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VALUE WIZARD INSIGHTER - October 2000
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1. Anniversary
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This issue marks the first anniversary of the *Value Wizard Insighter* newsletter. The purpose of the newsletter is to distribute information that is useful to investors who use the Value Wizard Investment Models, not to win any editorial or writing awards. Accuracy of content is emphasized over elegance of style.

During the past year, the Value Wizard Investment Models main page was the most frequently visited destination at the Numeraire.com domain. The suite of investment models covers most evaluation situations that can be approximated with positive cash flows and geometric growth patterns. The models are not merely standardized single-task calculators but rather powerful and flexible tools for evaluation. The models are stable with no known bugs since first being uploaded over one year ago.

The newsletter contains material that is either not available elsewhere, not commonly known about, or not easily found. Some content is excerpted from primary sources as a convenience. Readers are encouraged to get these original sources and read them carefully. New issues of the

Insighter are distributed each month if there is something useful to share. Lengthy articles are divided into sections and continued in succeeding months so that each issue is not oversized for most e-mail programs, so several issues may need to be consulted for the full story.

The *Insighter* newsletter is prepared in free time outside our main activities. Our policy is subscriber satisfaction or your money back.

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2. Fallen Angels

It is not too difficult for investors to find good companies, but it is often more difficult to find companies with their common stock trading at a good buying price. This is where diligence and patience pay off.

Philip A. Fisher, in his book entitled *Common Stocks and Uncommon Profits*, 1958, Chapter 3 What to Buy--The Fifteen Points to Look for in a Common Stock, pp. 19-50, wrote:

"What are these matters about which the investor should learn if he is to obtain the type of investment which in a few years might show him a gain of several hundred percent, or over a longer period of time might show a correspondingly greater increase?

"There are fifteen points with which I believe the investor should concern himself.

Point 1. Does the company have products or services with sufficient market potential to make possible a sizable increase in sales for at least several years?

Point 2. Does the management have a determination to develop products or processes that will still further increase total sales potentials when the growth potentials of currently attractive product lines have largely been exploited?

Point 3. How effective are the company's research and development efforts in relation to its size?

Point 4. Does the company have an above-average sales organization?

Point 5. Does the company have a worthwhile profit margin?

Point 6. What is the company doing to maintain or improve profit margins?

Point 7. Does the company have outstanding labor and personnel relations?

Point 8. Does the company have outstanding executive relations?

Point 9. Does the company have depth to its management?

Point 10. How good are the company's cost analysis and accounting controls?

Point 11. Are there other aspects of the business, somewhat peculiar to the industry involved, which will give the investor important clues as to how outstanding the company may be in relation to its competition?

Point 12. Does the company have a short-range or long-range outlook in regard to profits?

Point 13. In the foreseeable future will the growth of the company require sufficient equity financing so that the larger number of shares then outstanding will largely cancel the existing stockholders' benefit from this anticipated growth?

Point 14. Does the management talk freely to investors about its affairs when things are going well but "clam up" when troubles and disappointments occur?

Point 15. Does the company have a management of unquestionable integrity?"

Fisher elaborates on each of these points, and you are encouraged to read his book studiously from cover to cover to get a better understanding of his successful stock selection methods. There are different approaches to scanning the universe of investment opportunities, and none of them is the one right way. If you screen first for high quality, the result is usually a list of companies with overpriced stocks. If you screen first for low prices or large drops in price, the result is often a list of companies of low quality. A low price here refers to record low as opposed to absolute low, such as stocks at or near their 52-week lows, yet higher than a minimum to avoid manipulative situations. A large drop in price here refers to both absolute and percentage declines in share price.

Companies of relative high quality that are trading near their record low prices are called "fallen angels" because they were originally of sound financial condition but have temporarily fallen on hard times. The idea is to find stocks of companies in crisis that have sound long-term value that will be realized once the crisis is overcome. One method to identify fallen angels is to watch the daily news for sudden natural disasters, man-made calamities or slower-acting creeping catastrophes.

Based on the following market data, which of the companies qualify as fallen angels? The market data is from extended price quotes effective Saturday 30 September 2000. Prices and dividends are $US per share, and market capitalization in $US million.

