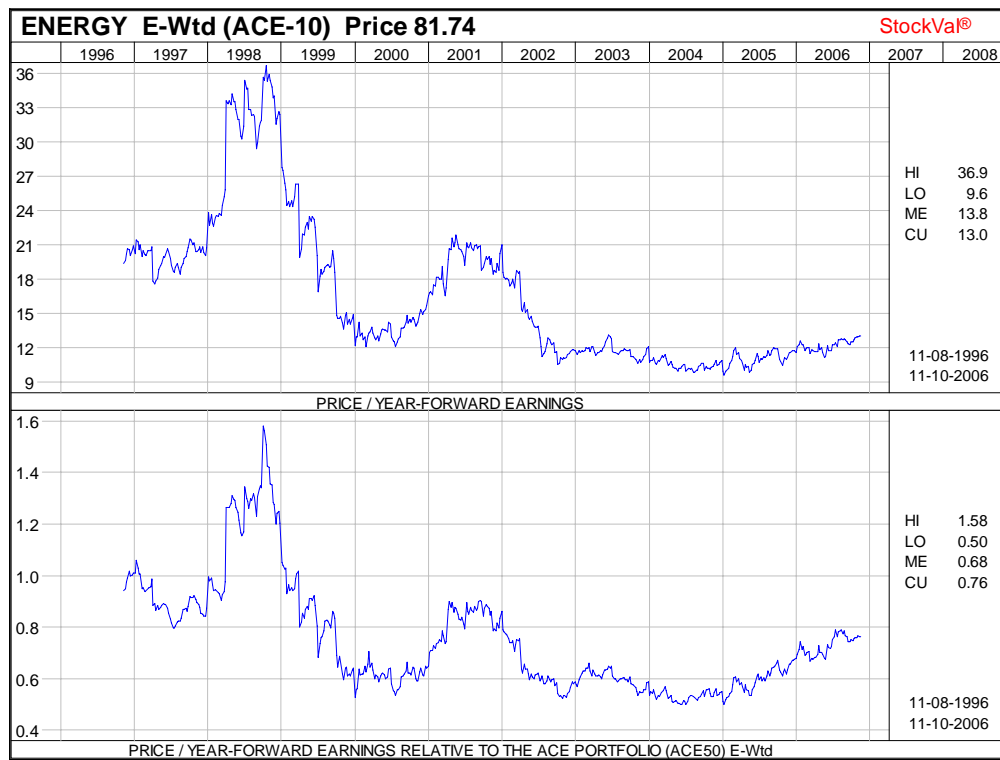
APPENDIX: Ten-ACE SECTORS:

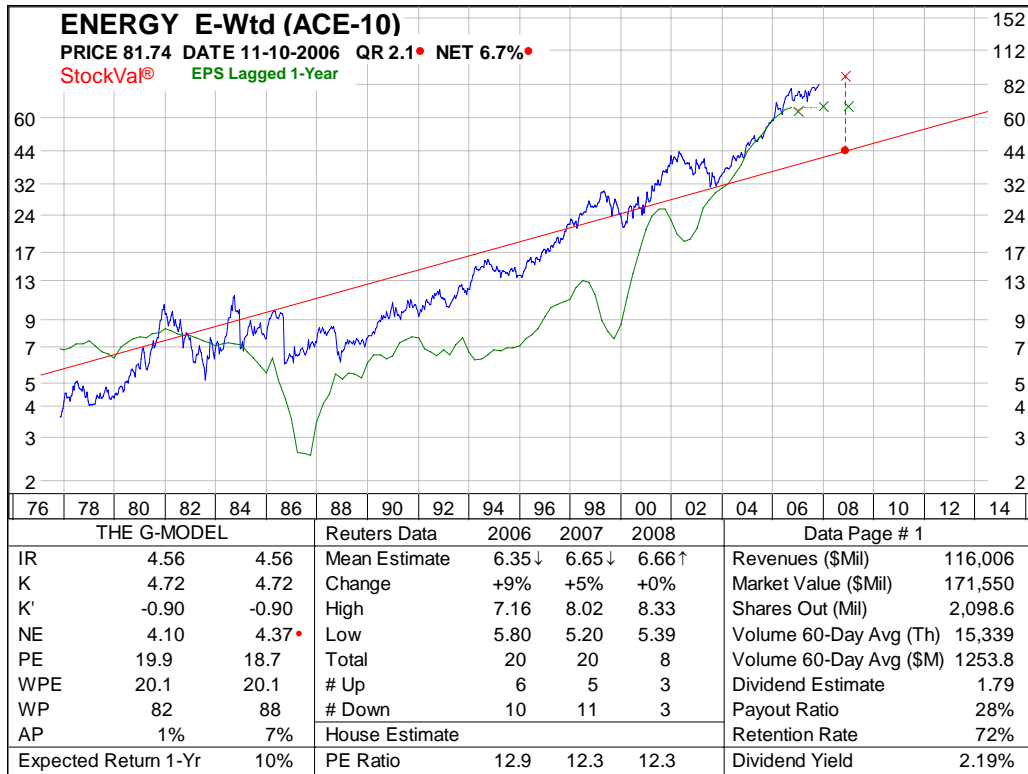
Valuation, Equity Discount Rates and Related Fundamentals

