Compilation of the 'Basic Financial Analysis' Series with an important Addendum

Part I – June 19th, 2009

In an age of green shoots, fluff, and spin, it is probably worthwhile to put our feet on the ground every so often and take a look at some old fashioned ways that we might value a project, a firm, or capital stock. Too many times over the past 15 years in particular, investors have been lured into various valuation traps. Probably the most noteworthy was the dotcom era of the late 1990's and the first part of the 21st century. Not a great start to a new millennium. And so the trend has been that each time the investing public deviates from the 'old fashioned' rules of finance and analysis, there is always a good whipping waiting just around the bend.

Unfortunately, turning on the television won't do much in the way of helping one to find answers in this regard. Much like the medical community, the financial and investing world is littered with incomprehensible jargon, which can be downright boring at best, and impossible to follow at worst.

The Elusive Concept of 'Value'

So how exactly does one ascertain the value of a stock? This is absolutely the wrong place to start, and this is one reason why many folks never get their investing careers off the ground. You cannot start with the capital stock and back your way into the value of the company, its product pipeline, revenue streams etc. First of all, there are many flaws with stock prices, the biggest being the fact that there are emotional and irrational human beings involved in the formation of those prices.

Just think of the dotcom blowout a few years ago. Anything with 'E' in front of it headed for the Moon, but ran out of rocket fuel halfway there. Those carcasses of financial recklessness are still drifting in outer space and should be a testimony to the rest of us of what can happen when we allow our emotions and irrational nature to control our investment decisions.

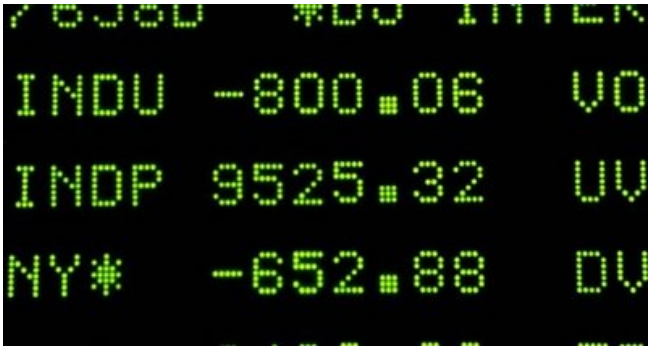
The second is that there is generally some level of incomplete information. The Internet has helped mitigate this to some degree, but at any given instant in time, there are some buyers who know a whole lot more about a firm than others. And to compound matters, occasionally firms will withhold negative information from the markets until a certain time such as the end of trading for the day or week. What was a 'rational' price at 4PM ET on Friday might suddenly become an irrational one when the market opens Monday morning as irrational people scramble to catch up with the information.

In my opinion this is where the Internet has actually had a deleterious affect on accurate stock price formation. People aren't investors anymore; they're traders. They buy black box software that spits out red and green arrows, and then click mouse buttons based on those arrows. They know nothing about the underlying security, nor do they care to know anything. Just make me rich they say. I'd say the smart money would bet on their financial demise and be right more often than wrong. The proponents of such systems will be the first to tell you that their methodology takes the emotion out of trading. **But they neglect to tell you that their system is based market data, which is the result of all the other emotional traders out there. So how devoid of emotion is it really?** We could go on for pages on this topic, but I think the point is clear.

It would certainly seem that when the accurate (but by no means complete) analysis above is considered that the deck is stacked against someone who is truly inclined to be an investor. Not so at all. Navigating today's markets is all about being a filter. Filtering noise. Filtering meaningless 'events' in favor of information that might change a trend or an assumption that one has made. It is about conviction. It is about being able to sit back and watch while the rest of the world goes absolutely berserk. It is also about recognizing that prices oscillate around the approximate tangible value of any financial instrument much like a sine wave. Obviously once you've identified your target stock; you want to buy when the price is oscillating below your measurement of its real value. In other words, you buy it on sale. Conversely then you would want to sell it when the price is peaking above the real value thereby selling it at a premium and maximizing your profit. If it were truly that simple however, I wouldn't need to write this article at all. The market throws enough curve balls at investors as it is. If we can nail down an approximate real value of the financial instruments we are interested in purchasing, we have a fighting chance of doing well.

One important carryaway message from all this is that **you must have patience**. Our world has fallen prey to the doctrine of instant gratification. Everything must be instant or immediate. Processes that used to take days and weeks to initiate and complete now take minutes and hours. Two prime examples come to mind. The time it takes to purchase a home and the time it takes to invest money. It used to take weeks of shuffling papers to buy a house. Now it can be done in a few days' time if everyone is properly motivated. The same is true for investing. People opened an account, purchased their stock and then watch the

Sunday paper from week to week and charted their progress. Look at all that has happened because making large financial decisions has become too easy and the rational thought process became susceptible to impulse. The problem is that patience just isn't cool anymore. It isn't en vogue. After all, the rabbit always beats the turtle….right?



It is my goal over the next few weeks to give readers a window into valuing financial instruments. Once the value of an instrument is known, then it is just a matter of waiting for your price. However, it is not really appropriate to think in terms of things going on sale at your favorite electronics outlet. There are only two reasons someone buys a financial instrument. They are either purchasing a cash stream as in the case of a dividend-paying stock or they are purchasing the instrument in the firm belief that someone will come back at a time point in the future and buy it from them for a higher price than they paid. When you go to your favorite electronics outlet, you're buying something to use and the thought process is different.

