DIVISION III

MONEY ON WALL STREET:
INSIDE AN INVESTOR’S MIND

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May 2012

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# TABLE OF CONTENTS

Introduction: Stocks – The Unceasing Fascination .................................................. 1
Chapter One: Stocks, Risks and Mass Hysteria .......................................................... 4
  1. A Stroll on the Surface ....................................................................................... 4
  2. Risk, the Ultimate Fear ...................................................................................... 5
Chapter Two: Three Approaches to Valuing Stocks: A Brief Review ......................... 9
Chapter Three: Three Approaches to Valuing Stocks: A Closer Look ......................... 19
  1. Fundamental Analysis: How a Mathematician Plays the Game ...................... 19
     Market Efficiency Theory and The Random Walk Theory .............................. 19
     Present Value: The Bedrock of Fundamental Analysis ................................... 20
     P/E Ratio: The Favorite Indicator ................................................................... 23
     Current Ratio and Debt Ratio ......................................................................... 25
     Current Yield and Dividend Growth ................................................................ 29
     The Dow Theory .............................................................................................. 33
     Reading Stock Charts: Trends, Volumes, and Patterns .................................. 36
  3. Behavioral Analysis: Humans are Anything But Rational ............................. 42
     Heuristics ......................................................................................................... 44
     Anchoring ......................................................................................................... 44
     Overconfidence ................................................................................................. 45
     Mental Accounting ......................................................................................... 46
Chapter 4: Bottom Line – Which Approach Would You Take? ............................... 48
TABLE OF FIGURES

Figure 1 – Total Nominal Return Indexes, 1801-2011.........................................................2
Figure 2 – The Benefits of Diversification.............................................................................8
Figure 3 – The Pyramid Scheme..........................................................................................22
Figure 4 – Historic P/E Ratio for the S&P 500, 1890-2000....................................................24
Figure 5 – Current Ratio and Debt Ratio Analysis.................................................................28
Figure 6 – Dow Jones Industrial Average Components......................................................34
Figure 7 – A Typical Stock Chart........................................................................................37
Figure 8 – A Typical Head and Shoulders Pattern.................................................................38
Figure 9 – Stock Comparisons.............................................................................................48
INTRODUCTION: STOCKS – THE UNEASING FASCINATION

Investing in stocks has become a national hobby and a national obsession. People may denigrate their government, their schools, their spoiled sports stars. But belief in the market is almost universal. To update Marx, it is the religion of the masses.¹

The statement above appeared in the September 9, 1996 issue of the Wall Street Journal, and was penned by Roger Lowenstein, a well-known financial author and analyst. He had good reason to express such optimism in the market. The 1990’s witnessed some of the most outstanding moments of the Standard & Poor’s (S&P) 500 Index when the price-earnings (P/E) ratios reached 20 by 1996, which was considered a high level, especially in a post-war economy.

As proven by the history throughout a long period of time, accumulations in stocks have always outperformed all other financial assets. The graph below² depicts the total return indices for stocks, bonds (both long-term and short-term), gold, and commodities within the period of 200 years, from 1801 to 2001. Total returns means that all returns from these financial assets, such as dividends, interest and capital gains, are to be reinvested in the asset and allowed to accumulate over time.

¹ Roger Lowenstein, A Common Market: The Public’s Zeal to Invest, Wall Street...
**Figure 1 – Total Nominal Return Indexes, 1801-2011**


It is clear to see that stocks’ total returns are significantly above those considered the less risky assets. Had an investor hypothetically put one dollar in stocks and kept reinvesting since 1801 without consuming any of the returns, that dollar would have accumulated to approximately $8.80 million by the end of 2001. The most visible downturn in the graph is the Great Stock Crash of 1929, which is also known as Black Tuesday. But even that occurrence, which is considered the most devastating crash in the United States stock market history, doesn’t appear very noteworthy compared to the steady upward trend of total stock returns. Even though it is rare for anyone to have the patience to realistically accumulate wealth over such a long period of time without enjoying the fruits of their past savings, stocks are still a powerful financial asset that have the potential to turn a few
dollars into a fortune. That promising reward drives the investors’ fascination to what is called “the religion of the masses”.

This paper aims to take a deeper look into the stock market and how trading decisions take shape. I am going to examine different approaches to stock market analysis, recommend a few helpful points to keep in mind, and it is up to you yourself to make your own investment decisions based on your own conclusions.
CHAPTER ONE: STOCKS, RISKS AND MASS HYSTERIA

1. A Stroll on the Surface

Before being able to discuss stock valuation methods, it is useful to give a brief introduction of what we are dealing with. Stocks, also known as common stock or equity, are shares in a firm’s ownership. A firm that issues stocks sells part of itself, so that the buyer becomes a part owner. Essentially, through the process of selling stocks, a firm gives up part of its ownership in exchange for the money needed for its business activities. Stocks are usually transferable, which means that they can be traded among stockowners and other buyers. These transactions come together and form stock markets.

Stocks play a prominent role in our financial and economic lives. In economics and finance classes, we study many theories and models that determine the fluctuations of the economy. Stocks and stock markets are a central link between the financial world and the real economy. Stock prices are fundamental to the functioning of a market-based economy.

Trading stocks is one of the many forms of investing. What makes it so fascinating is that it is essentially a gamble whose success depends on your ability to predict future events. And with the up and down fluctuations of stock prices, this market is where investors make millions of dollars if they are good at predicting the future, or lose equivalent fortunes if they don’t have enough skills, patience, and luck.
Stock prices and their trends tell us the value of the companies that issue the stocks and how they are performing in the market. For individuals, they provide a key instrument for holding personal wealth as well as a way to diversify their portfolio, therefore spreading and reducing the risks. Diversifiable risks are more likely to be taken, and by enabling individuals the ability to transfer risk, stocks are a type of enhancing our ability to take risks.

2. Risk, the Ultimate Fear

Just like any other kinds of investment, as a gambling game, trading stocks holds risk. The rule is, higher risk, higher returns. The role of risk in shaping the nature of the stock market itself is undeniable. In A Random Walk, Malkiel emphasized: “Risk, and risk alone, determines the degree to which returns will be above or below average, and thus decides the valuation of any stock relative to the market”\(^3\). When faced with risks, stockholders, as decision-makers, usually cannot maintain their lucid minds. Gustave Le Bon observed in his work The Crowd: A Study of the Popular Mind (1960) that the behavior of a crowd is different from the behavior of the people of whom it is composed, just as the chemical compound formed from the reaction between acid and base is different from its components\(^4\).