## Consumer Discretionary-ACE

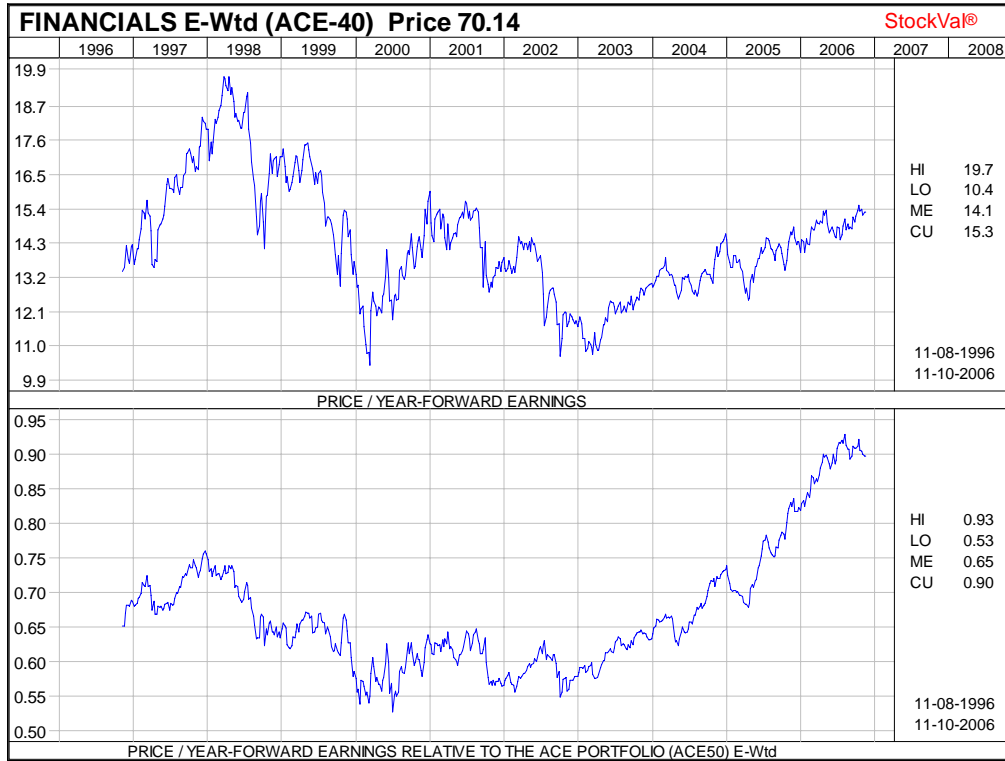


# Energy-ACE

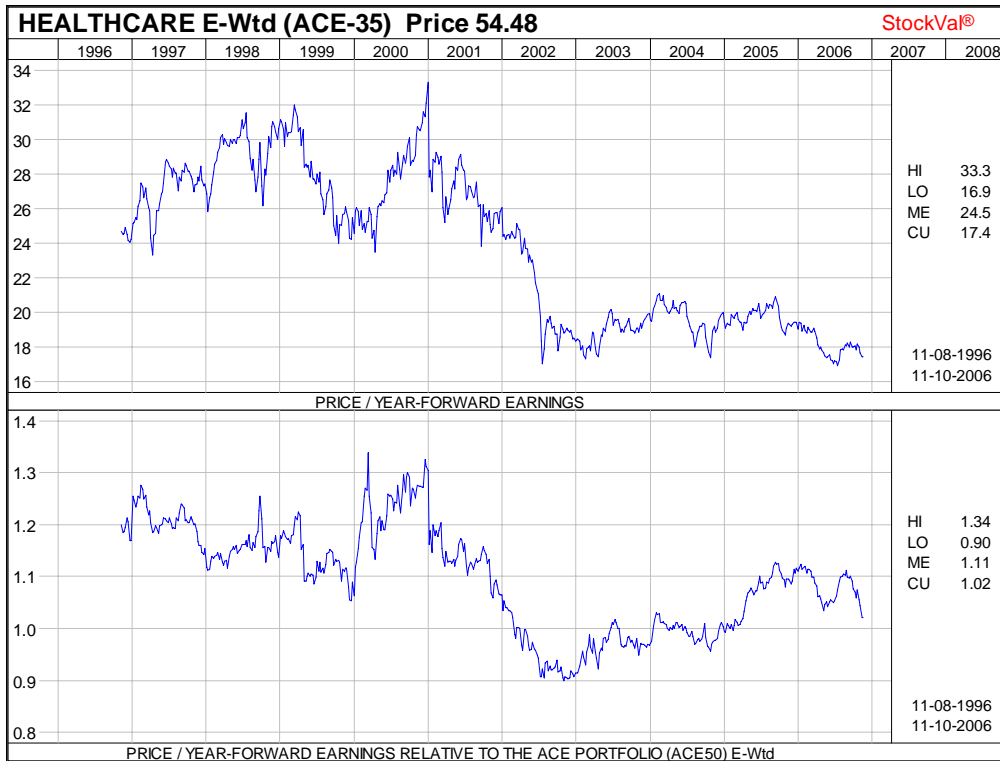