Zeroing In on Value

Probably the first mistake people make in beginning their search for suitable financial investments is they start with a preconceived notion of what is 'hot'. They get a tip from a friend or see the name of a firm in the financial section of a magazine or newspaper and decide to begin searching. In reality, the best way to start valuing financial instruments is to first figure out which of them are actually worth valuing in the first place. This approach is often called the 'top-down' approach and it starts with coming to a general understanding of the economic environment under which one is operating. What is the direction of interest rates? Is the borrowing environment friendly or restrictive? Are consumers extending or retrenching? What is the condition of the labor market? Are trade conditions favorable due to currency and political factors? And what about energy costs for product transportation?

These are just a sampling of the questions that you will need to find answers for. It was by this process that it was easy for me to eliminate most things dealing with the consumer discretionary sector as the economy dove into recession in late 2007. Seeing that recession ahead of time prevented misallocations and the subsequent losses that would have occurred. There were other sectors though that had their problems. Some have already since emerged in dramatic fashion, while others have yet to.

Once you have some answers and a basic economic analysis, you can pretty much tick down through a list of industries and themes and find the ones that will be well-served by the current environment and those to stay away from. It is perhaps even more important to form something of a forecast for at least the next year to two years. Once you get past two years, it becomes exceedingly difficult for even the most gifted economist to be accurate given the complexities of a modern world and financial system.

Themes versus Forecasting

One of the biggest problems with economic forecasting is that it is both time and resource intensive and is a full-time job. That said, forecasts are easily purchased from a myriad of sources at a cost. Perhaps another way of looking at things and deciding on which areas are worth further scrutiny is by using themes. It is pretty simple. Take the debt situation that exists in the United States today at a government, state, local, and personal level. It would seem to be a pretty good bet that this will impede economic growth well into the future, and thus absent a lot of monetary creation and stimulus, it is unlikely to see consumer discretionary spending accelerate all that much. That is a theme. Realize we aren't dealing with percentages, statistical analysis, or anything more fancy than sitting down and applying some common sense to our current realities and coming up with some likely outcomes. We can easily use such themes as a basis for either including or excluding certain sectors for further investigation and analysis.

Notice we haven't even used one math formula, a calculator or pulled a single stock quote and I'll bet you're already thinking of a number of potential themes and comparing them to what is in your current portfolio. If so, congratulations! You've taken the first step in performing basic financial analysis. Next time we'll take a look at identifying the players both large and small in a given sector and looking at the potential benefits and detriments of each. This will assist us in forming an appropriate mix given our risk tolerance and other objectives.

Part II – July 2nd, 2009

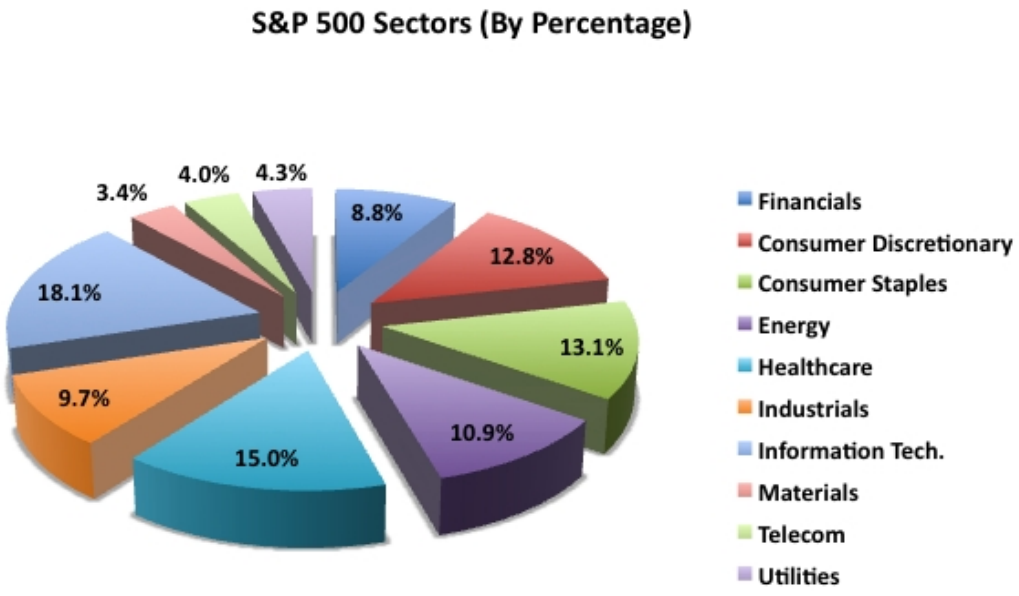
Last time we discussed the concept of valuation for some different types of investments and the formation of themes that can be used to help zero in on potential areas for focus. This week we'll take a look at some ways of breaking down industries and sectors, sizing companies, then connecting the dots between economic themes and investment needs.