When there is a suddenly rapid growth of trading volume in a short time, the gullibility and irrationality of individuals becomes even more formidable. When a market booms, “it is like discovering a gambling casino where the odds have

\(^3\) Burton Malkiel, A Random Walk Down Wall Street, 2008, 200.

changed suddenly and dramatically in favor of the patrons. Even those who believe
the bubble will burst are tempted to get their feet wet and get out before the dam
collapses”5.

To better understand the role of risk and the “madness of crowds” and how
it has the potential to shake the whole market, or even bring the whole thing down,
let’s look at one of the most well-known market crashes that happened in history:
the tulip-bulb craze in Holland in the 1630s. Things started when the tulip, for
some reason, started to become a rare and expensive item in Dutch gardens. Tulips
were rare on their own; and to drive the wild speculation up even more vividly, the
ones considered most valuable were the flowers that carried a nonfatal virus called
“mosaic” that caused tulip petals to develop exotic color stripes, but also reduced
the quantity of offsets. Due to the high popularity of these flowers, the market
started trading tulips based on their future speculation: Buying and selling them
while they were still in the ground, or even before they were actually planted; and
the speculation of the flowers’ time to maturity and quality determined the prices
that rapidly rose to irrational levels. A lot of these trading transactions were done
with promissory notes rather than the exchange of cash. As the market expanded
and thousands of common people made fortunes, more and more people jumped
into the business, continuing to drive prices up. The speculative bubble grew until
about 1637 when it reached its peak, prices could not rise any further; and the
entire market burst rapidly. Many investors and traders realized that they were

holding future contracts of mere speculations, which were virtually worthless. This event cost the fortunes of many people.

It is quite obvious that the factor of greed always exists in the market. Especially in a manic speculation frenzy when profits seem easy to make, speculators don’t really know where to stop and get out. The higher profits that the investment promises, the higher potential risk investors are taking.

The commonly known types of risk that exist in a market are:

(i) **Market risk**: The risk that your investment will fall in its value as stock price decreases.

(ii) **Inflation and tax risk**: The uncertainty of your investment after inflation and taxes undermine its real value.

(iii) **Liquidity risk**: The risk that an investment cannot be bought or sold for cash in time of need due to its lack of marketability.

Risk can be reduced through diversification, which means holding more than one risk at a time. Malkiel discussed this by raising the Modern Portfolio Theory, which “tells the investors how to combine stocks in their portfolios to give them the least risk possible, consistent with the return they seek”\(^6\), claiming that it is a sensible strategy for an investor who wants to reduce their risks. He illustrated the benefits of this strategy in the simplified chart below:

Figure 2 – The Benefits of Diversification


There will always be a point at which diversification no longer works and the level of risks no longer goes down. Nevertheless, for those who are solely interested in stocks within the U.S. borders, owning twenty well-diversified U.S. stocks can reduce the total risk by about 70 percent compared to owning only one. Those who are daring to take a leap further and invest in international stocks can potentially benefit even more than that.
CHAPTER TWO: THREE APPROACHES TO VALUING STOCKS: A BRIEF REVIEW

The stock market has never been as accessible as it is today. Turning back time to the early 19th century, before the telephone became popular, communication in such stock exchanges as the American Stock Exchange (AMEX, known as the NYSE Amex Equities today) could not go beyond the walls of the exchange. In the brief section about the history of the U.S stock market, Thomsett described a picture of the stock market back in the old days that a young investor today would probably find fascinatingly impossible to believe:

In those days, the Philadelphia Stock Exchange (PHX) was at great disadvantage because traders in New York knew days ahead of others what goods were arriving by ship. So the PHX set up a series of men on hills with mirrors and telescopes, and messages were conveyed from New York to Philadelphia in less than one hour.7

In such limited conditions, trading could only be done by brokers and dealers who had access to the necessary information. The market was simply unavailable to the average person.

Within a short period of time, as technology skyrocketed and countries opened their borders as part of globalization, it is now easy for anyone to invest anywhere instantly. As pointed out by Harrington, at the close of the twentieth century...  

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century, which is roughly a century afterwards, an unprecedented 53 percent of American adults held investments in the stock market\(^8\). Nowadays, buying shares of any listed companies and trading them among other buyers could not be any more difficult than purchasing a pair of shoes online. All you need is an online brokerage account that can be opened free of charge, and no more than a few hundred dollars. Instead of going to expensive stockbrokers for advice, information for research is available everywhere, including Internet, books, and investment clubs.

As the world’s economy was expanded by the movement and exchange of capital and all sources of information became no farther than a few clicks of the mouse, came the problem of overly rapid development – too much information. Not just for an average investor, anyone who wanted to make an attempt at earning a profit from trading stocks would easily get lost in a sea of information that could be used to form an investment decision. Novice investors who have little to no experience can easily be intimidated by that. The seemingly wise choice that many investors tend to make is to put money in the hands of a professional, be it a brokerage firm or a financial planner, believing that they know better. However, because brokers and financial planners make money through commissions, their goal is for you to buy products that compensate them rather than trying to strengthen your financial portfolio. Therefore, the words of wisdom to consider are “No one will help you to succeed in the market as well as you will help yourself”.

This research aims to analyze the process of decision-making in a personalized

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perspective: What are the factors that an investor should take into consideration in order to make a decision in trading and investing?

Ever since its primitive days, the market of buying and selling corporate securities has been studied so thoroughly from so many angles that it could become a field of science. Investors have tirelessly been seeking for the answers to the ultimate questions: what and when. Methods of evaluating stock trends in order to decide the right stocks to buy are various. This market, with a promise of enormous rewards, over the years, has drawn the interest of a wide range of eager investors, from the world’s sharpest analysts, researchers and accountants to an average person who has some money to spare and simply wants to try their luck. Investors have very different approaches to how they think the stock market works and what factors influence its fluctuations, "ranging from the scientific to the occult. There are people today who forecast future stock prices by measuring sunspots, looking at the phases of the moon, or measuring the vibrations along the San Andreas Fault"9. Even though it might have stroked certain levels of interest, I will not go into details of such arcane methods above. I would suggest categorizing the characteristics of these approaches into three major schools of thought:

1. The **fundamental**, which is the method of working with statistics and studying companies’ financial statements;

2. The **technical**, which is the method of predicting stock trends based on the actual history of trading through interpreting stock charts; and

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3. The *behavioral*, which is a lesser acknowledged approach, and deals with estimating the value of stocks based on the perceptions of investor psychology and behavior.