Common Stock	52-Week Range	Last Close	Market Cap	Div/Yield
APPL : NASDAQ				
Apple Computer	25.37-75.18	25 3/4	8,367.95	n/a
T : NYSE				
AT&T Corp.	27.25-61.00	29	108,926.96	0.88/2.90%

EK : NYSE
Eastman Kodak 39.75-78.28 40 7/8 12,585.21 1.76/4.30%
F : NYSE
Ford Motor Co. 23.81-57.25 25 1/2 48,271.50 1.14/4.50%
PCLN : NASDAQ
Priceline.com 10.06-104.25 11 7/8 1,978.77 n/a
YHOO : NASDAQ
Yahoo Inc. 69.68-250.06 91 49,989.67 n/a

APPL: Apple Computer Inc common stock plunged 45% after hours on 29 September from a close of $53.40 to $29.19 for a $8.8 billion drop in market capitalization. The sudden drop resulted from its earnings warning for its fiscal fourth quarter after the personal computer maker had 11 prior quarters of good results.

T: AT&T common stock declined to a 52-week low of $28.81 on 25 September. AT&T has been radically transformed by massive numerous resource conversions from a long-distance telephone carrier to a cable services provider. It terminated one of the most enduring regular cash dividends in corporate history.

EK: Eastman Kodak Co. has suffered losses in consumer-film market share due to price wars with Fuji Photo Film Co. and began a stock buyback program earlier this year. After a 26 September earnings warning, Kodak common stock fell $14.40 or 21% to $44.50, a five-year low. The next day, it dropped another $2.25 or 5.1% to $42.25. These share price declines reflect the combination of foreign competition in traditional film and the growing competition from digital photography.

PCLN: Priceline.com plunged 42% after the company warned third-quarter revenue will fall short of analysts' expectations due to weakness in its core business, the sale of airline tickets over the Internet. The company had expected to break even in the third quarter but now expects a loss of one cent a share. Share price dropped $7.89 to a new 52-week low of $10.75, reducing its market capitalization from $3.1 billion to $1.8 billion.

YHOO: Yahoo Inc closed at $91 near the low end of its split-adjusted 51-week high-low range. According to our evaluation of the company (1)as a strictly continuing going concern with no resource conversions (2) under the most optimistic scenario of growth in free cash flow to the common equity (3) on a fully-diluted basis, the maximum intrinsic value is about $72 per share. See *Value Wizard Insighter,* August 2000, "Shares Outstanding-Continued" article. The intrinsic value is estimated at a maximum $95 per share *before* adjustment for dilution due to stock warrants and incentive stock options. Therefore, Yahoo would have to decline about $22 or 24% from $91 to a new record 52-week low of $69 before it would be within positive safety margin territory under the most generous assumptions.

F: Ford Motor Company officials, on September 14, conceded that third-period earnings will be hurt by a massive tire recall. On September 15, Ford announced that it would buy back as much as $5 billion of its common stock and its Class B stock in an effort to boost share price. The recall

covers 6.5 million 15-inch ATX, ATX II and Wilderness tires manufactured by Bridgestone /Firestone Inc., the U.S. unit of Bridgestone Corp. headquartered in Japan, that were shipped on new Ford Explorer sports utility vehicles in the U.S. and other countries. The recall came after more than 1,400 complaints, 103 deaths and 250 injuries during the past decade that were attributed to U.S. accidents caused by tire tread separation at high speeds. The top executives of both companies appeared before U.S. Congressional investigating committees, and the prices of the Ford (NYSE) and Bridgestone (Japan) common stocks fell.

Ford is a worldwide automotive (80%) and financial services (20%) company. A look at the Ford common stock price chart at BigCharts.com shows a 52-week range from a closing low of 24 5/8 (23.81 intra-day) on September 21, 2000 to an intra-day high of 57 1/4 on April 17, 2000 (unadjusted for stock dividend and stock split). Both the 52-week price absolute decline and the percentage decline are signs of a fallen angel that may be overpunished by the market as long as uncertainty remains about the extent of the tire recall and product quality damages. The dividend, yielding above 5% at the low price, is not likely to be cut or omitted due to this crisis.

How reasonable is it to believe that Ford Motor Co lost so much real economic value due to the tire recall? How reasonable is it to believe that Ford Motor Co was worth so much less overnight due to this crisis? How reasonable is it to believe that Ford Motor Co common stock was over-priced by so much the day before the crisis was publicly announced? How reasonable is it to expect Ford's announced buyback of $5 billion in common stock to offset the downward pressure from the short-sellers?