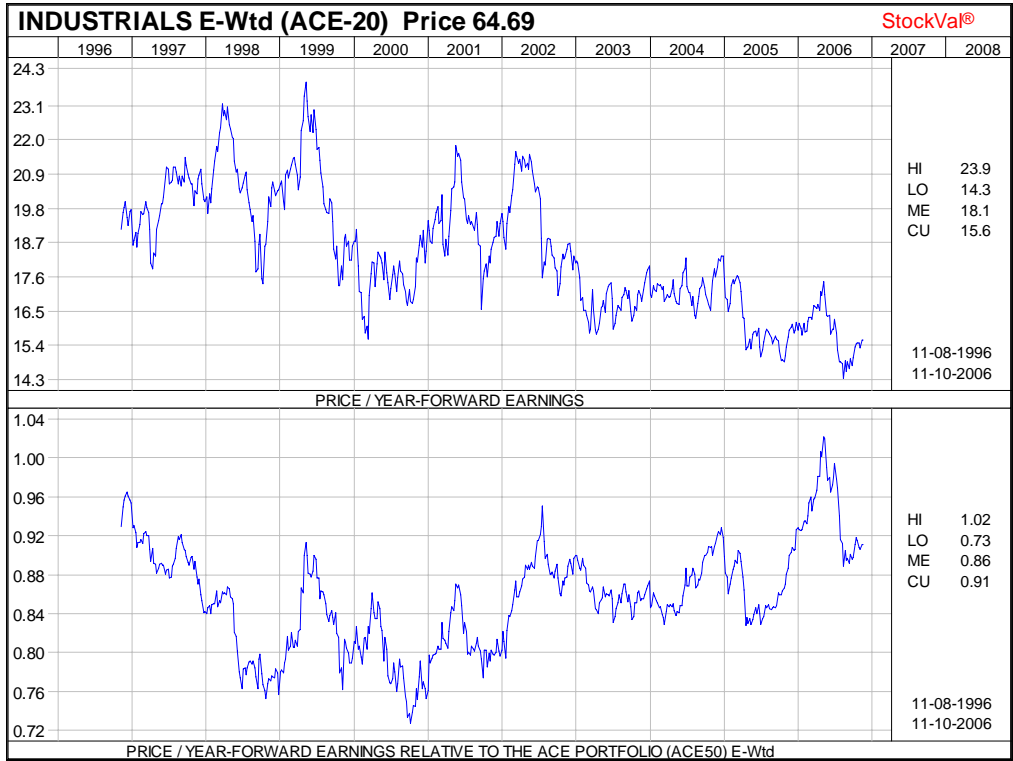
# Financials-ACE



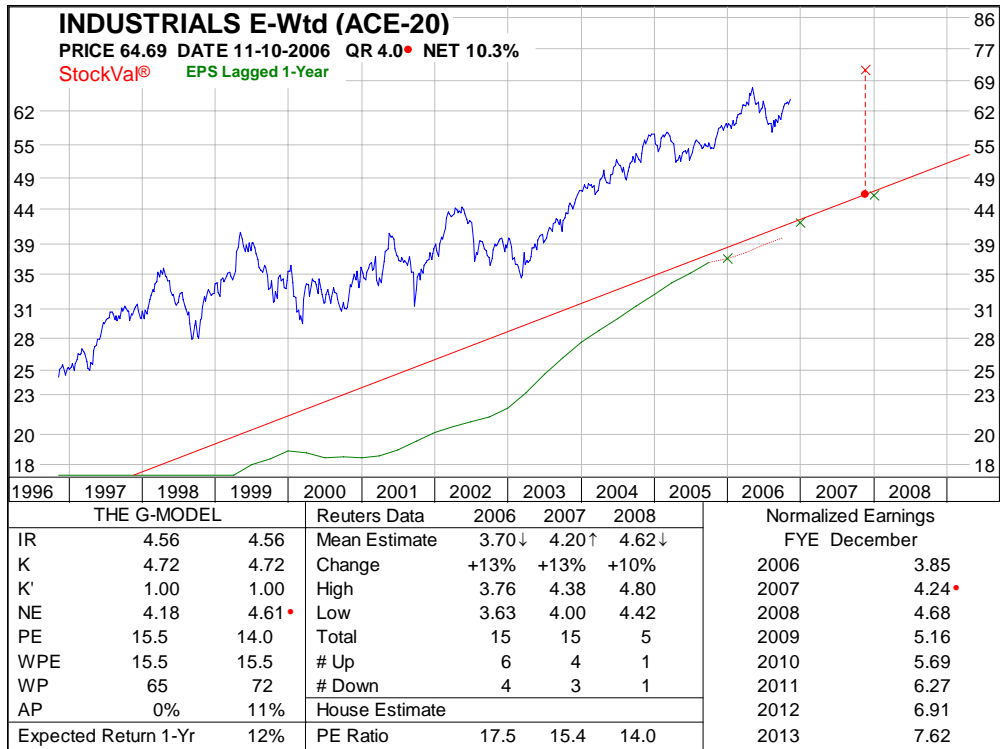
