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INVESTING ON A WEALTH OF KNOWLEDGE

## The Snow Capital Investment Process

Inefficient Markets, Emotional Behavior and How We Capitalize on Market Opportunities

April 20, 2012

## The Snow Capital Process: Inefficient Markets, Emotional Behavior and How We Take Advantage of the Market's Opportunities

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This booklet references historical studies and is designed to illustrate the general investment philosophy and broad investment style of Snow Capital Management L.P. The performance data provided herein should not be relied upon by investors in making investment decisions. Current and future portfolio holdings are subject to risk.

In addition, the securities of small, less well-known companies may be more volatile than those of larger companies. Value investing involves the risk that the market will not recognize a security's intrinsic value for a long time, or that a security thought to be undervalued may actually be appropriately priced when purchased. Past performance is not a guarantee of future results, nor are the results in this booklet indicative of the past or future performance of any account of Snow Capital Management L.P. Investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. The investment returns presented in the studies herein represent past performance of stocks and indices as outlined in the respective studies and should not be considered indicative or representative of the past or future performance of any account of Snow Capital Management L.P., nor should it be inferred that the future performance of these vehicles will equal or exceed the performance set forth in the studies. Although we are not aware of their existence, there may be studies that exist that contradict the conclusions of the studies presented herein. Information contained herein is derived from various sources as set out in the narrative.

Dear Investor:

*The Snow Capital Investment Process* sets forth the behavioral foundations of the process and philosophy employed by Snow Capital Management L.P. in the selection of investments. In explaining our process we share a small sample of the vast store of academic literature that corroborates and supports our investment strategy. While Richard Snow, our founder and Chief Investment Officer, did not develop our process based on an analysis of the available academic literature it may be comforting to know that Snow Capital Management's investment philosophy enjoys a rich trove of academic research backing.

Our process is simple in concept, but devilishly hard to apply in practice. Benjamin Graham famously stated in the *The Intelligent Investor*:

"To achieve satisfactory investment results is easier than most people realize; to achieve superior results is harder than it looks."<sup>i</sup>

The human brain is not wired to make rational economic choices and as a result market participants tend to collectively make securities markets rather inefficient. Fortunately, investors' emotional behavior is both predictable and well-studied. Ultimately emotional investor behavior leads to excessive stock and market volatility and creates investment opportunity.

Employing an investment process that successfully exploits market inefficiencies is difficult in practice because any such process must be implemented by the same fallible humans that create the inefficiencies. In other words, the behavioral issues and market structures which result in the inaccurate pricing of some assets plague all humans, including the ones sitting inside the four walls of Snow Capital Management L.P.