The first two approaches, which are also the most commonly studied, take very opposite tacks and have a history of clashing with each other. The process of decision-making for fundamentalists relies heavily on the theory of efficient markets, which states that the prices of all financial instruments, including stocks, must accurately reflect all available information. In 1973, Princeton economist Burton Malkiel published *A Random Walk Down Wall Street*, completely debunking this theory. His argument was that if the markets were truly efficient, which implied that stock price movements were completely unpredictable, then a blindfolded monkey throwing darts at stock listings on the financial pages of a newspaper should do as well at picking a stock portfolio as professional investors. Fundamental values change rapidly and continuously, and if the markets always adjust immediately to such changes, then no one can predict stock price movements and the stock market is essentially just a game of sheer luck.

This cynical argument sparked a trend of carrying out such tests among both the supporters and the opponents. Mentioning this in his book *Share Investing for Dummies* (2001), James Dunn explained several significant experiments that have intrigued many investors and skeptics:

The *Wall Street Journal* began testing the theory in 1988, except that it used its own reporters, blindfolded, to throw the darts instead of a
chimpanzee. The exercise lasted more than six months and these primates won about 40 per cent of the time.

In Sweden in 1993, *Expressen* newspaper gave Ola the chimp and five stocks analysts $1,250 to make as much money on the sharemarket as they could in a month. Ola won, with a gain of 15 per cent – mainly because one of her darts landed on the name of Forsheda, a small, diversified stock that managed a rise of 44 per cent for the month. Ola’s return was four times that of the leading human and nine times that of the market.

In 1995-1996, the *San Francisco Chronicle* ran a contest in which Maggie, a performing chimp at Marine World-Africa in the USA, chose five stocks by the tried-and-tested dartboard method. Against six fund managers, Maggie came last with an average return of minus 24.5 per cent.

Most recently, the *Chicago Sun-Times* has employed a Brazilian cinnamon ring-tail Cebus monkey called Mr Adam Monk to manage a small stock portfolio that is often compared to those of professional fund managers. As of 2008, Mr Monk had beaten the market four years in a row. And in Russia in 2009, Lusha the circus chimpanzee outperformed 94 per cent of the country’s investment funds, with her eight-stock portfolio – chosen from a possible 30 – tripling in value over the year.\(^\text{10}\)

What does this mean? Investors with different beliefs would make different conclusions about the result of these experiments. Before arguing for my own belief, here are the brief insights into what these schools of thought consist of and how each makes their investing decisions.

1. The Fundamental Approach

According to Malkiel in *A Random Walk Down Wall Street*, perhaps about 90 per cent of the Wall Street security analysts consider themselves fundamentalists. A fundamental analyst believes that the market is 90 per cent logical and only 10 per cent psychological. Edwards (2007) gave a precise brief description of a fundamentalist:

The stock market fundamentalist depends on statistics. He examines the auditor’s reports, the profits-and-loss statements, the quarterly balance sheets, the dividend records and policies of the companies whose shares he has under observation. He analyzes sales data, managerial ability, plant capacity, the competition. He turns to bank and treasury reports, production indexes, price statistics and crop forecasts to gauge the state of business in general, and reads the daily news carefully to arrive at an estimate of future business conditions. Taking all these into account, he evaluates his stock; if it is selling below his appraisal, he regards it as a buy.\(^\text{11}\) (pg. 4)

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In estimating the firm-foundation value of a security, the fundamentalist’s most important job is to estimate the firm’s future stream of earnings and dividends. He hopes that a thorough study of industry conditions will produce valuable insights into factors that may be operative in the future but are not yet reflected in market prices. Some of the foremost factors that an analyst should look at as he studies stocks are:

1. *Earnings Per Share (EPS)*:

   \[ EPS = \frac{\text{Net Earnings}}{\text{Number of Shares Outstanding}} \]

   This is the calculation of dividing earnings by the number of outstanding shares. The assumption is that the higher this number is, the better the company is performing, and the stock’s price range should climb as well.

2. *Core Earnings*: Is the reflection of the operational outcome for a company. It doesn’t only take net income into consideration, but also noncore income and expenses.

3. *Price-Earnings Ratio (P/E)*:

   \[ P/E = \frac{\text{Price Per Share}}{\text{Earnings Per Share}} \]

   This ratio is calculated by dividing price per share by earnings per share (EPS). Low and consistent P/E range is desirable because it implies low volatility and steady growth in earnings and in price.

So, why might fundamental analysis fail to work despite its plausibility and scientific appearance? One could point out some major potential flaws in this
analysis approach: (1) the information and analysis may be incorrect or insufficient; (2) the security analyst’s estimate of “value” may be faulty; and (3) the market may not correct its “mistake” and the stock price might not meet its value estimate.

2. The Technical Approach

The term technical, in the context of the stock market, refers to the study of the action of the market itself. Some technical analysts use technical indicators and oscillators; some rely on chart patterns (therefore technicians are also called chartists); and most, for optimal results, use the combination of both. As opposed to fundamentalists’ principles, chartists believe that the market is 90 per cent psychological and only 10 per cent logical; and because patterns and trends can be extracted from numerical and graphical data, future movements can be predicted.

The field of technical analysis is based on three assumptions:

1. The market discounts everything.
2. Price moves in trends.
3. History tends to repeat itself.

If one stays true to all three of principles, then a chartist, in theory, can interpret the chart of a stock whose name he does not know, as long as all the records are correct and the charts covers a long enough time frame. He is capable of investing in a stock and making profits when being completely ignorant of what business or industry a company is in. Fundamental information on earnings and dividends is of little significance to him, and sometimes even considered a
distraction. Their argument against the fundamentalists is that the market is not interested in the past, and if there was information that can affect the performance of a stock, then it should have been reflected in the stock price long before the information is out. Whereas the fundamentalist is only interested in how much the stock is really worth in the market or its intrinsic value, the technician’s primary concern is the record of that stock’s price, because they believe that certain patterns in the record, once identified, can suggest future activity.