## HealthCare-ACE



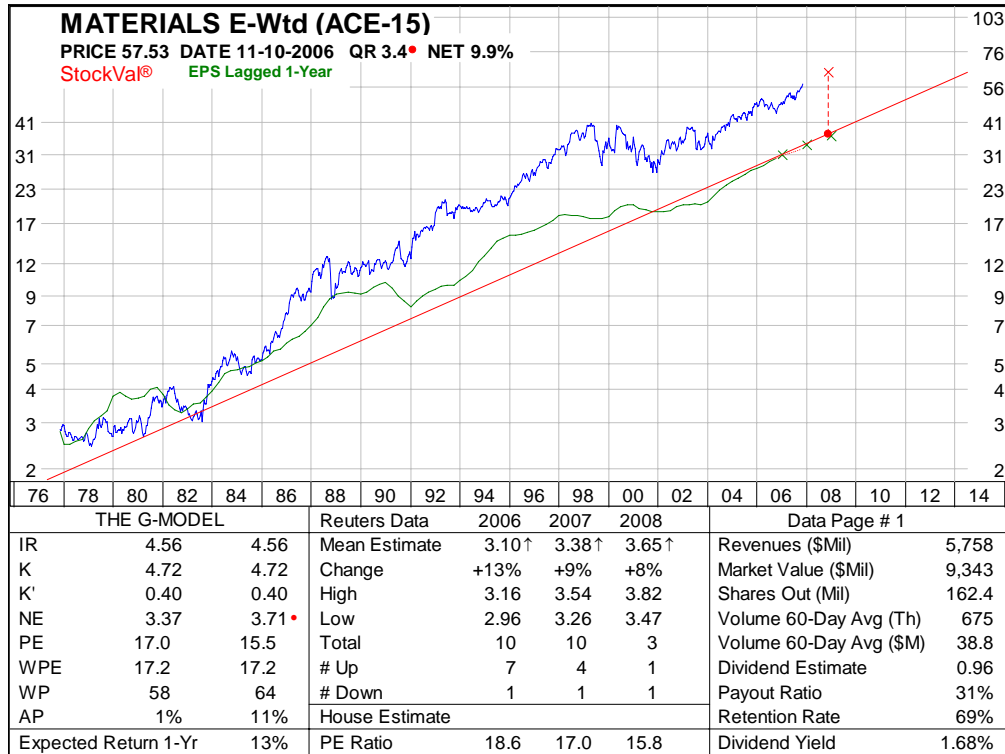
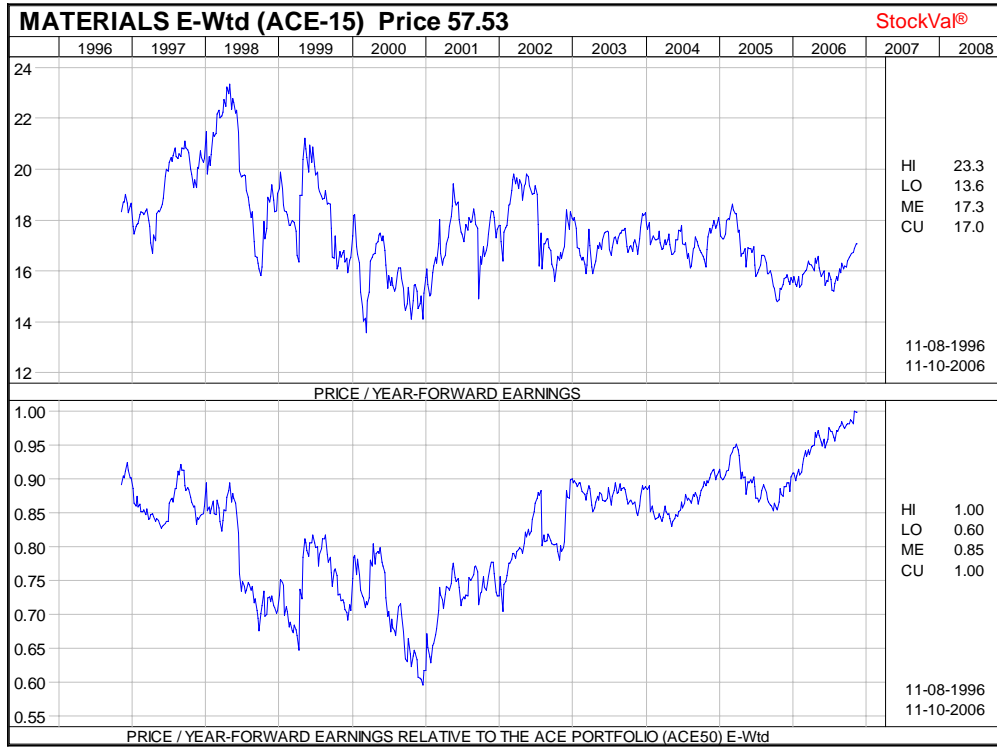
# Industrials-ACE