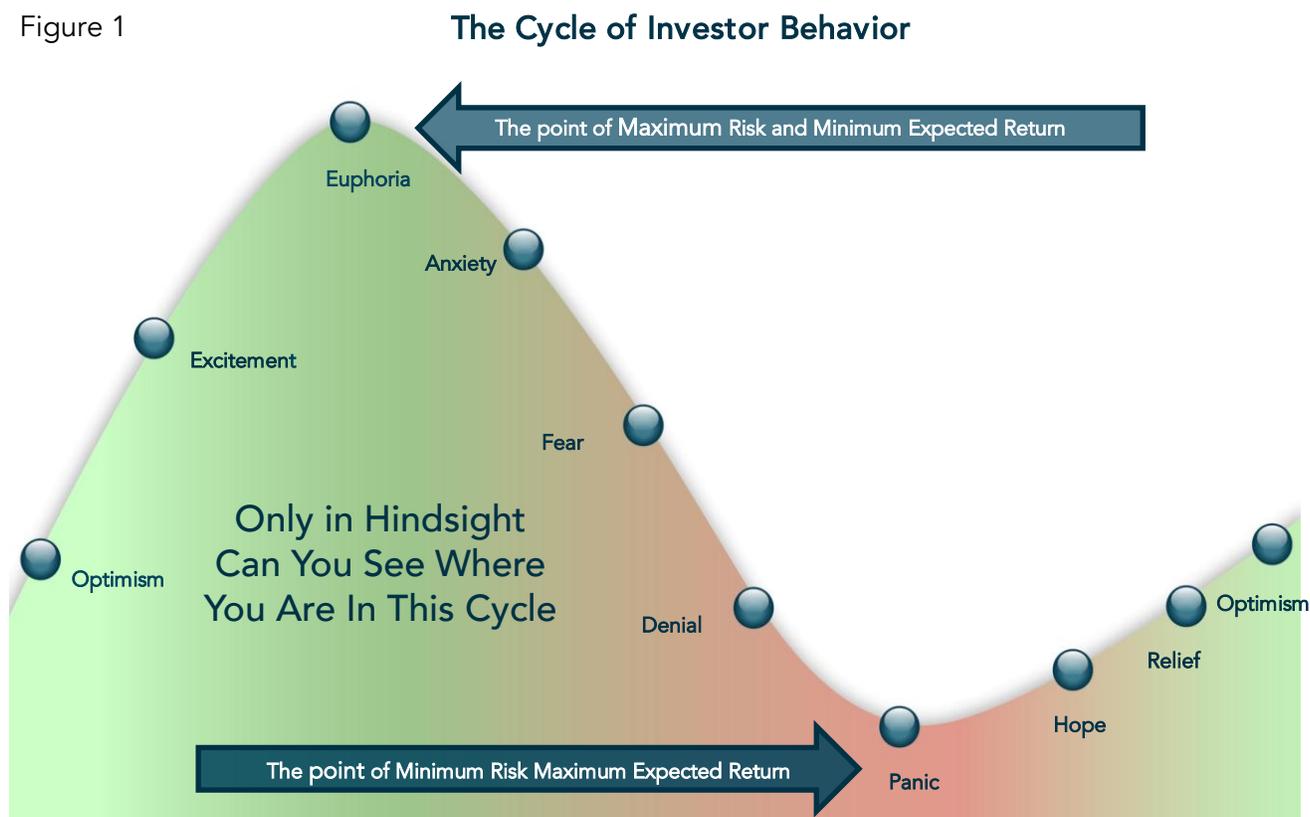
This is why it is imperative that we have a process that is time tested, simple, based on immutable market characteristics, and repeatable. To again quote Benjamin Graham "The investor's chief problem – even his worst enemy – is likely himself".<sup>ii</sup> Therefore, Snow Capital Management L.P. believes that, to be effective, an investment strategy must remove ego and emotion from the decision process to the greatest extent possible. The Snow Capital investment team implements the essential, repeatable elements of this successful strategy using modern investment tools and techniques. Future teams will evolve and adapt, but Snow Capital will continue to employ the essential elements of the Snow process.

## The Snow Capital Process

Over the past thirty years Richard Snow developed a philosophy and process that seeks to preserve capital and realize long-term appreciation by selecting securities with attractive risk/reward attributes. The Snow Capital Management team utilizes this time-tested process to manage investments for its clients.

We invest using a contrarian, fundamental, relative value investment philosophy. It is **contrarian** because we normally buy out of favor securities; it is **fundamental** because we rely heavily on rigorous company and industry research; and it is **relative** because we will consider investing in stocks that are not selling at a significant discount to the market. We believe that attractive returns can be earned by constructing diversified portfolios of financially strong companies where the stock price is temporarily depressed because the company has experienced difficulties which we believe to be short-to intermediate-term in nature.

Figure 1



Our fundamental research focuses on answering the following three questions: **Is the business model/industry viable in the long-term?** **Are sentiment and expectations sufficiently low?** and **Does the company have the financial resources to weather the storm?** Only stocks that meet these criteria and offer the highest potential risk-adjusted returns make it into the portfolio. When skillfully executed, this contrarian philosophy results in a portfolio of stocks with asymmetrical payoff

patterns. Downsides are minimized by cheap valuations, strong balance sheets, and negative sentiment; upsides are enhanced by the expected earnings recovery, and more powerfully, the expansion of the price-to-earnings ratio that usually follows an earnings recovery.

Our philosophy is consistent with modern behavioral finance research. We attempt to take advantage of investor's overreaction to negative surprises and, as a result, should avoid overpaying for the crowd's current favorites.