If you go to the NYSE website, you will be able to find what is called an Industry Classification Breakdown or ICB. There are ten major industries with varying numbers of supersectors, sectors, and subsectors under each major heading. Now let's say for example, in your reflections on what the major economic and investing themes happened to be that you zeroed in on consumer staples as an area that is positioned for success. At this point we are assuming that you're not interested in just finding an ETF or Closed-End Fund that gives exposure to firms that produce consumer staples, but are interested in becoming more acquainted with some of the individual firms themselves. Once you have performed your basic analysis, you'll know which firms you'd want an ETF or other Fund to include or can purchase them outright and will be an informed shopper so to speak. That said, when you go to the ICB listing for Consumer Goods, you will find the following:

Consumer Goods

1. Automobiles and Parts
   a) Automobiles and Parts
      1) Auto Parts
      2) Automobiles
      3) Tires
2. Food & Beverage
   a) Beverages
      1) Brewers
      2) Distillers and Vintners
      3) Soft Drinks
   b) Food Products
      1) Family & Fishing
      2) Food Products
3. Personal and Household Goods
   a) Household Goods
      1) Durable Household Products
      2) Furnishings
      3) Home Construction
      4) Non-durable Household Goods
   b) Leisure Goods
      1) Consumer Electronics
      2) Recreational Products
      3) Toys
   c) Personal Goods
      1) Clothing and Accessories
      2) Footwear
      3) Personal Products
   d) Tobacco

Clearly you are not interested in examining all of these areas. Your focus as decided above is on staple goods. Immediately, the broad category of Leisure Goods can be eliminated. Automobiles can probably be eliminated as well if we're focusing totally on staples or necessities. This leaves a wide sampling of categories. For the purposes of this discussion and in the interests of brevity, we'll limit our analysis to a single sub sector – Food Products.



Before we continue, some limitations of this search methodology must be identified as well. The NYSE search is only going to show the firms that are listed on NYSE. It will not show international firms that are listed on other major exchanges, but not on the NYSE. The good news is that many of the larger firms are dual-listed. The bad news is that by limiting your search to only NYSE-listed issues, you will likely miss some good possibilities. Many of the other major exchanges such as the TSX also have similar search capabilities and by spending a little time, you can quickly assemble a rather comprehensive list of investment possibilities within any given sub-sector.

A look into the Food Products sub-sector reveals no less than 46 US-listed companies and their related securities. The information provided is limited to the name of the firm, the ticker symbol, last trade / trade date, volume, change($), and change(%). At this point, the biggest tendency for individual investors is to scan the list, find the name of a firm they know and start their search there. This is not the way to go; emotion has already entered the equation and in your mind you're already playing favorites and biases have taken control of the process. At this point, you must consider your own objectives:

- When will you need this money?
- What do you anticipate eventually using the money for?
- How much money do you have to work with?
- What is your risk tolerance?

The answers to these questions will help you decide on what types of firms you're looking for. Do you want large companies with low volatility that pay high dividends? If you're approaching retirement, this might be the way to go. If you're younger and are looking for capital appreciation, you might consider looking at some of the smaller companies that are more volatile, but have more room to grow. Are you risk averse? The fact that you're looking at consumer staples to begin with might say something about your willingness to accept risk (wait, I picked that category!).

This is an important part of the process. We are now connecting the economic themes that we decided will be important with our own personal situation. The worst thing anyone can do is take his or her own themes, then just grab someone else's prepackaged strategy without considering if it actually fits. It is the financial equivalent of buying a pair of trousers without bothering to look at the size, choosing rather to buy them because you thought they looked good on somebody else.

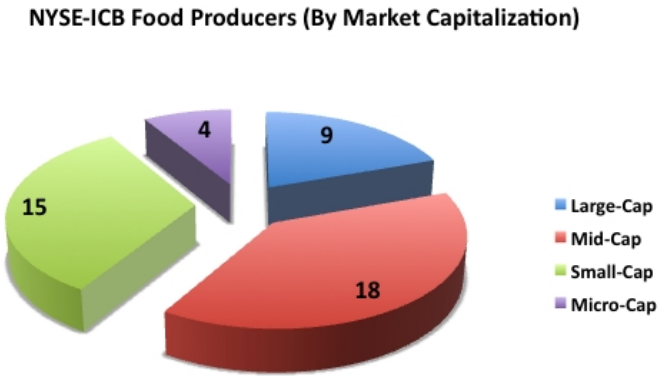
So in our hypothetical analysis, we decided that the economy is in recession and is likely to be there for some time, and have come to the conclusion that people will cut back on discretionary spending (which they have). We realize that inflation is a problem, and so leaving our capital in a bank account is not the greatest idea if we expect to maintain our purchasing power. Food products will certainly not be the only theme we invest in, but it is a good starting point.

Large or Small?

The next issue becomes the determination of what constitutes a large company and what constitutes a small one. Obviously, there are a number of characteristics that may be used to determine this, but one of the most generally accepted definitions is the firm's market capitalization. Market capitalization is the share price multiplied by the number of outstanding shares. Another way of expressing market cap is that it represents the public opinion of the value of the company. The sizing of companies can generally be lumped into the following brackets:

- Large-Cap Companies $10 Billion - $200 Billion (or more)
- Mid-Cap Companies - $2 Billion - $10 Billion
- Small-Cap Companies - $200 Million - $2 Billion
- Micro-Cap Companies – Less than $200 Million

Using the Food Products sub-sector as our continuing example, of the 46 issues in that category, the breakdown is as follows:



As is evidenced by the chart above, there is a solid distribution of firms in this sector according to size as measured by market capitalization with most of the companies (33)

falling in the small or mid cap range. This distribution is good news as it means that no matter what your investment goals and risk profile, you should be able to find a reasonable number of firms that are desirable for addition into a portfolio, or are firms that should be looked for when looking at ETFs and open/closed end funds.

Using this methodology it is fairly easy to drill down to potential specific investment possibilities from a variety of economic themes. What we need to accomplish next is creating a definition of value and the parameters by which we will measure it. Next time we'll take a look at some of the popular valuation metrics and develop a few of our own as well, which we can add to our toolbox as we continue to chase the oftentimes elusive concept of value.