Summary. What can we conclude from this quick review about fallen angels? Stocks that drop to record lows or plunge far quickly qualify as fallen, but not all such stocks are angels before their fall. Criteria for angels are subjective, but preliminary objective criteria include regular cash dividend, market capitalization size, and exchange (listing requirements).

Between the announcement of the crisis and the end of the calendar third quarter ending on 30 September, some mutual funds and other institutional investors may dump their losing stock in order to make their quarterly performance look better. This selling will add to the downward pressure on the price of these common stocks.

These stocks are research leads, not actionable ideas. I do not recommend specific stocks. I am not recommending the purchase of these stocks or their derivatives. I am suggesting that this is the type of long-term investment situation that could benefit from an analysis of intrinsic value and other aspects of investment value. The various Value Wizard Investment Models can greatly improve the speed, accuracy, depth and thoroughness of such analysis.

Caveat: This is not a solicitation to buy, sell or hold any of the securities mentioned and should be considered as the opinions of the Value Wizard Insighter and any of the sources it used. Before buying any securities or investments of any type mentioned by any source, it is recommended that you consult a trusted investment counselor and never buy before doing your own research into the investment.

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3. Security Analysis

Security analysis uses company reported financial data and focuses on values and investing. It is sometimes referred to as fundamental analysis because of its emphasis on the so-called fundamental data in balance sheets, income statements, cash flow statements and related company reports. The goals of long-term investing are first to preserve principal and second to earn income.

In contrast, market analysis uses market-generated stock data and focuses on prices and speculating. It is sometimes referred to as technical analysis because of its emphasis on the so-called technical data of stock prices and volumes. Technical data is often plotted in charts to look for patterns. The goals of speculating are first to make quick profits and second to make big profits.

Graham and Dodd, *Security Analysis: The Classic 1934 Edition*.

pg. viii: "[W]e have striven throughout to guard the student against overemphasis upon the superficial and the temporary. ... this overemphasis is at once the delusion and the nemesis of the world of finance."

pg. 3: "[I]n speculation *when* to buy--and sell--is more important than *what* to buy, and also that almost by mathematical law more speculators must lose than can profit."

pg. 94: "But the investor should not be expected to make unsound commitments for idealistic reasons."

pp. 607-16: Chapter LII Market Analysis and Security Analysis. "Forecasting security prices is not properly a part of security analysis. ... Most emphasis is laid in Wall Street upon the science, or art, or pastime, of prophesying the immediate action of the "general market," which is fairly represented by the various averages used in the financial press.

"If, as many believe, one can dependably foretell the movements of stock prices without any reference to the underlying values, then it would be sensible to confine security analysis to the selection of fixed-value investments only. For when it comes to the common-stock type of issue, it would manifestly be more profitable to master the technique of determining when to buy or sell, or of selecting the issues which are going to have the greatest or quickest advance, than to devote painstaking efforts to forming conclusions about intrinsic value.

"That chart reading cannot be a science is clearly demonstrable. If it were a science, its conclusions would be as a rule dependable. In that case everybody could predict tomorrow's or next week's price changes, and hence every one could make money continuously by buying and selling at the right time. This is patently impossible. A moment's thought will show that there can

be no such thing as a scientific prediction of economic events under human control. The very "dependability" of such a prediction will cause human actions which will invalidate it.

"Because of this fact it follows that there is no generally known method of chart reading which has been continuously successful for a long period of time. **If it were known** [bold emphasis added], it would be speedily adopted by numberless traders. This very following would bring its usefulness to an end.

"The appeal of chart reading to the stock-market trader is something like that of a patent medicine to an incurable invalid. The stock speculator does suffer, in fact, from a well-nigh incurable ailment. The cure he seeks, however, is not abstinence from speculation, but profits. Despite all experience, he persuades himself that these can be made and retained; he grasps greedily and uncritically at every plausible means to this end.

"Many players at roulette follow a similar system., which limits their losses at any one session and permits them at times to realize a substantial gain. But in the end they always find that the aggregate of small losses exceeds the few large profits. (This must be so, since the mathematical odds against them are inexorable over a period of time.) This same is true of the stock trader, who will find that the expense of trading weights the dice heavily against him.

"They admit that no rules of procedure can be laid down, the automatic following of which will insure success.

"Broadly speaking, therefore, the endeavor to forecast security-price changes by reference to mechanical indices is open to the same objections as the methods of the chart readers. They are not truly scientific, because there is no convincing reasoning to support them; and because, furthermore, really scientific (*i.e.*, entirely dependable) forecasting in the economic field is a logical impossibility.