John Magee, one of the original vanguards of the charting method, wrote in his famous book that is considered the bible of charting, Technical Analysis of Stock Trends: “Prices move in trends, and trends tend to continue until something happens to change the supply-demand balance. Such changes are usually detectable in the action of the market itself”. Magee operated from a small office in Springfield, Massachusetts, where even the windows were boarded up to prevent any outside influences and to enable him to concentrate entirely on his charts.

Like the first approach, the technical approach is also subject to big potential flaws: (1) because chartists only know when to sell or buy a stock after its trends have already been established, they often miss the boat; (2) prices may adjust so quickly to new information that the technical analysis process may actually turn out to be pointless.

3. The Behavioral Approach

Before the era of modern finance, many respectable economists, such as Adam Smith, John Maynard Keynes and Irving Fisher, believed that the psychology
of individuals affects the market. Financial behavioralists, who share the same train of thought, argue that it is a big mistake to ignore the human and social cognitive and emotional biases, and to assume that all individuals act rationally when it comes to investing. Even though it has not quite achieved the same level of acknowledgement as the two above, behavioral finance is a new approach to financial markets that has emerged as a result of many thorough studies. The primary element about the stock market that intimidates investors is risk, and how people react to risk is not always logical. In *Risk Tolerance in Financial Decision Making* (2011), Mazzoli and Marinelli proposed the main four fundamental decision making biases that may be of particular interest to the process of making decisions, including stock investments:

1. Cognitive issues
2. Preferences
3. Emotional factors
4. Social interactions

Behavioralists find it important to identify these psychological biases and mental errors because that will help investors to perform better in an ever-changing market environment.

In the next section, I will provide some numerical and graphical examples to illustrate the process of decision-making from the perspective of each approach.
CHAPTER THREE: THE THREE APPROACHES TO VALUING STOCKS: A CLOSER LOOK

1. FUNDAMENTAL ANALYSIS: HOW A MATHEMATICIAN PLAYS THE GAME

The stock market has always been an ever-changing game between statistics and stories, with fundamentalists leaning towards manipulating numbers. Dealing with a supposedly logical and rational analysis of numerical science and formulas, it is usually considered the most sober strategy for all investors. It is easy to point out weaknesses of this approach such as the behavioral ethic of the market, which is going to be discussed further in the later sections. However, as was cleverly addressed by John Allen Paulos, “Fundamentals are to investing what (stereotypically) marriage is to romance or what vegetables are to eating – healthful, but not always exciting”\(^{12}\). An adequate amount of understanding of them is essential for any investor, whether he wants to follow the track of fundamental analysis or not.

Market Efficiency Theory and The Random Walk Theory

To get the idea of fundamental analysis, it is important to understand these two theories, which fundamental analysis is based on. The theory of efficient markets states that the prices of all financial instruments, including stocks, reflect all available information. As a result, markets adjust immediately and continuously to changes in fundamental values. The basis for this theory implies that stock prices

are unpredictable, and it is simply impossible to “beat the market”. Some argue that
the U.S. stock market is efficient because competition in these markets is so fierce
that most people have little or no chance of consistently outperforming others.
Others believe that opportunities exist to beat the market, and it’s a matter of
looking in the right places.

A random walk is defined by mathematicians as a sequence of numbers
produced by a random process (such as flipping the coin). The next move is
completely irrelevant to what has happened before. The Random Walk Theory,
which is consistent with the Efficient Market Theory, states that stock market
prices fluctuate according to a random walk, with price changes being completely
independent of one another. Therefore, the past movement or trend of a stock price
cannot be used to predict its future movement.

**Present Value: The Bedrock of Fundamental Analysis**

As briefly introduced in the previous chapter, the biggest and foremost
concern of a fundamentalist when valuing a stock is its true value, being immune to
its current price as well as the optimism and pessimism of the crowd. That value is
essentially the present value of the stream of future dividends that the stockholders
may receive from owning that stock. Why is “present value” emphasized? Let’s say
a lottery award claims to be worth $1,000,000, but instead of getting the whole
sum today, the winner will be receiving $50,000 per year for the next 20 years. If
this winner believes that “In only 20 years, I will be a millionaire”, then he is falling
into the easy misconceptions about compound interest, which is the foundation of
mathematical finance, which is in turn the basis of fundamental analysis. Interest rate plays a major role in this game, making the real value of the lottery award significantly worth less than its nominal million. Suppose the interest rate is 8 percent annually, then by the end of the 20 year period, the $1,000,000 is only worth about $490,907 in today’s money (this value can be obtained from financial calculators, tables, or by using formulas). So, sad news for the lottery winner, he is not even halfway to being a millionaire.

This important process of determining the present value of future money is also referred to as “discounting”. It is crucial to understand the discounting process because it is the tool to evaluate and compare amounts of money received at different times in the future, once you assume an interest rate at that point. A stock’s price should be approximately equal to the discounted stream of dividends you can expect to receive from holding onto it indefinitely. If you plan on selling a stock, the price should be roughly equal to the discounted value of the price you can reasonably expect to receive when you sell it plus the discounted value of any dividends at that specific time. Therefore, discounting is essential to determining a stock’s value.

It is easy and rational to say that you should always pay less for a stock, or no more, than the present value of all its expected future gains, if you hope to make any profits from it. Unfortunately, this process depends heavily on your estimate of future interest rates, the company’s dividend policies, and other uncertain quantities, which are again under the effects of cognitive and emotional bias. Paulos (2003) discussed the irrational discounting of the future by giving the example of
an extreme case that actually took place recently in California, which he referred to as “the logic of pyramid schemes”. All-women dinner parties are hosted with the sponsorships of new members contributing cash appetizers. The scheme involves collecting money from an initial group of “investors” by promising them quick and amazing returns. The returns come from the money contributed by a larger group of people. Then a still larger group contributes to both of the smaller earlier groups.

*Figure 3 – The Pyramid Scheme*

![Pyramid Scheme Diagram](http://www.investopedia.com/articles/04/042104.asp)

Source: http://www.investopedia.com/articles/04/042104.asp

Suppose the very first person needs contributions from 10 new people to get his or her money back. This person will recruit 10 more participants, who in turn become new recruiters, and each need to get 10 new people to invest in order to get enough money to flow back to themselves. This process goes on and as a result, the number of participants keeps growing exponentially and infinitely. People are deceived by the belief that they are seemingly making easy money by giving money. However, this process is obviously impossible to sustain. The whole
system will collapse as soon as participants fail to get enough recruiters to come in, and the base of the pyramid is no longer strong enough to support its own weight.