Part III – July 10th, 2009

Before we begin, it must be understood that there are many perceptions of value. In fact, if you took 10 investment professionals polled them individually; you'd likely get several very different definitions of value. If you put them together and forced them to come to a consensus, you would do well not holding your breath waiting for an answer. While there is no one right definition – especially in the investing world, what we are looking to do is select a metric or some group of metrics that applies to our particular situation. Again, investing should not be approached with a 'one size fits all' mentality. It must also be said that this list is not a comprehensive one, but rather a sampling of some of the methodologies available for ascertaining value.

The Mainstream's Darling - P/E

If you turn on your television, perhaps the most popular measurement of 'value' is the price/earnings or P/E ratio. While P/Es are mentioned frequently, rarely does anyone stop to really think about what it represents. Simply put, the P/E ratio is the price of a share of stock divided by the earnings per share. In essence, it is how many dollars you will pay in share price for each dollar of earnings. I will be honest; I rarely use P/E as a decision tool simply because I don't believe it is applicable in most situations. An average investor is not buying earnings. Sure, earnings may help drive the share price in the future, but they just as easily might not. News events about a company can drive price as much if not more than earnings, so perhaps a Price/News ratio would be appropriate too? And really, why would anyone ever want to pay more than a dollar for a dollar's worth of earnings anyway? By definition then, a P/E of greater than 1.0 would mean the stock is expensive. The argument will also be used that one is not simply buying the earnings, but a claim on the assets of the corporation. While this is theoretically true, you can't drive down to your local Home Depot and take a truckload of lumber out of the store without paying just because you're a shareholder!

So there are many conceptual problems with the idea of P/E ratios yet once the P/E of the DOW goes below a certain point, we're supposed to buy because stocks are now 'cheap'. This to me is drawing some parallels that are eerily similar to herd mentality. All this should not be construed as an indictment of the P/E ratio, but rather to point out its limited relevance in terms of determining 'value'.

Another frequently used, but less popular metric is the Price/Book ratio or P/B. Simply put this is dollars paid in share price for each dollar of book value. This is more of a liquidation metric, however, than an actual investing metric. Now there are some obvious instances where once might sniff out a bargain. Our example in the prior week's issue of food companies is a bit lacking, but let's use the example of a natural resource company. If for example, the company has proven resources in its properties and the P/B is .75, we might, in the absence of extenuating circumstances conclude that this is a bargain and that the stock is currently undervalued.

Some Situational Metrics – Cash Flow Generating Securities

One of my personal favorites is calculating the Net Present Value/Breakeven point for a stock that pays a stable dividend stream. This metric actually has relevance because the dividend is a cash payment that comes directly to the investor as a consequence of owning the shares. In the short-term, dividends are a known quantity. Obviously the metric only applies in the case where a dividend is paid. In the case where an investor is focusing on dividend investing for income purposes or simply for generating the maximum cash from their investing capital, these are important considerations.

An example is on order. Let's say that an investor purchases 100 shares of a stock trading at $10/share that pays a $1/share annual dividend. The dividend yield on his investment is 10%. The P/Div ratio is 10. This means that the investor paid $10 for every dollar in dividends. Now the nice thing about dividends is that they are cash streams and we can use some common time value of money calculations to make determinations as to whether or not to invest. Let's use the 100 shares as an example and do a net present value calculation with the following assumptions:

- Our time horizon is 25 years
- Dividends over the 25 years will average the current $1/year
- The Cost of Capital (COC or inflation) will be 6%/year for the duration of the exercise

Most popular spreadsheet programs contain the NPV function where you can set your COC and the value of the individual cash flows if you desire to perform this analysis for yourself.

The Net Present Value of this situation is $262.58, giving a positive indication or a 'buy' signal. This alone should not be used to make a buy determination, but should be used as a tool to validate or invalidate individual investment opportunities that arose from our analyses in parts I and II.

The Time to Cover or Breakeven point of this hypothetical investment is Year 15. What this means is that after 15 years, the dividends (after accounting for the deterioration in value due to inflation) will cover the cost of the initial investment. Whatever the investment itself is worth at that time is added value. So even if our stock is still at $10/share, it is paid for, we're in the clear, making dividends for another 10 years before we need the funds, and can sell the stock at any time thereafter for a pure profit. And since inflation has already been figured in, we're talking about real gains. We can easily modify the analysis to

accommodate hypothetical taxation circumstances as well. Another important point may also be made from the above analysis. Considering that we're getting $1/year in dividends, in nominal terms, the Time to Cover/Breakeven would be 10 years. Inflation at a rate of 6% per annum increased the breakeven point by 50% or 5 years. While 6% doesn't seem like that much, this example illustrates exactly how much of a burden on wealth it represents. If anyone really wants to see why clipping bond coupons isn't such a hot idea, run this analysis on the 30-year Treasury Bond and it will become immediately obvious.

Moving forward, when looking at dividend paying investments, we are looking for lower P/Div ratios (higher yields), and consequently lower Time to Cover/Breakeven points. While looking at the yield gives some good insight, using the NPV and breakeven analysis allows us to quantify the deleterious effects of inflation over time. The yield alone doesn't give us that ability since it is a snapshot in time and changes as the price of the underlying security changes. It is important to note that in this study, we are NOT valuing the firm. We are valuing the cash streams that the firm pays to shareholders and discounting them to the present.

The risks to the above analysis are obviously many. 25 years is a long period of time, and things can change dramatically. Firms can go out of business or eliminate dividend payments thereby rendering the above effort worthless. Also, the major types of risk such as market, currency, political, and systemic cannot be accounted for over such a long period of time. This is one of the reasons why it is never a good idea to buy today and walk away.