We have a talented and experienced team of investment professionals who embrace this process and philosophy of value equity investing. Collaboration is at the core of our investment process, and a culture of open and continuous dialogue within the investment team characterizes the organization. This collaboration begins with idea generation using proprietary fundamental screens and news flow, continues through the analysis and thesis-building stages, and into portfolio implementation. The result is a unique portfolio of continuously monitored securities with high-potential returns.

## We Are Contrarians

A contrarian generally looks to buy stocks that are declining due to heavy selling pressure and to sell stocks that investors are aggressively accumulating. Investing against the crowd in this manner is an intuitively easy concept but an emotionally difficult exercise.

"The time of maximum pessimism is the best time to buy and the time of maximum optimism is the best time to sell."

**-John Templeton**

"The most important quality of an investor is temperament, not intellect. You need a temperament that neither derives great pleasure from being with the crowd or against the crowd."

**-Warren Buffet**

Over 200 years ago Adam Smith described economic man as struggling between "impartial spectator" and the "passions" in the "Theory of Moral Sentiments".<sup>iii</sup> Smith's basic point was that while the average person can understand a set of logical economic decisions, when faced with real life monetary choices many people consistently make illogical/emotional decisions conflicting with their best interests.

Contrary to the wisdom of Smith, modern financial theory has embraced the notion of a completely rational "homo economicus" as its foundational principle of "efficient" markets. The development of such a theory is unsurprising given the elegant simplicity of a completely rational economic actor

and these ease of creating mathematical models for logical behavior. However, modern neuroscience is rapidly expanding our understanding of the brain chemistry which seems to vindicate Smith's assertion. It is becoming clear that emotional behavior and not rational decision making has a sound foundation in human brain physiology even if economists find it difficult to "model" emotional decision making.

The human mind has not evolved to deal with either uncertainty or loss in an unemotional manner. When a person experiences an emotional situation their brain triggers a very narrowly focused safety seeking response. The human brain has adapted this "fight or flight" reaction to stress after millennia of primal interactions.<sup>iv</sup> Thankfully modern humans face many fewer life threatening situations than our ancestors. "Fight or Flight" is not necessarily the best response to a missed quarterly earnings estimate, yet, those are the choices genetically hardwired into our brains.

An explanation for this behavior can be found in the brain's physiology. Risk is processed in a region of the brain that also monitors body states, and activates when an individual is exposed to a painful stimulus.<sup>v</sup> To most investors a stock that has fallen in price represents risk and the potential for further investment loss. While financial loss would appear to be a far cry from the life or death evolutionary history which explains the brain's wiring, the synapsis that define the neural pathway for reaction to loss or potential death appear to be the same. Thus human beings tend to be naturally loss averse.

The natural tendency toward fear of monetary loss is at the root of market volatility and the consequent investment opportunities that follow.

People look at the most recent past and assume that it is indicative of the near future, regardless the rationality of such an assumption. This sort of extrapolation of the recent past into the near future is referred to as "recency syndrome" and applies to most human hedonic inference-making activities. Given that risk is processed in the brain in the same manner as the feeling of falling from a great height, or burning one's finger while cooking, it should be no surprise that the "risk" of buying a stock that has recently lost value has a strong visceral influence on investors' decisions.

Stocks that have fallen in value are consequently and consistently viewed as "risky" in the minds of investors. This commonly occurs despite the more logical conclusion one could draw that a stock that has fallen in value represents an asset that has lost some of its risk premium and should therefore be less risky. Most experienced investors can sympathize with these sentiments when they recall their own despondency in depressed markets. People look at the most recent past and assume that it is indicative of the near future, regardless the rationality of such extrapolation.

In a similar manner, investors tend to keep gambling on gains in anticipation of continued rewards. Human beings evolved over millennia in an environment of scarcity. As a result the brain developed to highly reinforce the rewards of food and sex (the mechanisms by which both the species and the individual organism were to survive). Such emotional synaptic pathways in the brain prodded early man to seek out such basic needs beyond their rational utility (yet another

primitive response that any former teenager could sympathize with). Most people do not need to look far nor think too hard to recall examples of completely emotional/irrational pursuits of both of these stimuli in modern life.