The rise of stock prices is astonishingly similar to the growth of the pyramid scheme. The price of a stock cannot grow forever, and just like the pyramid participants, investors are definitely clever enough to be well aware of the fact that it will fall apart at some point. However, people’s logic is generally only concerned with what happens in the next one or two steps; everyone expects that they will be able to make the money and get out before the collapse happens. The fact is, you can certainly make quick and extraordinary returns if you enter the scheme early and get out in time, but that is not always the case and people still lose fortunes. The ultimate goal of all investors is to be able to predict that peak right before the stock price plummets.

There are many fundamental indicators that one could take into consideration when calculating the intrinsic value of a stock. I shall elaborate on those that, in my opinion, are the most important.

**P/E Ratio: The Favorite Indicator**

To determine a stock’s value, an investor tries to make reasonable estimates of the amount of cash generated in the future, and then discounts this stream of payments to its present value using the technique discussed above. This future stream of payments is estimated by looking at the company's potential stream of earnings, because the earnings eventually will be paid out as dividends. Therefore, high earnings justify paying more for the company's stock because they indicate
that company’s growth in its value. This reasoning leads to the shortcut known as the P/E (Price to Earnings) Ratio. Considered by some analysts as the most basic and fundamental yardstick for valuing stocks, it is simply the ratio of the price of a share of stock to the annual EPS (Earnings Per Share):

\[
P/E = \frac{\text{Price Per Share}}{\text{Earnings Per Share}}
\]

The price P can be obtained simply by looking in a newspaper or online, and the EPS can be calculated by taking the company’s total earnings over the past year and dividing it by the number of shares outstanding. This ratio can be interpreted as a measure of investor’s expectations or predictions of future earnings. If investors believe that earnings growth is going to accelerate, they will be willing to pay a higher price relative to current earnings. The chart below shows the historic P/E Ratio for the S&P 500:

*Figure 4 – Historic P/E Ratio for the S&P 500, 1890-2000*
As we can see, sharp drops occur with stock market crashes. However, peaks in the P/E ratio are not always bad indicators for investors. Sharp declines in earnings have always been temporary, caused by recessions or other circumstances, and earnings as well as stock prices have always rebounded subsequently.

To predict future short-term stock returns, using the P/E ratio can yield misleading results. For example, in the case where the economy is rebounding from a recession, future returns will be higher than predicted by the earnings yield. Also, the market is subject to many other sources of movements, such as changes in interest rates or the risk premium demanded by stockholders in the short run. But in the long run, the P/E ratio has proved to be a very useful predictor. Just as the BMI (body mass index, which equals to your weight divided by the square of your height) gives a better view of your overall health than does weight alone, the P/E ratio provides a better measure of a company's financial health than stock price alone.

**Current Ratio and Debt Ratio**

Michael C. Thomsett suggests that singular indicators are not as valuable as a dual analysis of two related indicators, which helps narrow down the massive amount of information that investors should examine\(^\text{13}\). These two related

\(^{13}\) Michael C. Thomsett, *Winning with Stocks*, 2008, 111
fundamentals, *current ratio* and *debt ratio*, tell stories about some of a company’s very basic money movement. The current ratio is calculated by dividing the current assets value by current liabilities.

\[
\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}
\]

For example, at the fiscal year end of September 24, 2001, Apple Inc. reported current assets of $44,988 million and current liabilities of $27,970 million\(^{14}\). Therefore, Apple’s current ratio is:

\[
\$44,988 / \$27,970 = 1.6
\]

This is a liquidity ratio that measures a company’s ability to pay back its short-term liabilities (debt and payables) with its short-term assets (cash, inventory, receivables). The widely accepted standard is that the current ratio of 2 or higher is considered excellent and depending on the nature of business and how much inventory is involved, the current ratio falling between 1 and 2 is acceptable. A ratio under 1 is definitely not a good sign, because that means the company essentially owes more than it owns, and would not be able to pay off its financial obligations if they came due at that point.

The debt/equity ratio, which is highly useful while being tracked along with the current ratio, is the most important capitalization ratio calculated by dividing a company’s total debt by its equity.

\[
\text{Debt/Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Shareholders' Equity}}
\]

\(^{14}\) Data obtained from http://finance.yahoo.com/
This ratio indicated what proportion of equity and liabilities the company is using to finance its assets. A consistent, or falling debt ratio is always preferable for a company's financial health because less debt not only indicates its steady shareholders' support but also translates to lower interest expense and more capital available for expansion and dividend payments. As pointed out by Thomsett, it is crucial that one must be cautious and watch the current ratio and debt ratio together because a hidden trend can emerge:

A company wishing to maintain its current ratio during years when it is losing money may easily increase its long-term debt and hold on to the borrowed funds in cash. Even as the financial condition deteriorates, the current ratio can be held at the same level but long-term debt continues to rise. In other words, by allowing long-term debt to rise each year, a company can report declining profits and even losses, but its current ratio remains consistent. So if you check only the current ratio, you will miss this trend.\textsuperscript{15}

Thomsett illustrates the importance of dual analysis with the table below, which represents the current ratio and debt ratio analysis of Eastman Kodak over the period of 1997 through fiscal 2006.

\textsuperscript{15} Michael C. Thomsett, \textit{Winning with Stocks}, 2008, 112.
Figure 5 – Current Ratio and Debt Ratio Analysis

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Income (in millions of dollars)</th>
<th>Current Ratio</th>
<th>Debt Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>$ -600</td>
<td>1.1</td>
<td>66.2%</td>
</tr>
<tr>
<td>2006</td>
<td>-1,455</td>
<td>1.1</td>
<td>58.4%</td>
</tr>
<tr>
<td>2005</td>
<td>81</td>
<td>1.1</td>
<td>32.7%</td>
</tr>
<tr>
<td>2004</td>
<td>238</td>
<td>1.0</td>
<td>41.4%</td>
</tr>
<tr>
<td>2003</td>
<td>793</td>
<td>0.8</td>
<td>29.5%</td>
</tr>
<tr>
<td>2002</td>
<td>$ 76</td>
<td>0.9</td>
<td>36.5%</td>
</tr>
<tr>
<td>2001</td>
<td>1,407</td>
<td>0.9</td>
<td>25.0%</td>
</tr>
<tr>
<td>2000</td>
<td>1,392</td>
<td>0.9</td>
<td>0%</td>
</tr>
<tr>
<td>1999</td>
<td>1,390</td>
<td>0.9</td>
<td>11.1%</td>
</tr>
<tr>
<td>1998</td>
<td>5</td>
<td>1.1</td>
<td>15.6%</td>
</tr>
</tbody>
</table>