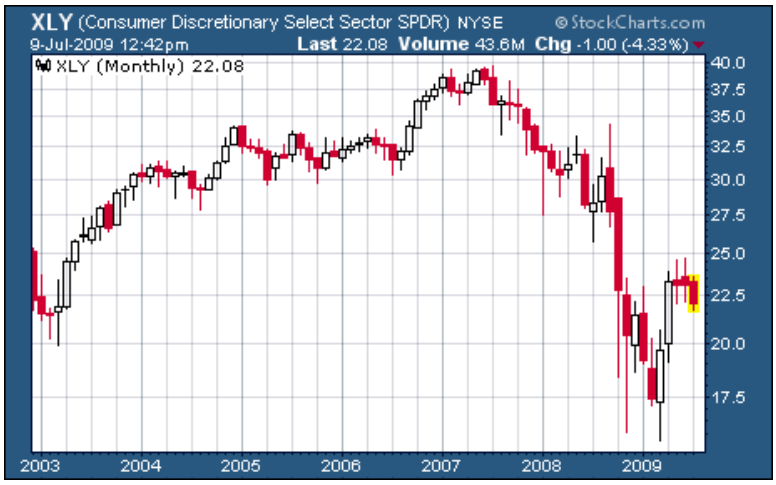
Successful investing is a journey, not a destination. As soon as you think you've got it all figured out, that is when you'll get bitten. Vigilance is the name of the game. Another obvious takeaway here is that we're dealing with long term investing, not trading. Such studies are a moot point for the short-term trader since their focus is on a different goal. Realize I am not trying to be impertinent towards traders, but simply pointing out the difference between their objectives and those of long-term investing.

Non Cash Flow Generating Securities

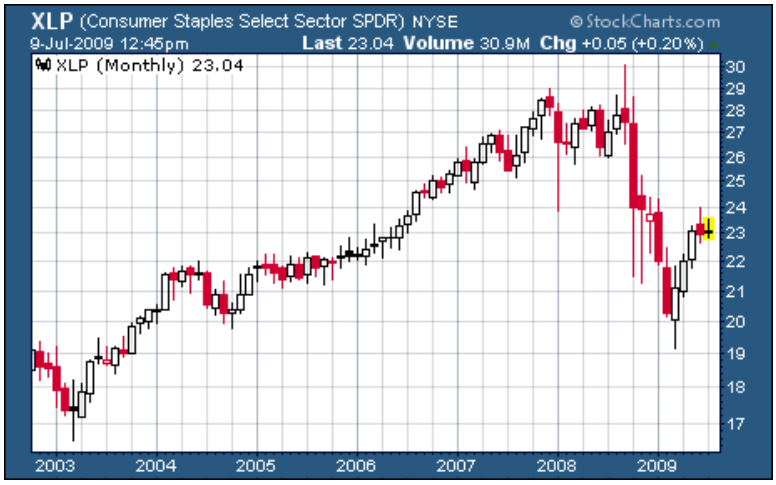
For firms that do not pay dividends, the investor is limited to just one way to make money directly (other than writing options) from owning the stock and that is appreciation. In this situation, choosing appropriate themes becomes even more important because say for example, you selected a firm that pays no dividend and is in a market niche that relies heavily on discretionary consumer spending.

When the economy entered into recession in late 2007, you would have had very little in the way of flexibility since there is in effect no longer anything supporting the price of your stock. You're not being paid dividends while you wait out the business cycle. So you can either write covered calls and ride out the storm or just pull up stakes and get out of town. Below are charts of the XLY (Consumer Discretionary Sector) and the XLP (Consumer Staples Sector). Let's compare these two distinctly different themes and see why it is so crucial to pick your themes properly since all success thereafter flows from those initial observations and decisions.

The XLY for Discretionary Goods



and the XLP for Consumer Staples



From peak to trough, the loss for XLY was approximately 58% while the loss for XLP was 29%. For sure, 29% is not anything to write home about, but it does serve to illustrate the importance of picking the proper themes.

Earnings Growth

However, there is one quantitative metric that is very useful in determining the success of a firm's operations in the absence of dividends, and that is earnings growth. I prefer using earnings growth to sales growth or margin growth simply because earnings are at the bottom of the income statement and represent the impact of the entire operation including all of its cost centers on the bottom line. Companies that are able to consistently grow their earnings even during troughs in the business cycle are obvious candidates for any investor's portfolio. While it remains true that the investor isn't paid those earnings, companies that make money and grow their earnings are generally looked on favorably by

the market, and as such are positioned to do well, all else being equal. One spinoff of this methodology is the PEG ratio or price/earnings/growth, which is stated below:

P/E Ratio
---------- = PEG Ratio
EPS Growth

The PEG ratio gives some degree of relevancy to the P/E ratio because it factors in growth. Obviously, the lower the PEG ratio, the 'cheaper' the stock is because in essence, you're paying less for growth. Or, put another way, you're paying less for the likelihood that the stock will go up in the future all other things being equal.

When valuing firms that don't pay cash streams to the shareholder, it also becomes important to focus on intangibles because many times, they are what will drive the share price, rather than solid fundamentals such as earnings growth. There is an old market saying that goes as follows: "The market can be wrong far longer than you can remain solvent betting against it". If you have the luxury of a long time horizon and no immediate need for your cash, you can afford to buy into the themes you feel will do well in the long term, monitor them, and wait for the market to sort it all out.