It may be unsurprising to some that the drive for the acquisition of money has been proven to be processed in the same region of the brain as the drive for sex and food.<sup>vi</sup> Therefore, in pursuit of monetary reward investors tend to react in a consistently emotional manner. They react to losses or gains viscerally, usually without contemplative thought just as they would when confronted with the more primitive stimuli discussed above.

Behavioral science has thus proven that the propensity for investors to overreact to losses, and therefore to push the price of a stock below a reasonable level, and to overreact to gains, and to push recent winners to unreasonable levels, has its roots in human brain chemistry. This brain wiring is the root cause of inefficient markets.

Through our investment process we seek to take advantage of these overreactions to create a portfolio of stocks that have attractive risk/reward imbalances.

The risk in our strategy is that not all stocks that have fallen in price are "cheap". Therefore objective fundamental analysis must be undertaken to separate rational valuation from emotional mispricing of securities.

## We Believe In Bottom-Up Fundamental Research

We understand that not all stocks that have fallen in price are at a bottom and ready to rise. The key to avoiding a "falling knife" is to dig into the fundamentals of a company. We need to understand the conditions that have caused the company to fall out of favor and the circumstances that will allow the company to recover. Permanently impaired companies or industries can look inexpensive and end up being fool's gold.

"The stock market is filled with individuals who know the price of everything, but the value of nothing."

**-Philip Fisher**

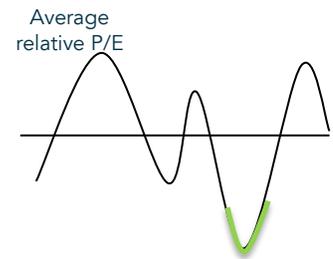
### *Mean Reversion*

"When stocks are attractive, you buy them. Sure, they can go lower. I've bought stocks at \$12 that went to \$2 but then, they later go to \$30. You just don't know when you can find the bottom."

**- Peter Lynch**

At Snow Capital we believe in the concept of mean reversion.<sup>vii</sup> It's this fundamental belief that allows us to invest against the tide of investor sentiment and find value.

Shifting investor sentiment causes stock and market valuations to swing between wide extremes over long periods of time, cycling around their average level. Stocks, like markets, rarely trade at their mean valuation or earn their "normal" earnings. Generally, individual stocks trade at lower valuations when earnings are depressed and higher valuations when earnings are elevated. Markets trade in long secular P/E bands (typically 15-20 year). P/E cycles for stocks can be much shorter, more typically 3 to 4 years. Investors are emotional and they over react to both good and bad news.<sup>viii</sup>



Despite a long and rich history of research highlighting the persistent outperformance of low P/E stocks relative to high P/E stocks, the market continues to overly discount bad news and reward good news beyond merit.<sup>ix</sup> Such predictably emotional behavior (see Dan Ariely<sup>x</sup>) can be exploited if one consistently adheres to an investment process where such sentiment is recognized.

### Low P/E

"The individual investor should act consistently as an investor and not as a speculator. This means that he should be able to justify every purchase he makes and each price he pays by impersonal, objective reasoning that satisfies him that he is getting more than his money's worth for his purchase."

**-Benjamin Graham**

The price to earnings ratio (P/E) afforded a company in the public markets should reflect the discount rate for equity that an investor believes the company deserves based on anticipated earnings growth and the cyclical nature of the company's earnings, adjusted for balance sheet risk (i.e. debt balances). In a perfectly logical world valuation would always be accurate, but as we have postulated, such "fair" valuations, if they exist, occur only at ephemeral points in time randomly dispersed through a company/industry's evolution.

In real markets, the P/E fluctuates within bands throughout the life cycle of a company based on the prospects for that company and the industry within which the company competes. The P/E ratio may drift as an industry grows and matures, but in the short- to medium-term these P/E bands remain relatively stable. Generally speaking when P/E ratios swing to the edges of these bands, we believe that the valuation is swinging away from fundamentals and a correction or reversion should follow.<sup>xi</sup>

As Basu (Journal of Finance 1977) proved, low P/E stocks do outperform high P/E stocks.<sup>xii</sup> Investors did not appear to heed this logical finding for Basu's conclusions were later reinforced by the research of Roger Ibbotson. Logically the existence of Basu's research should have eliminated the anomaly of any "value" in P/E disparity if the efficient market hypothesis were a true representation of the markets.