Source: Standard & Poor’s Stock Reports


If you emphasize on working capital as a primary indicator and keep track of the current ratio column only, then Eastman Kodak seems to be in good shape: over 10 years they have been maintaining a steady current ratio of approximately 1.0. However, the record starts to appear problematic when you look at the downfall in net income. With decreasing profits and even net losses in the last two years, the only way this company has been able to maintain the satisfactory current ratio of 1.1 is to manipulate the debt ratio. In 1998, long-term debt made up only 15.6% of total capitalization; the rest came from stockholders’ equity. Ten years later, this had risen to 66.2%, which means debt now financed 66.2% of the
company's total capitalization. This is nothing but a gloomy signal of Eastman Kodak's performance.

**Current yield and Dividend growth**

Dividends, with no questions, are one of the direct reflections of a company's profitability. *Current yield* is calculated by dividing the annual dollar value of dividends by current price of a share. For example, if total dividends are declared at $5 per share per year and current share price is $80, then current dividend yield is:

$$\frac{5}{80} = 6.25\%$$

A company's capability to maintain the dividend yield at a stable and attractive level unquestionably reflects its steady earnings and positive cash flow. Dividends become even more important as a profitability indicator when studied over a long period of time. If a company's financial reports show increased dividends over 10 years or more, then that history of *dividend growth* usually a reliable sign of a successful and well-managed company. And including their stocks in your portfolio is most likely a wise move.

To sum up, studying fundamentals when making investing decisions is essentially to understand a company's financial strength or weakness, and from there, to be able to identify underpriced versus overpriced stocks. It is also important to note that the indicators need to be tracked on a comparative basis between companies and over many years, preferably from at least five to ten years.
2. **TECHNICAL ANALYSIS: THE PSYCHICS OF THE FINANCIAL WORLD**

It may be quite a stretch to compare the technical analysts to psychics who generally do not have the reputation of being scientifically or morally reliable. However, when you come to think of it, there is some similarity between a psychic trying to tell a person’s fortune by reading certain patterns and signs such as lines on the person’s palms and some technicians who claim to be able to interpret the chart of a stock *whose name he does not know*\(^{16}\). Needless to say, such an extreme approach is not encouraged, and of course, a market technician has a lot more logical reasoning to back up his claims.

The charting method, even though very often frowned upon, or even ridiculed, by critics who believe in the randomness of the market, is undeniably fascinating. John Magee was once quoted stating, "When I come into this office I leave the rest of the world outside to concentrate entirely on my charts. This room is exactly the same in a blizzard as on a moonlit June evening. In here I can’t possibly do myself and my clients the disservice of saying ‘buy’ simply because the sun is out or ‘sell’ because it is raining”.

So, digging deeper into a technician’s mind, why is charting supposed to work? Many chartists freely admit that they cannot explain why charting should work, history just has a habit of repeating itself and following certain patterns. Even Magee, who is considered the leader of this school of thought, said that we can never hope to know *why* the market behaves the way it does, we can only seek to understand *how*. In *A Random Walk Down Wall Street*, despite candidly declaring

his bias against the chartists, Malkiel suggests the following explanations as being the most credible for technical analysis:

First, it is the instinctive bandwagon psychology of the crowd. When suddenly the price of a stock goes significantly higher and higher, investors tend to simultaneously think that there must be a plausible reason for the mass’s increasing interest in that stock, and they want to jump on the train, which in turn pushes that stock price even higher. This process might go on until it reaches a peak and then plummet – the tulip bulb phenomenon that I previously elaborated on is an extreme example of this psychology.

Second, fundamental information about a company, which is critical for investors to base their decisions on, may not be fairly accessible for everyone. In the United States and most jurisdictions around the world, there are laws and rules against insider trading, which is the act of buying or selling a corporation’s stock or other securities by individuals who have access to nonpublic information about the company. However, the details and the efforts to enforce them vary considerably, and depending on the situation, insiders can sometimes take significant advantage of the non-public information obtained while performing their duties at the corporation. When a favorable incident happens to a company, the discovery of a mineral deposit for example, the insiders are the first to know and to act accordingly. Knowing that the business is going to bloom, they will buy the stock, causing the stock price to go up. Subsequently, their family and friends are told about it and they will be the next ones to join the rise. Then the news spreads to the professionals such as investment companies and financial analysts. Common
investors are the last ones to jump on the bandwagon. This process triggers a gradual movement in stock trends. Chartists therefore believe that any price fluctuation, be it upturns or downturns, do not randomly occur for no reason; instead such trends can be observed and predicted even without the inside information, which then allow investors like themselves to get in long before the general public.

Third, chartists notice people’s psychological – and behavioral – tendency to remember what they paid, or wish they had paid, for a stock. For example, suppose a stock has been for a while at $60, during which some investors bought in; then suddenly drops to $50 before slowly rising again. Those unlucky investors who bought it around $60 are unhappy and tend to be anxious to recoup their losses, therefore very likely to sell those stocks as soon as they rise back to the original $60 price at which they were bought. This $60 is termed a “resistance level” because it is more or less an obstacle to further upward movement of the stock price. This price draws a line that becomes harder and harder to cross, because more and more investors instinctively get the idea that this is the price ceiling for this stock, it cannot go any higher. Likewise, investors who sold shares around $50, when the market was low, will be anxious to buy them back if given another opportunity to get the shares at $50, which drives the price up again. Chartists call this level “support area”, because prices are likely to always rise above that level.
The Dow Theory

Widely acknowledged as the core of all technical market studies, the Dow Theory is built upon and deals solely with the action of the stock market itself in terms of the average price of a selected few representative stocks. It is completely unrelated to the business statistics, which fundamentalists are very much fond of and derive their conclusions from. This theory is named after Charles H. Dow, who founded the Dow-Jones Financial News Service and is credited as the inventor of stock market averages and the use of them to study the general trend of the securities market. Initially, as he outlined his ideas in The Wall Street Journal editorials, Dow did not mean to provide a device for forecasting the stock market. He was merely suggesting a new method for studying business trends, which are revenues, costs, expenses, and profits; and how these trends translated to changes in stock prices. After his death in 1902, his successor, William O. Hamilton, as editor of The Wall Street Journal, organized these observations, developed and finally formulated these principles into the Dow Theory as known today, which was later formalized in a book entitled The Dow Theory by Charles Rhea17.