This is one of the main reasons I prefer dividend-paying investments. First of all, from an analysis standpoint, they provide something quantitative to analyze. Secondly, if you're a long-term investor and the market hasn't gotten on board with you yet, you are being paid (in some cases very handsomely) to wait. Thirdly, if you come to a decision where you'd like to retire and need some income, you already have it coming in. You're not forced to sell into a potentially bad market to find income.

Next time we'll take a look at risk, diversification, and portfolio construction now that we've been able to select our themes, come up with some portfolio candidates, and use various metrics to make some value judgments regarding those candidates.

Part IV – July 24th, 2009

The cliché's are plentiful and well known. Putting all of one's eggs in a single basket is probably the most popular example. One of the biggest manifestations is when an investor looks at their portfolio and realizes that it is grossly underperforming a particular market index or that the same portfolio has performed much worse than a given benchmark. Even if you've done everything right and selected the right themes, industries, and firms, if you get the portfolio mix wrong, you can still have problems. This is one of headaches that mutual funds are generally supposed to relieve investors of, but for a litany of reasons, it doesn't seem to always work out that way. In truth, every individual portfolio is a mutual fund of sorts, and so the same rules apply.

Types of Risk

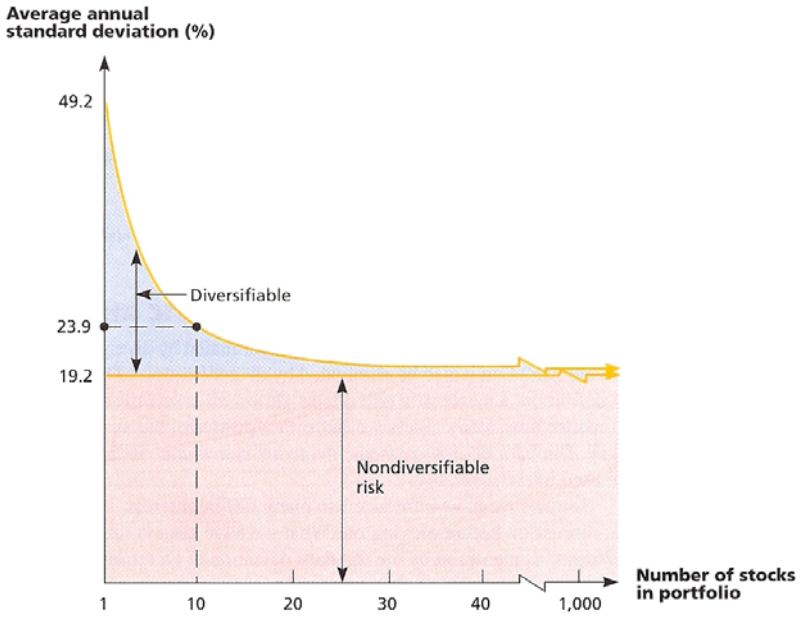
In general, there are two broad types of risk: systematic (non-diversifiable) and non-systematic (diversifiable). Keep in mind that what we are discussing here is slightly different from geopolitical risk, currency risk, interest rate risk, etc although each of those

specific types of risk do contribute to the overall riskiness of a particular stock and as such cannot just be ignored.

The data in the chart below is from a 1987 study on diversification just after the market crashed. Obviously**,** at that time, diversification was a hot topic as investors scrambled to adjust portfolios and recoup the losses. The data below lists the number of components, the standard deviation of annual returns for each portfolio, and a comparison of the standard deviation of the portfolio to that of a single component.

Number of Components in the Model Portfolio	**Average Std. Deviation of Annual Portfolio Returns (%)**	**Ratio of Portfolio Std. Dev. to Std. Dev. of a Single Component**
1	49.24	1.00
2	37.36	.76
4	29.69	.60
6	26.64	.54
8	24.98	.51
10	23.93	.49
20	21.68	.44
30	20.87	.42
40	20.46	.42
50	20.20	.41
100	19.69	.40
200	19.42	.39
300	19.34	.39
400	19.29	.39
500	19.27	.39
1000	19.21	.39

Below is a graphic representation of the data in the chart above. It may clearly be observed that standard deviation of the portfolio is asymptotic (law of diminishing returns) as it relates to eliminating the systematic (diversifiable) risk. In fact, once the number of portfolio assets surpasses 30, the standard deviation does not drop appreciably, even when another 970 components are added! Obviously, this reality enforces that quality is better than quantity.



Think of the case of the individual investor who buys 100 stocks thinking he is diversifying away all his risk. He has borne a significant opportunity cost in the form of commissions without purchasing much in the way of additional protection from non-systematic risk. The upper portion of the chart deals with non-systematic risk, which can be largely diversified away. Notice though that even when the portfolio contains 1000 components that the standard deviation is still 19.21%.

A good example of systematic risk is pure market risk. Obviously if the capital markets crash again as they did in 2008, it will be exceedingly difficult to put together a basket of stocks that will withstand such a downward draft. There are other types of risk such as geopolitical, currency, inflation, interest rate, industry, and geographic. By using a crosscut approach to diversification, one is able to not only mitigate much of the non-systematic risk, but a good portion of the systematic risk as well. This is accomplished by looking at your themes selected several weeks ago, then addressing each type of systematic risk in your selection of assets. This approach is one of the main reason that our Centsible Investor Model Portfolio has done so well while the broad markets have languished.

Beta (ß)

Quantitatively, Beta is the generally accepted measure of systematic risk for a stock and is defined as the amount of systematic risk present in a particular risky asset relative to that in an average risky asset. Essentially what Beta does is compares a particular stock in this case with an average stock, or more accurately, a benchmark basket of stocks:

$$\beta_a = \frac{\mathrm{Cov}(r_a, r_p)}{\mathrm{Var}(r_p)},$$

where r_a measures the return of the asset, r_p measures the return of a portfolio of risky assets (often the stocks in an index), and $\mathrm{Cov}(r_a,r_p)$ is the covariance of the returns.