**Table I**

**Investment Results of New York Stock Exchange Companies According to Price/Earnings Ratios, December 1966 – December 1984**

Decile	Compound Annual Return	Ending Value on 12/31/84 of \$1.00 Invested on 12/31/66
1 (Lowest P/E ratio)	14.08%	\$12.22
2	13.81%	\$11.67
3	10.95%	\$7.21
4	10.29%	\$6.43
5	9.20%	\$5.32
6	6.43%	\$3.27
7	7.00%	\$3.62
8	5.57%	\$2.80
9	5.50%	\$2.77
10 (Highest P/E ratio)	5.58%	\$2.81

Roger Ibbotson, in his "Decile Portfolios of the NYSE, 1967 – 1984," Working Paper, Yale School of Management, 1986 plotted the returns by P/E decile of all NYSE listed stocks from 1966 to 1984.<sup>xiii</sup> The results are listed in Table I. Returns for the market capitalization weighted NYSE stocks observed over the same 18 year period were 8.6% annualized. As one can easily see mispriced earnings are a persistent aspect of the markets.

Lakonishok, Vishny and Shleifer also studied P/E ratios in 1993.<sup>xiv</sup> These researchers' ranked NYSE and AMEX listed stocks based upon their P/E ratios by decile. Initial deciles were established on April 30, 1968 and annually rebalanced up to April 30, 1990. These portfolios were equally weighted as were the subsequent returns. Table II shows the results of the study. Such continuously studied and obvious results should disappear over time as they are exploited by investors, but emotional investment mistakes allow for the persistency of such anomalies.

**Table II**

**Investment Returns in Relation to Price/Earnings Ratios for All New York Stock Exchange and American Stock Exchange Listed Companies, April 1968 – April 1990**

Holding Period Following Portfolio Formation	Price/Earnings Ratio Decile									
	(Highest Price/Earnings Ratio)					(Lowest Price/Earnings Ratio)				
	1	2	3	4	5	6	7	8	9	10
1st Year	12.30%	12.50%	14.00%	13.00%	13.50%	15.60%	17.00%	18.00%	19.30%	16.20%
2nd Year	10.10%	11.30%	12.40%	14.30%	16.70%	16.40%	18.00%	18.50%	18.3	17.40%
3rd Year	11.80%	13.80%	15.70%	17.10%	17.10%	19.10%	19.80%	18.80%	18.80%	19.50%
4th Year	11.10%	12.40%	14.50%	15.10%	15.70%	15.90%	19.80%	19.90%	20.50%	21.40%
5th Year	11.90%	12.90%	15.10%	16.70%	17.10%	16.80%	19.60%	20.10%	21.10%	20.70%
Average annual return over the 5-year period	11.40%	12.60%	14.30%	15.20%	16.00%	16.70%	18.80%	19.10%	19.60%	19.00%
Cumulative 5-year total return	71.70%	80.80%	95.30%	103.10%	110.20%	116.80%	137.00%	139.30%	144.60%	138.80%

For those that may still doubt the resilience of the conclusions of Basu, Ibbotson, Lakonishok, Vishny and Shleifer more recent research continues to highlight the amazing continuation of the outperformance of low P/E stocks. Huang, Tsai, and Chen in 2007 produced further evidence that a return of “normalized” earnings is accompanied by a rising P/E and abnormally high P/Es tend to fall faster than earnings disappointments might otherwise justify.<sup>xv</sup> In Keith Anderson and Chris Brooks 2006 work “The Long-Term Price-Earnings Ratio” they present data that perfectly illustrates the value performance gap as illustrated by P/E deciles.<sup>xvi</sup>

Anderson and Brooks data also illustrates the benefits of further analysis, similar to that done by Snow Capital, to determine normalized earnings levels (Please refer to Table III).