"In security analysis the prime stress is laid upon protection against untoward events. We obtain this protection by insisting upon margins of safety, or values well in excess of the price itself. The underlying idea is that even if the security turns out to be less attractive than it appeared, the commitment might still prove a satisfactory one. In market analysis there are no margins of safety; you are either right or wrong, and if you are wrong, you lose money.

"The cardinal rule of the market analyst that losses should be cut short and profits safeguarded (by selling when a decline commences) leads in the direction of active trading. This means in turn that the cost of buying and selling becomes a heavily adverse factor in aggregate results.

"[M]arket analysis ... involves essentially a battle of wits. Profits made by trading in the market are for most part realized at the expense of others who are trying to do the same thing. The trader necessarily favors the more active issues, and the price changes in these are the resultant of the activities of numerous operators of his own type. The market analyst can be hopeful of success only upon the assumption that he will be more clever or perhaps luckier that his competitors.

"The work of the securities analyst, on the other hand, is in no similar sense competitive with that of his fellow analysts. In the typical case the issue which he elects to buy is not sold by some one who has made an equally painstaking analysis of its value.

"Market analysis seems easier that security analysis, and its rewards may be realized much more quickly. For these very reasons, it is likely to prove more disappointing in the long run. There are no dependable ways of making money easily and quickly, either in Wall Street or anywhere else." In summary, market analysis is not scientific because the successful rule would have to be known to be tested and replicated by other investigators. Only if such a rule is not known beyond its discoverer can it offer the possibility of exploiting an anomaly in securities market prices.

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4. Gambler's Ruin

Consider a game that gives a probability q of winning 1 dollar and a probability $(1-q)$ of losing 1 dollar. If a player begins with 10 dollars, and intends to play the game repeatedly until he either goes broke or increases his holdings to 20 dollars, what is his probability of going broke?

This is an example of what is commonly known as the Gambler's Ruin problem. For any given amount h of current holdings, the conditional probability of going broke before reaching 20 dollars is independent of how we acquired the h dollars, so there is a unique probability $p(h)$ of going broke on the condition that we currently hold h dollars. Of course, we can immediately set $p(0) = 1.0$ and $p(20) = 0.0$. The problem is to determine the values of $p(h)$ for h between 0 and 20.

The simple case is when each step changed our holdings by one unit or one dollar, an increase or decrease. We can also treat the more general problem of allowing more than two possible outcomes for each round and allowing the steps to be of arbitrary sizes.

This problem is essentially an example of a one-dimensional random walk. We can also represent this by a Markov model, and recursively generate the probabilities of having each particular value of holdings after the nth round of play beginning from some specified initial holdings. This is an example of a diffusion process, with absorbing states at 0 and T, where all the probability eventually accumulates. The Brownian diffuse is a common assumption in capital asset *pricing* models as opposed to investment asset *valuation* models.

The concept of Gambler's Ruin can also be expressed in the other terms. Suppose we do a sequence of Bernoulli (p) trials -- we can call them coin tosses -- with a fair probability coin or p-coin. Player A wins the toss if the coin comes up heads, and player B wins if it comes up tails. If A wins, she takes 1 from B; if A loses, B takes 1 from her. The overall game is played until one of the players goes bankrupt.

Consider the same game played by a day trader who follows only market generated data such as share price and trading volume that can be plotted on charts. All he needs to know are the ticker symbols of the securities he trades. Company information and financial data are not relevant.

There are many investment companies that use sophisticated mathematical models to try to predict the behavior of the stock market and apply the results in an effort to maximize the profit for themselves and their investors. To understand such a complicated problem, it helps to decompose it and reduce it to simpler problems. The simplest problem that we could begin our analysis with is the following. Suppose that we choose a single investment with a known return and a known risk or chance of failure. For example, suppose that we invest in a bond that returns 8% per year and has a 25% chance of failing in each cash coupon payment period. What is the chance we have of doubling our money in a given investment time horizon? This simple question is a close relative of the Gambler's Ruin problem.

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5. Market Timing

Market timing is the application of market analysis as opposed to security analysis to the prediction of the direction of changes in market prices, usually using charts or quantitative models based on market generated historical price data.

Gambler's ruin (see above article) is the often unrecognized dark side of market timing. It is a mathematical concept that implies just what it says. For those who trade in common stocks and other securities on the basis of a mechanical rule or system in an effort to time the market, gambler's ruin is their constant companion.