Interpreting Beta is rather simple. 1.0 is the Rubicon so to speak. Betas lower than 1.0 indicate that the stock in question has a lower level of systematic risk than the 'market' while a Beta of greater than 1.0 indicates a stock that has a greater level of systematic risk than the 'market'.

Knowing this, it becomes a rather simple matter to calculate the Beta of your portfolio simply by ascertaining the weight of each component and then multiplying it by that component's Beta. Let's use a hypothetical example where we have a 3 stock portfolio; Stock A is 25% of the portfolio, Stock B is 40% of the portfolio, and Stock C is 35% of the portfolio. The Beta of Stock A is .75, Stock B is .50, and Stock C is 1.25:

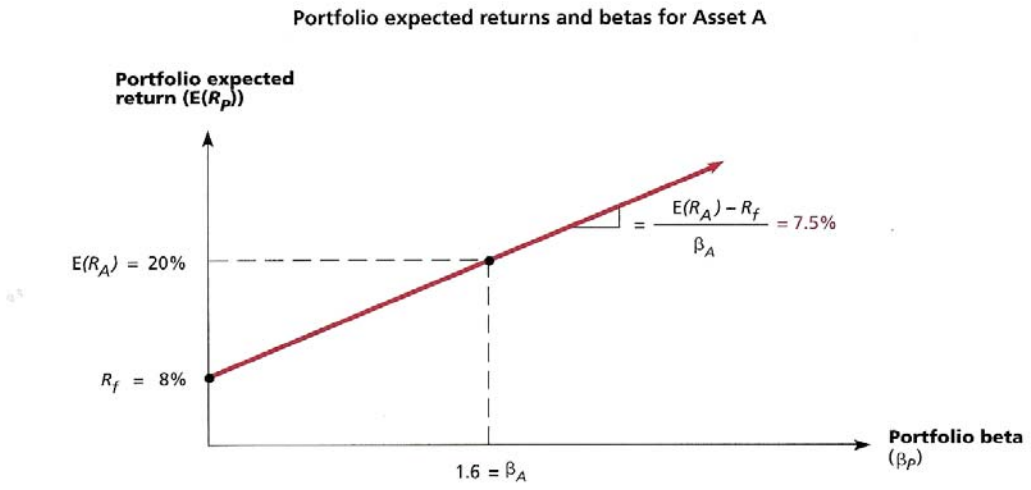
$Beta_{portfolio}$= .75(.25) + .50(.40) + 1.25(.35)
$Beta_{portfolio}$ = .83

This calculation indicates that this 3 stock portfolio has systematic risk that is lower than that of the market, however, its non-systematic risk would be considerably higher than one would desire since there are only 3 components. All else being equal, the ideal would be to find a portfolio of perhaps 25-30 stocks that has a $Beta_{portfolio}$ of .83, as this would mitigate much of the non-systematic risk as well.

Beta and the Risk Premium

While using the term risk-free in today's financial and economic climate might result in a shower of protest, the concept of the risk-free asset has an important place in the discussion of risk vs. reward, particularly when selecting portfolio assets.

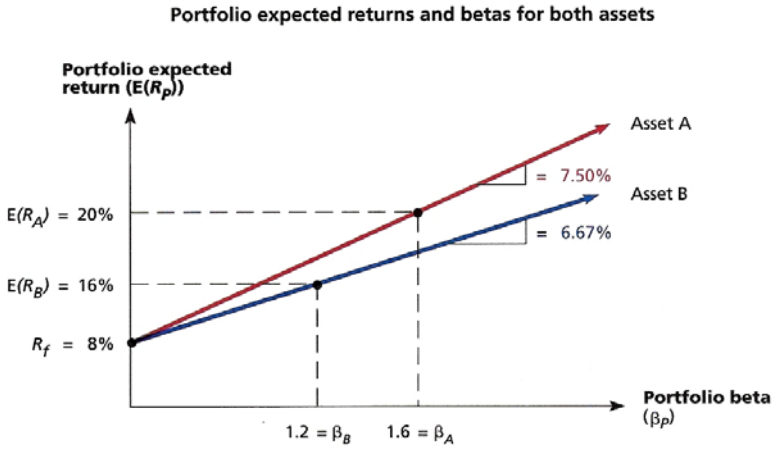
Let's use an example of a stock with an expected return of 20% and a Beta of 1.6. Let us also assume (entirely for illustrative purposes) that the risk-free asset has a return of 8%, with a Beta of zero since it has neither systematic nor non-systematic risk. In the case of expected return, we are relying on an educated guess, but in the case of stocks that pay dividends, one could easily plug the dividend yield into the expected return as well. When we plot out our stock and the risk-free rate and generate a Security Market Line (SML), we get the following:



The chart above is relatively easy to interpret; we consider the 'risk-free' asset R_f with its corresponding Beta of zero and return of 8% and our stock with its Beta of 1.6 and its expected return $E(R_A)$ of 20%. When we connect the dots and measure the slope of the line (rise/run), we get a slope of 7.5%. From this graph, we can ascertain that our stock has a ***reward to risk*** ratio of 7.5% meaning that our stock has a risk premium of 7.5% for each 'unit' of systematic risk. Obviously, the higher the reward to risk ratio, the better, meaning we'd want to see higher $E(R_A)$ and/or lower Beta; either of which would increase the slope.