Human behavior is often illogical and the persistent outperformance of low P/E stocks over time is

**Table III**  
**One-Year Average Returns for Decile Portfolios, 1975-2003**

Using All Available Data

	EP1 %	EP2 %	EP3 %	EP4 %	EP5 %	EP6 %	EP7 %	EP8 %
Highest P/E	18.28	18.20	18.62	16.65	17.84	17.83	18.15	16.26
Decile 2	19.25	19.36	16.41	17.98	16.94	17.42	16.16	16.71
Decile 3	18.38	17.32	18.92	18.68	17.78	17.51	17.05	16.43
Decile 4	16.44	18.96	19.45	18.42	19.49	17.81	18.61	18.42
Decile 5	17.96	18.06	17.73	18.58	17.62	19.11	18.34	19.54
Decile 6	18.53	18.73	19.32	18.98	19.97	19.69	19.81	19.81
Decile 7	21.59	19.53	19.86	20.77	19.61	20.18	19.86	19.39
Decile 8	20.86	20.55	21.33	22.11	21.81	20.42	20.58	21.11
Decile 9	22.47	21.75	22.00	22.08	22.48	22.88	22.48	23.05
Lowest P/E	24.26	22.82	21.89	22.18	24.27	25.51	27.57	27.87
D10-D1	5.98	4.62	3.28	5.52	6.44	7.67	9.42	11.62

Using Only Companies That Have a Full Eight Years of Positive Earnings

	EP1 %	EP2 %	EP3 %	EP4 %	EP5 %	EP6 %	EP7 %	EP8 %
Highest P/E	18.03	18.52	19.31	17.96	17.72	16.79	17.20	16.26
Decile 2	19.18	17.42	16.06	16.49	15.70	15.86	15.96	16.71
Decile 3	18.05	18.60	18.20	18.96	17.72	17.75	17.29	16.43
Decile 4	15.26	17.25	18.23	17.58	17.96	18.17	18.25	18.42
Decile 5	19.56	19.16	18.64	18.53	18.48	19.42	18.10	19.54
Decile 6	18.01	19.51	19.35	18.91	19.73	20.03	20.19	19.81
Decile 7	19.72	19.78	20.53	20.59	20.12	19.95	19.91	19.39
Decile 8	20.28	21.33	20.81	21.03	21.27	19.77	21.10	21.11
Decile 9	24.11	21.07	21.48	22.64	23.59	23.70	23.16	23.05
Lowest P/E	26.34	25.93	25.94	25.92	26.28	27.14	27.44	27.87
D10-D1	8.31	7.41	6.63	7.96	8.56	10.35	10.24	11.62

Note: Companies are assigned to portfolios using statistics EP1 (the inverse of the usual P/E ratio) through to EP8 (the sum of normalised earnings over the last eight years, divided by the current share price).

only one of many examples of human irrationality. The fact that such behavior exists is not surprising, and is, indeed, predictable.

Our process takes advantage of this ever-present investor irrationality.

## Depressed Earnings

"Go for a business that any idiot can run - because sooner or later, any idiot probably is going to run it."

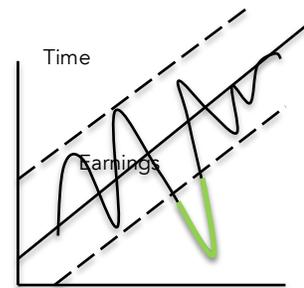
**-Peter Lynch**

The effect of compressed P/E multiples is often magnified by low earnings. As Huang, Tsai, and Chen discovered investors tend to over react to good earnings more than they do to poor earnings by affording "winners" a disproportionately high P/E while poor earnings typically fall in line with average P/E multiples. Multiple expansion tends to occur in tandem with earnings recoveries.

Implicit in the assumption that a company's earnings are "low" is a belief that a company has a "normal" level of earnings. The standard assumption in economics is that earnings and therefore company profitability are mean reverting in a competitive business environment. This would seem to be a reasonable assumption and has been proven in the research of Fama and French (2000).<sup>xvii</sup> The mean reversion or normalization of earnings is a critical component of our analysis of the companies we invest in.