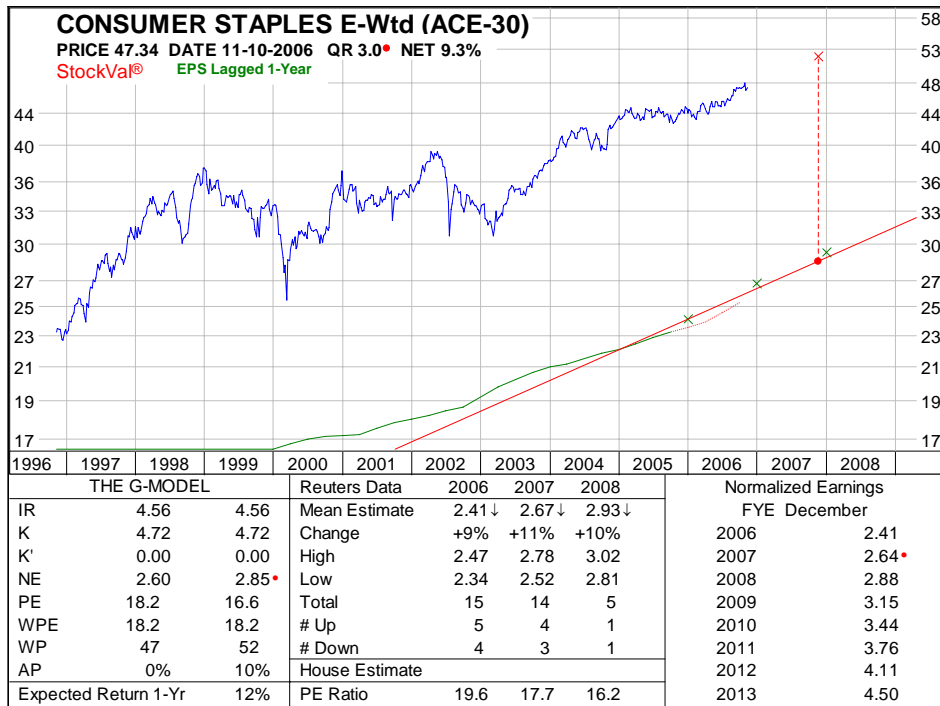
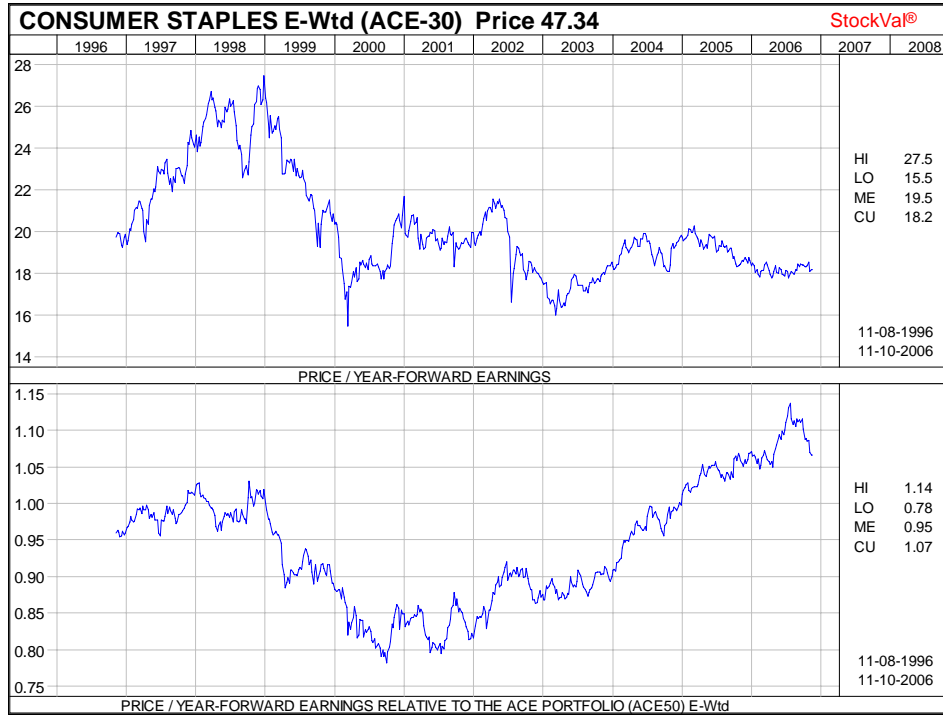