In a final example, let us now compare our stock in the previous example (called Stock A) with a second stock (Stock B). Stock B has a Beta of 1.2 and an expected return $E(R_B)$ of 16%. When we construct our Security Market Line, we end up with a slightly different picture than we had with Stock A.

The ***reward to risk*** ratio (or slope of the line) for Stock B is 6.67%. What this tells us (all other things equal) is that in essence, Stock A is a 'better' choice than Stock B simply because it generates more reward for each unit of systematic risk undertaken.



This analysis is especially useful when one is selecting portfolio components and wants exposure to a particular industry or sector, has multiple candidates, but doesn't want to include them all for fear of being overweight that particular area. In this manner, the candidates may be lined up and compared to see both visually and quantitatively where the best bang for the buck lies.

Of all the areas discussed in our sample exercise over the past few weeks, diversification and risk are the two areas where investors are most likely to stumble. Many fail to properly diversify because they don't understand the value of it or because they don't have enough capital to diversify by purchasing individual stocks and should look to ETFs, open-end or closed-end funds as an alternative. While the analysis above was primarily for stocks, those investors seeking to hedge their portfolios with precious metals can certainly plug their favorite shiny coins into this analysis. For those so inclined, Betas may be hand/Excel-calculated for commodities using the major indexes, or commodity indexes, such as the CRB as the 'market' portion of the calculation.

In summation, probably the most important takeaway from this article should be that a portfolio doesn't need 100 components to be adequately diversified in terms of non-systematic risk. 30-40 will do just fine. A second important point is that by using your economic themes and how they relate to systematic risks in your selection of an appropriate number of assets, you can mitigate a good deal of the systematic risk to your portfolio as well.

***Addendum* – August 7th, 2009**

So far we have discussed the formation of economic themes, the selection of industries and sectors likely to succeed, then the identification of potential firms in each sector and some possible methodologies that may be used to evaluate individual investment possibilities. Finally, we discussed portfolio diversification and provided the ironclad statistics that the mutual fund managers hope you never see and understand. If you did, they'd be out of business rather quickly.

In this final installment, we take a look at monitoring. This is one of the areas where most self-directed investors and even portfolio managers often go wrong. Investing is not a destination, but a process. You are never done investing until such a time as you either run out of money or run out of the need for money. Even hoarding cash in a bank account is an investment decision and needs to be approached with the same rigor as which energy exploration company has the best chances for success. Investing is a process and needs to be approached as such. Advisers who adhere to the strategies of yesteryear such as 'Buy and Hold' no longer have a firm grasp on the dynamics driving today's economy. That said, one doesn't need to be a trader to find success in today's financial climate.

One does need to be aware of the challenges, and how they are changing. Right now, the pace is frightening, with changes coming on nearly a daily basis. That doesn't mean investment strategy should be changed daily, but monitoring is necessary and identifying actionable events is crucial.

What constitutes an actionable event? The answer is ambiguous since every single investor is different, and therefore every strategy is different, but let's pick something that will affect almost everyone. Let's say for example that Congress decided to triple short-term capital gains tax rates to punish 'speculators' while leaving the long-term rates unchanged. Automatically, for anyone who has a time horizon of less than a year, this will need to be figured into their strategy and will likely bring about some changes to avoid the new onerous tax. Obviously, in this case, we're talking about a very simple matter, but this is the kind of thing that we need to be watching out for. Nationalizing of an industry, for example, will be likely to have a large impact on the companies and themes within that particular sector and related areas as well.

Basically, the investor needs to be on the lookout for things that will affect bottom line profits. Inflation, taxes, surcharges on inputs, additional regulatory burdens, and price controls are just a few of the things that can impact profits. There are many more, but this should be enough to get the thought process moving. If you need help, grab an income statement from your favorite company and go right down the list item by item and ask yourself "What could happen that would cause this item to go up or down?" This may

sound a bit mundane, but I'll bet you'd be surprised what you'd come up with. These are things you want to be watching for with regards to that company. You can rather quickly create a 'watchlist' for a particular industry or economic theme using this methodology. That's right, you don't need a degree in statistics or fancy math to do this. Much of the important work with regards to investing doesn't even involve numbers. If you miss on the theme and miss what is going on, it doesn't matter how good your numbers are, you're going to suffer. On the other hand if you get the macro themes right and miss on the numbers, you'll likely take a ding as opposed to a hit, and history backs this up time and time again.

And perhaps most importantly, make sure your investment strategy continues to match your time horizons and risk tolerance. This is another area that is often forgotten, particularly by brokers. You should review your portfolio at least twice a year, and ideally, once per quarter. Even if it is just a cursory review and you don't see anything popping up on your watchlists, it is still good to touch base with your investments and see what they're doing. This way you'll pick up those investments that are either over or under performing and can act accordingly. Some folks like to avoid reviews by setting trailing stop orders at some level under the buy price, and then walking away. This is not really a great idea especially if you're new to investing.

And perhaps the most important rule anyone can follow is that they should not rely on financial advisers to call them when it is time to leave a market or a theme. It will generally not happen. I have spoken to so many people since the crash of 2008 that said, "Why didn't my broker call me? I expected a call if I needed to do something and never got one so I assumed everything was ok. Then I got my statement." Sadly, this is the rule as opposed to the exception in today's world. Most would think that this would have changed after the crash of '08. The question is: are you willing to bet the other half of your retirement on it? I'll tell you this much – I was on the phone last year – a lot. And our clients are ***much*** better off because of it. That is one of the biggest benefits of dealing with a small firm; you get the individual attention you deserve.

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