Through the Snow Capital investment process we look for companies with poor near term earnings and consequently low P/E multiples. We expect to be rewarded with a recovery in earnings and a subsequent expansion of its P/E multiple.

We have found that it is difficult conceptually for many investors to grasp the power of compounding imbedded in the increase of earnings and consequent P/E expansion. Below we provide a simple theoretical example of the types of returns one can garner if such a situation occurs.



If a company's market price is a function described as:

$$Price = Earnings \times \frac{Price}{Earnings}$$

Then one can assume that the abnormal growth in company earnings associated with a normalization in a company's earnings along with a subsequent expansion in the P/E multiple can have an exponential effect on the realized market price.

Over a two year period, the equation for expected price realization assuming a doubling of earnings growth relative to the market of X% and a hypothetical 30% increase in P/E would look like the following:

$$Price = Earnings(1 + 2X)^2 \times 1.3 \left( \frac{Price}{Earnings} \right)$$

Assuming a nominal long term corporate earnings growth rate of 7% (i.e. company specific growth of 14%), the hypothetical return in this example would be approximately 69% over the two year horizon for a 30% annualized return. These assumptions are rather conservative relative to the average earnings and P/E recoveries we have experienced, but certainly represent a reasonably plausible scenario.

We illustrate a two year earnings recovery period because this time frame accurately reflects the assumptions imbedded in the Snow Capital Investment Process. Support for the assumption of a two year window for earnings normalization can be found in Fama and French (2000), where they find that the rate of mean reversion in corporate profitability is approximately 38% per year.<sup>xviii</sup> At this rate it would take the average company approximately two years to get back to a trend rate of earnings growth after a short fall. This process tends to occur more quickly in companies that have drifted further away from their long-term levels of profitability, but on average, an 18 to 24 month recovery window is appropriate for normalization to occur.

### *Margin of Safety*

We don't just invest in the new lows list at Snow Capital. Our rigorous bottom up analysis is centered on determining the long term viability of the companies we are interested in. Not all price changes are unwarranted. An over levered company dealing with a problem can quickly become a bankrupt company.

"When an investor focuses on short-term investments, he or she is observing the variability of the portfolio, not the returns - in short, being fooled by randomness."

**-Nassim Nicholas Taleb**

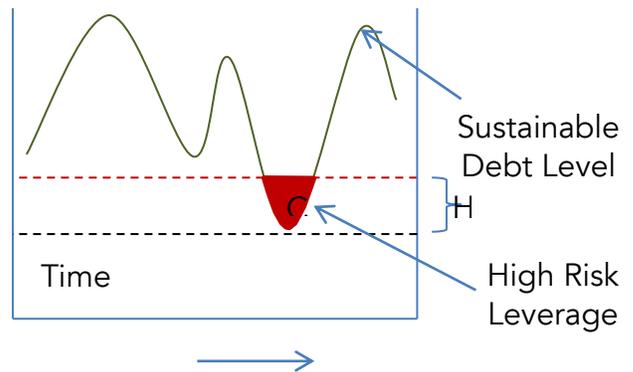
"Price is what you pay. Value is what you get."

**-Warren Buffett**

When your investment process is dependent upon the long term "normalization" of earnings and valuations it is essential that your investment time-horizon match that of the typical normalization process. As was found in Fama and French (2000) the time line over which earnings drift returns to a baseline occurs typically in a 24-26 month cycle. For overly depressed earnings or overly inflated earnings the process happens a bit faster. However, assuming one can never know the exact extent of a company's problems, prudence dictates that we look to invest in companies with a balance sheet and cash flows that provide support in times of difficulty.

We spend a great deal of time combing through financial statements and modeling company financials to ensure that we have the margin of safety necessary to patiently wait for normalization to occur.