The Dow Theory relies heavily on analyzing The Dow Jones Industrial Average (DJIA). It is simply the average of price movement among 30 industrial stocks, which represent nearly 24 percent of the overall market capitalization of U.S.-based companies publicly listed on stock indexes. Dow observed a direct relationship between trends in stock prices and other business trends. By combining stocks of a few large companies into a single index, the implications

became clear to see and interpret while staying congruent with the overall trends of the whole market.

Figure 6 – Dow Jones Industrial Average Components

<table>
<thead>
<tr>
<th>Company</th>
<th>Weighting %</th>
<th>Company</th>
<th>Weighting %</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M</td>
<td>5.16%</td>
<td>Hewlett-Packard</td>
<td>3.14%</td>
</tr>
<tr>
<td>Alcoa</td>
<td>2.50%</td>
<td>Home Depot</td>
<td>1.86%</td>
</tr>
<tr>
<td>American Express</td>
<td>2.96%</td>
<td>Intel</td>
<td>1.33%</td>
</tr>
<tr>
<td>AIG</td>
<td>3.35%</td>
<td>IBM</td>
<td>7.47%</td>
</tr>
<tr>
<td>AT&amp;T</td>
<td>2.26%</td>
<td>Johnson &amp; Johnson</td>
<td>4.04%</td>
</tr>
<tr>
<td>Bank of America</td>
<td>2.75%</td>
<td>JPMorgan Chase</td>
<td>2.85%</td>
</tr>
<tr>
<td>Boeing</td>
<td>5.38%</td>
<td>McDonalds</td>
<td>3.55%</td>
</tr>
<tr>
<td>Caterpillar</td>
<td>4.76%</td>
<td>Merck</td>
<td>2.92%</td>
</tr>
<tr>
<td>Chevron</td>
<td>5.66%</td>
<td>Microsoft</td>
<td>1.81%</td>
</tr>
<tr>
<td>Citigroup</td>
<td>1.65%</td>
<td>Pfizer</td>
<td>1.46%</td>
</tr>
<tr>
<td>Coca-Cola</td>
<td>3.85%</td>
<td>Proctor &amp; Gamble</td>
<td>4.31%</td>
</tr>
<tr>
<td>E.I. DuPont</td>
<td>3.05%</td>
<td>United Technologies</td>
<td>4.68%</td>
</tr>
<tr>
<td>Exxon-Mobil</td>
<td>5.73%</td>
<td>Verizon</td>
<td>2.33%</td>
</tr>
<tr>
<td>General Electric</td>
<td>2.18%</td>
<td>Wal-Mart</td>
<td>3.30%</td>
</tr>
<tr>
<td>General Motors</td>
<td>1.59%</td>
<td>Walt Disney</td>
<td>2.12%</td>
</tr>
</tbody>
</table>

Total                  |             |                       | 100.00%     |

Source: Dow Jones & Co., as of February 26, 2007 rounded down

Source: Thomsett, Michael C., "Winning With Stocks", 2008, 68

The DJIA is called a price-weighted index, which means that those stocks with higher share prices have more influence on the trend than cheaper shares. When judging the market, most people continue to take the DJIA into consideration. The Averages obviously cannot be traded; the Dow Theory unfortunately does not tell you what stocks to buy. It is, however, designed as a mechanical device to determine the distinctions between a bull market (optimistic and up-trending) and
a bear market (pessimistic and down-trending). It tells you current movements and the strength or weakness of the Primary Market Trend, which is important because most stocks tend to go with the trend.

The Dow Theory consists of these basic tenets:

1. **The averages discount all news and information.** The Averages reflect the combined trading activities of all investors, including those who have advantageous information and foresight on news and events that may occur in the near future. Therefore, good news as well as bad news – including the fundamentals – is rapidly absorbed, reflected in the current price levels and trends; and their possible effects are discounted.

2. **Markets contain three trends.** An **uptrend** takes place when prices close at a higher level than before while low price levels are higher with each rally in the same period of time. A **downtrend** occurs when lower-closing prices are offset by lower high prices in each subsequent rally. The third trend involves a clear direction and then price starts moving in the opposite direction, bringing the price level back to the established trend.

3. **Trends contain three distinct segments.** The three phases of a trend, according to the Dow Theory, are (1) the accumulation phase, in which experienced investors make investments at the opposite direction of the market-wide opinion (buy in an uptrend and sell in a downtrend); (2) the **public participation** phase, during which the crowd recognizes the trend and follows it, resulting in higher volume and speculation; and (3) the
distribution phase, in which investors distribute their shares back to the market.

4. Market averages must confirm before a new trend can be called. Dow’s observation was that because goods had to be shipped from manufacturers to the market, industrial growth had to be complemented by a similar pattern in the rails. One Average alone cannot provide a valid signal. When two averages (such as the Industrial Average and the Rail Average) move in the same direction, it indicates a new trend; otherwise a change in the trend is bound to happen.

5. Price trends and volume of trading go together. When price change is accompanied by a large trading volume, it usually indicates a real trend. Otherwise, the change may be due to unimportant external forces, such as takeover rumors.

6. A trend continues in effect until its reversal has been signaled and new trends have begun. A trend is not actually ended and reversed until signals can be confirmed. Experience has proved that the odds are in favor of those who wait until he is certain, not those who are anxious to jump the gun prematurely.

**Reading Stock Charts: Trends, Volume, and Patterns**

As one can easily tell by the term “chartists” itself, charts are the single most important and satisfactory working tool of a technical analyst. A chart is a graphical representation of a series of prices over a certain time frame. Here is the example
of a basic stock chart where each point represents the closing price for each day the stock is traded over the period of 1.5 years:

*Figure 7 – A Typical Stock Chart*

![Graph of a typical stock chart with points labeled Point #1 and Point #2, showing price movements over the years 2004 to 2005.](image)

Copyright © 2006 Investopedia.com

Source: http://www.investopedia.com

In any given chart, prices do not always move in a straight line in any direction, but rather in series of highs and lows. In technical analysis, the movement of these highs and lows creates a trend: An uptrend consists of a series of higher highs and higher lows, and likewise, a downtrend is classified as a series of lower lows and lower highs.