An illustrative example of market timing and gambler's ruin is the Long Term Capital Management (LTCM) meltdown and bailout. LTCM is a hedge fund that began as intellectually bankrupt and ended as financially bankrupt. A summary of LTCM's short history is followed by an analysis of what went wrong.

The 1998 global financial crisis triggered by the crash of Long Term Capital Management was quickly dealt with by a bailout of 14 Wall Street firms led by the U.S. Federal Reserve System, some of which were investors in the multi-billion dollar fund, but not before the fund had lost over $4 billion within a few months. Once Russia defaulted on loans in August 1998, LTCM losses accelerated and a forced liquidation of its assets, then in excess of $100 billion, was imminent. LTCM's investment strategy was fundamentally and fatally flawed in spite of being devised by highly successful former Wall Street bond traders, two academic Nobel laureates in economic science and a former U.S. Fed Vice Chairman. The partners included wealthy Wall Streeter bond traders John Meriwether, Eric Rosenfeld and Lawrence Hilibrand. Two of LTCM's superstars, Robert C. Merton and Myron S. Scholes (eponymous co-author of the renowned Black-Scholes option pricing model), had recently been awarded the Nobel Prize in economic science. One of the partners, John Mullins, was previously Vice Chairman of the U.S. Federal Reserve System.

The principals are poorer but apparently not much wiser. The two Wall Streeter bond traders failed to raise $1 billion from investors for a new hedge fund. The two Nobel laureates are in academia writing more of the same intellectual speculation with mathematical elegance and stylistic clarity that is accepted for publication in academic peer-reviewed (read also as peer-censored) journals.

LTCM operated with great risk due to high leverage and derivative exposure which was tied to lower grade, less liquid bonds. In addition, the increased illiquidity of their large positions caused a dilemma because if they sold even a tiny portion of a large position, it would put downward pressure on the quoted price and also reduce the quoted prices of all their other positions.

LTCM's traditional trade was a bet on credit spreads such as bond yield spreads or swap spreads which was often an arbitrage between bonds of differing maturity dates. LTCM's computer models made forecasts based on historical data that did not go back far enough to include historically extreme and almost unprecedented large U.S. swap spreads, a standard indicator of credit market expectations. But even that would not have helped because Bill Krasker, the partner who had constructed many of the firm's models, assumed that security price changes followed a normal or Gaussian probability distribution. Normal distributions do not give much weight to extremely high or low price changes. We will elaborate more on this point. The computer model had calculated with mathematical certainty that LTCM was unlikely to lose more than $35 million on any single day, lost $553 million or about 15% of its capital on Friday 21 August 1998. On that fateful day, the U.S. swap spreads were not changing as much as a point as usual on an active day, but rather were rapidly oscillating over a 20-point range. This wide range of swap spreads had occurred most recently six years earlier in 1992, but LTCM's models didn't go back that far. From the end of April to August, LTCM lost more than a third of its equity.

LTCM hedge fund did not survive to its fifth anniversary, although the its name generally implies an investment horizon of at least five years. One dollar invested at the inception of LTCM would have ended with a value of less than $0.30 at its liquidation four and one-half years later.

What about LTCM's pricing models? In particular, what about their assumption of normal probability distributions? It is common knowledge among financial economists in academia who know the relevant literatures that security price changes follow a Paretian Stable Law distribution as elaborated by Benoit Mandelbrot. [See "The Variation of Certain Speculative Prices" *Journal of Business*, October, 1963, pp. 394-419, and "When Can Price Be Arbitraged Efficiently? A Limit to the Validity of the Random Walk and Martingale Models", *Review of Economics and Statistics*, 53, August, 1971, pp. 225-236.] The salient characteristic of Stable Law distributions is that their means are finite but their standard deviations are infinite. Therefore, extreme unprecedented prices changes are expected to occasionally occur, but their size and timing are unpredictable. The famous professors had not designed the LTCM models with Stable Law probability distributions because there is no statistics developed for it, i.e., it is mathematically intractable. They followed the time-honored tradition in academia: If reality does not match your model, change reality to fit your model instead of changing your model to better fit reality.

What do you get when you mix market timing disguised as seeking mispriced securities, invalid *pricing* models, arbitrage operations, audacious international macroeconomic bets, typical debt-to-equity leverage of almost 30-to-1, the promise to investors of 30% minimum annualized returns, and impatient investors with hot money? With market timing under any guise, you eventually get gambler's ruin.

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