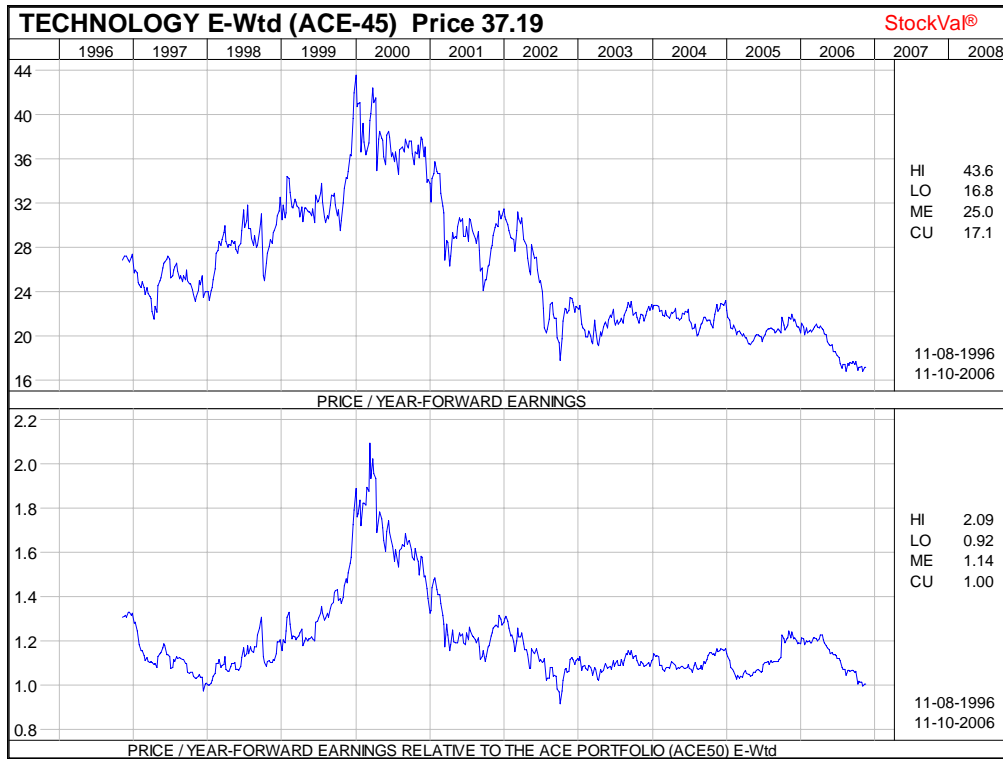
## Materials-ACE

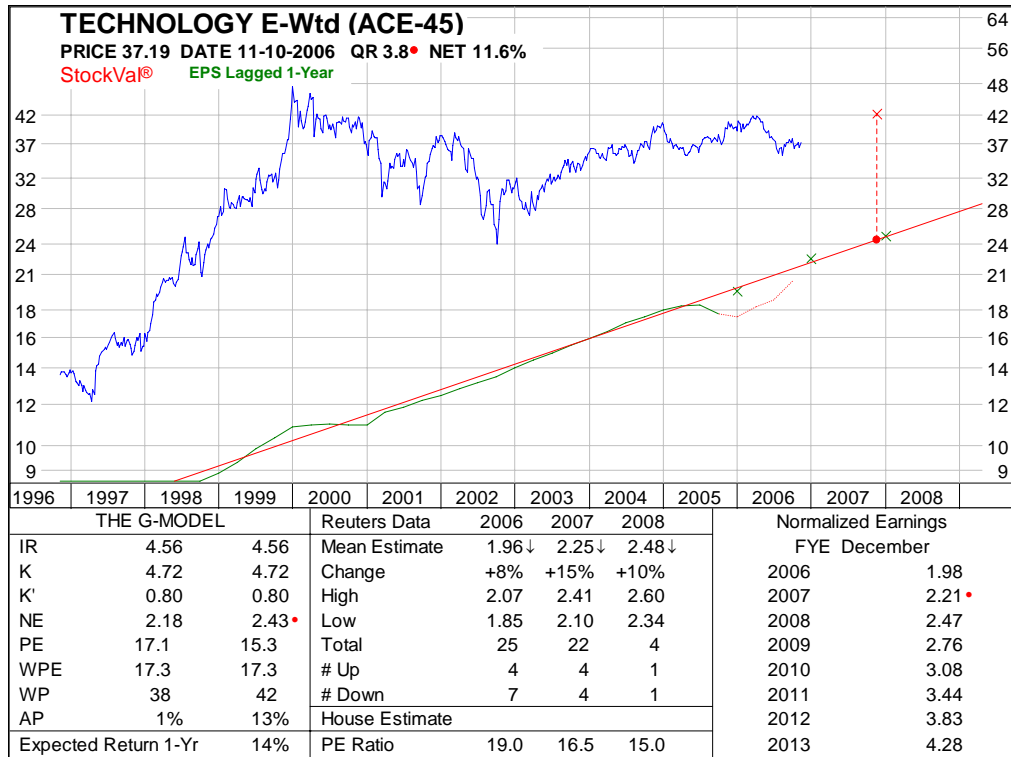


# Staples-ACE

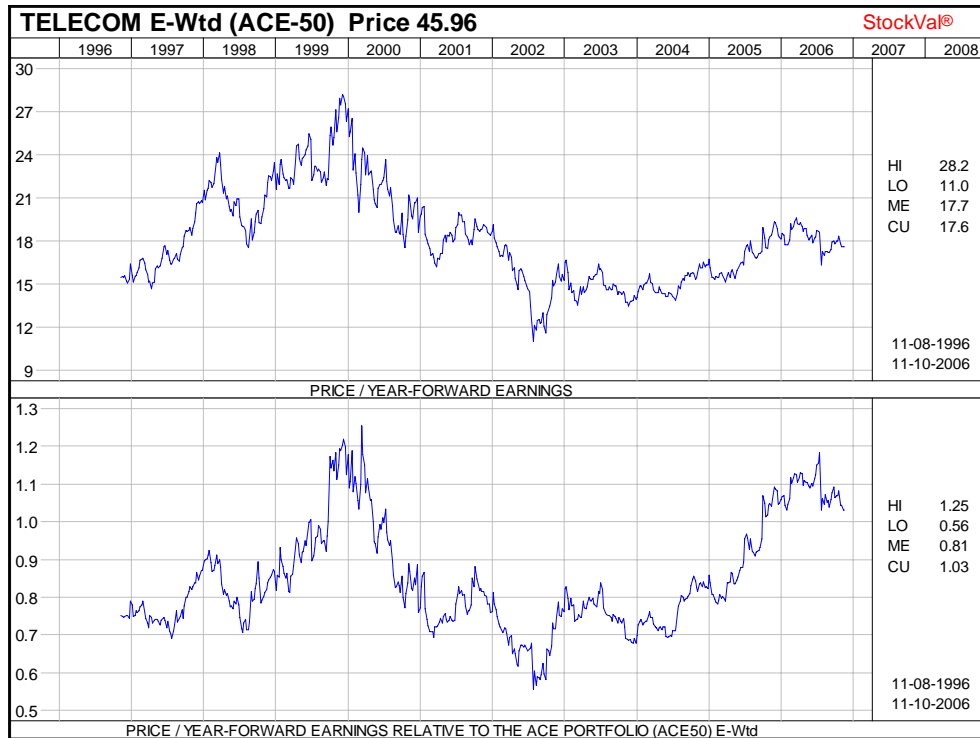


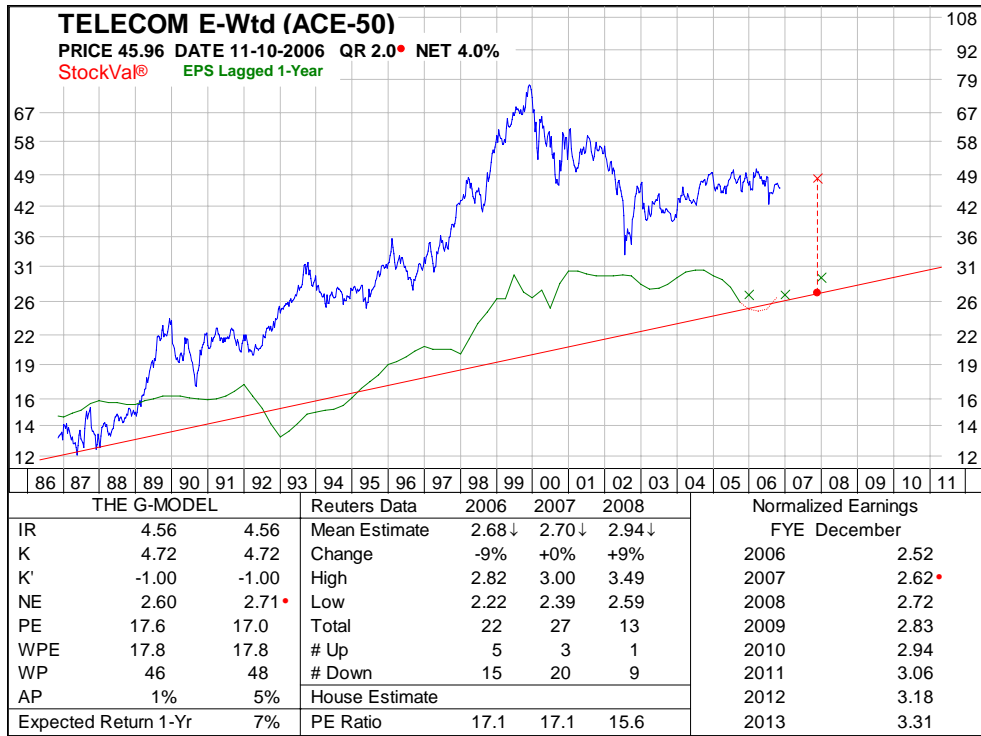
# Technology-ACE



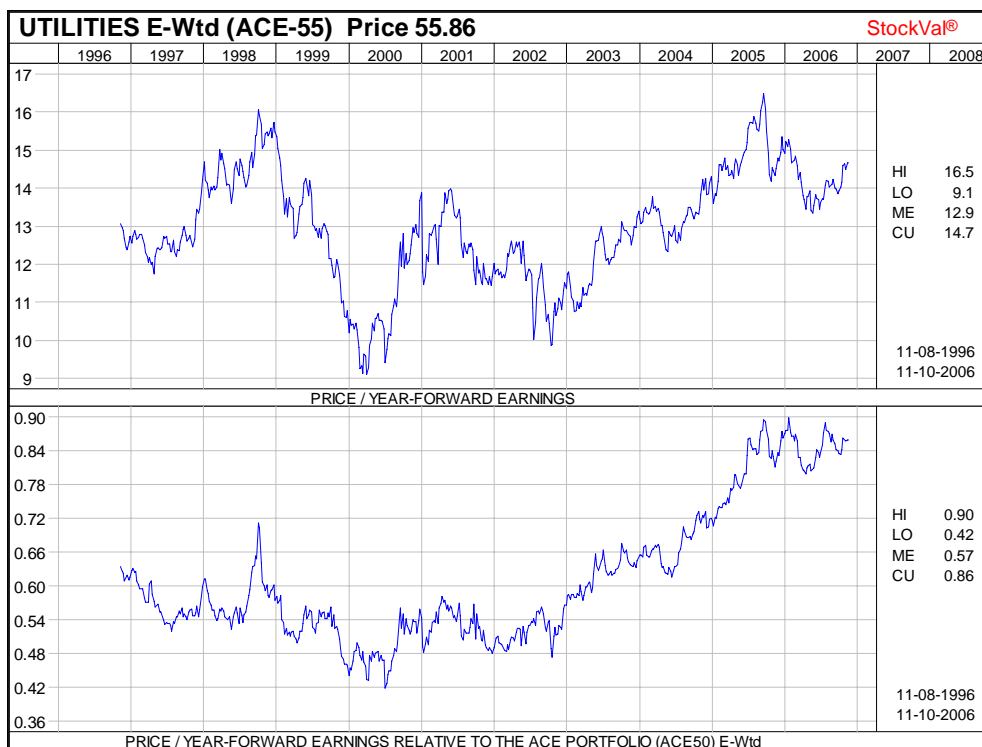


### Telecom-ACE





## Utilities-ACE



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<sup>i</sup> The “ACE” acronym is a finance/economics term that stands for “approximate certainty equivalent”.

<sup>ii</sup> We are aware that the concept of “earnings certain” portfolios (by sectors or otherwise) is elusive and that it may be more appropriate to speak in terms of portfolios with high (or low) earnings visibility.

<sup>iii</sup> For a robust discussion of the impact of discount rate or cost of capital change on corporate valuation and equity pricing, see Chapter 2 in Fabozzi and Grant [2000].