If one had perfect knowledge of the timing and trajectory of a company's earnings recovery then the highest expected returns should be obtained from those companies with the highest percentage of debt to equity on their balance sheet at the time that earnings and prospects begin their upward ascent. Unfortunately, it is extraordinarily difficult if not impossible to consistently purchase highly levered companies without incurring significant risk. The relationship of leverage and potential equity returns perfectly illustrate the conceptual assumptions imbedded in the Capital Asset Pricing Model (CAPM) as highly levered companies enjoy high risk to equity and consequently high potential gains or losses while companies with low leverage have lower risk but commensurately lower potential for equity appreciation and loss. The model was introduced by Jack Treynor (1961, 1962), [1] William Sharpe (1964), John Lintner (1965a,b) and Jan Mossin (1966) independently, building on the earlier work of Harry Markowitz on diversification and modern portfolio theory.



We are often asked if we have owned airline companies. For the record we have never owned an airline. Now, theoretically, we may decide to invest in an airline in the future, but our reason for not purchasing an airline is tied directly to their debt levels and the fixed cost nature of this business. In high fixed cost businesses high levels of debt create a situation of adverse risk because any unforeseen revenue change for the worse can and usually does lead to losses of income, impaired debt and subsequently the loss of significant equity value. High variable cost businesses can sustain higher debt levels because costs rise and fall with revenues and therefore cash flows and profits are more insulated from the economic cycle. One can think of the optimal level of debt appropriate for a particular company as that level of debt that can be serviced at the lowest point of profitability in a company's life cycle. Companies with high levels of fixed cost should be the least levered, but the automobile and airline industries are good examples where such common sense balance sheet considerations seem to be absent. Needless to say one does not need to search very far back in history to find examples of bankruptcy in the airline industry.

## Concentrated Portfolios

Snow Capital constructs portfolios of 30-60 stocks, depending on the investment strategy. We believe that portfolios of this size provide adequate diversification and enough concentration for clients to benefit from our investment process.

"Diversification is a protection against ignorance. It makes very little sense to those who know what they are doing."

– **Warren Buffet**

"The wise man puts all his eggs in one basket and watches the basket."

– **Andrew Carnegie**

The number of stocks required to produce a "well-diversified" portfolio is one of the most hotly debated issues in modern finance. The controversy began in 1968 when Evans and Arch wrote in the *Journal of Finance* that portfolios with as few as 10 securities had a standard deviation or risk that was negligibly different than that of the overall market.<sup>xi</sup> Many subsequent researchers have argued that such a portfolio is not adequately diversified. The arguments used to debunk Evans and Arch center on both the changing volatility and correlation of stocks in the market, and the long-term returns of randomly constructed portfolios. Since 1968 stocks have become less correlated and volatility has increased for both stocks and the market. These changes argue for a slightly larger number than 10-15 securities to achieve diversification.<sup>x</sup>

The vast majority of investment professionals have gravitated toward designating portfolios of 30-60 stocks as adequately diversified. Recently new research has confirmed this conclusion and addressed the criticisms of Evans and Arch concluding that a portfolio of 40-50 US domestic stocks provides sufficient diversification.<sup>xi</sup>

## Conclusion

Richard Snow developed the Snow Capital Management investment process during his first 15 years of investing, based on his own empirical analysis. He did not study the available academic literature. He looked at where he could find lucrative investments, how long it took for those investments to pay off and how many stocks he had to own to take advantage of the market's opportunities. The investing principles he discovered have been validated through the independent research of many very accomplished academics.

We employ a contrarian approach to investing because as long as human beings participate in markets, emotions will drive investor behavior. Emotional investing is inherently irrational and thus provides opportunities for asymmetrical investment pay-offs.

The investment process adhered to by the investment team of Snow Capital has been successful in the past and we believe this success is repeatable in the future. The research has proven the persistence of the irrationality of asset pricing in the markets and we believe our team-oriented and concentrated implementation of our process will enable Snow Capital to provide our clients with successful investment results for years to come.

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<sup>i</sup> Benjamin Graham, *The Intelligent Investor*, Fourth Revised Edition, Harper & Row, Publishers, Inc, 1973

<sup>ii</sup> Ibid

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<sup>iv</sup> Steven G. Saprà, CFA and Paul J. Zak (2010), "Eight Lessons from Neuro-economics for Money Managers", *The Research Foundation of CFA Institute, Behavioral Finance and Investment Management*, December 2010.

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