As I mentioned before, technical analysis is based on the assumption that history repeats itself. When certain patterns tend to be seen many times, they are believed to signal a certain high probability of stock movements, which helps
Chartists identify trading opportunities. For example, a head and shoulders pattern followed by a downward move through the neckline is a bearish omen, which usually results in a continued fall in price; therefore it is a sell signal. Below is a typical example of such patterns.

*Figure 8 – A Typical Head and Shoulders Pattern*

Source: http://www.thehotpennystocks.com/

Again, the importance of volume should not be forgotten. When a stock rises on a large or increasing volume, there is an excess of buying interest, and the stock can be expected to continue its rising momentum. Likewise, a stock dropping on large volume indicates a sell signal because it is very likely to continue falling.

There is a lot to say about a full-time professional chartist’s complex interpreting techniques, most of which we shall not need to concern ourselves. John Maynard Keynes, a famous economist whose ideas have profoundly influenced modern macroeconomics, sums up the most important attribute of
... [Most] persons are largely concerned, not with making superior long-term forecasts of the probable yield of an investment over its whole life, but with foreseeing changes in the conventional basis of valuation a short time ahead of the general public. They are concerned, not with what an investment is really worth to a man who buys it “for keeps”, but with what the market will value it at, under the influence of mass psychology, three months or a year hence. Moreover, this behaviour is not the outcome of a wrong-headed propensity. It is an inevitable result of an investment market organised along the lines described. For it is not sensible to pay 25 for an investment of which you believe the prospective yield to justify a value of 30, if you also believe that the market will value it at 20 three months hence.\footnote{John Maynard Keynes, \textit{The General Theory of Employment, Interest and Money}, Harcourt, 1936}

Basically, his opinion was that evaluating fundamentals and intrinsic values is too much work, which does not usually yield such effective outcomes, because no one knows for sure what will influence future earnings prospects and dividend payments. According to Keynes, professional analysts prefer to analyze how the crowd is likely to behave in the future; and the successful investor is the one who can estimate what investment situations are most susceptible to the general public and buy or sell before the crowd. In chapter 12 of his book, Keynes illustrated the fact that price fluctuations in equity markets are driven by expectations about what
other investors think, rather than expectations about the fundamental profitability of an investment, with a concept called the *Keynesian beauty contest*.

The Keynesian beauty contest is a hypothetical newspaper contest in which participants are asked to choose a set of six faces that are the “most beautiful” from photographs of hundreds of women. Those whose submissions come closest to the 6 most popular faces win. The naïve strategy for an entrant would be to rely on his own concepts of beauty to establish rankings. To maximize his chances of winning the prize, a more sophisticated entrant would think about what the majority perception of beauty is, and then select based on their knowledge of public perceptions. An even more sophisticated entrant would try to second guess the other entrants’ second guesses, so on and so forth.

It is not a case of choosing those [faces] that, to the best of one’s judgment, are really the prettiest, nor even those that average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practice the fourth, fifth and higher degrees.¹⁹

Keynes’ belief is that, when it comes to investing in the stock market, making decisions based on the stock’s fundamental value (expected profitability based on expected earnings) is just as naïve and futile as selecting photos based on one’s own perception of beauty. What really matters is to understand mob psychology: What will the market do? Keynes practiced just exactly what he

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preached. By playing the stock market for half an hour every morning from his bed, he proved to be a successful investor, maybe the most successful of the Great Depression era. When he died, he left an estate worth $30 million in present-day dollars.

Another renowned economist, Oskar Morgenstern, who pioneered in the application of game theory in economics, expressed his concurrence with this school of thought in a co-authored book, *Predictability of Stock Market Prices*. He believed that every investor should post the following Latin maxim above his desk:

*Res tantum valet quantum vendi potest.*

(A thing is worth only what someone else will pay for it.)

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3. BEHAVIORAL ANALYSIS: HUMANS ARE ANYTHING BUT RATIONAL

Classical finance theories seek to explain financial markets using models in which factors are rational. That is primarily based on these assumptions about investor behavior: Upon receiving new information, such as a certain piece of news about a company, people adjust their judgments accordingly and correctly and make normatively rational decisions with no bias; and they always aim for the optimal outcome over any other possible alternatives. The decision-making process is believed to rely on two crucial factors: personal factors (such as age, education, income, and investment portfolio), and technical factors (models and fundamentals based on expected risk and returns). However, decision-making, especially in stock market investment, is inarguably a complex process that involves various steps of thorough analysis, with an immense amount of information to be taken into consideration. And the human brain does not work like a machine: you could not just program it to scan all the available data and numbers, analyze it using the built-in models and churn out the calculated optimal output. Financial analysts have been increasingly aware that financial models and theories are much easier to take in theory than to put into practice, that psychological factors, such as biases and emotions, have a significant impact on the analytical process; and investors more than often find themselves ending up with decisions that are far from normative rationality. For instance, Wal-Mart is a successful and well-managed company that has always kept its stockholders happy with satisfactory rewards. All the fundamental and technical indicators strongly point you toward buying their shares. However, how many of you would refuse to put Wal-Mart in your portfolios
simply because you disapprove of the company’s business strategies to underpay employees, exploit the poor, and put smaller local companies out of business? Such trading decisions cannot be understood without considering the cognitive aspects of decision-making, which is full of biases and personal preferences.

The market is most dangerous when it looks best, it is most inviting when it looks worst.  

Realizing the importance of understanding these psychological factors, many stock market analysts have devoted their study to this new approach to financial markets, which is often known as the behavioral approach. This school of thought is not a device that can suggest which stocks to buy – it is rather a useful assisting tool that emphasizes the psychological and sociological aspects of investing, which helps us improve our understanding of economic decisions and in turn, make better investment choices ourselves. Behavioralists believe that some financial phenomena, including the investment process and risk taking, can be better understood using models in which some factors are not entirely rational. And behavioral analysis assumes that a vital aspect of investment decision-making is the subjective nature of information and risk perceived by the investors, which greatly varies from individual to individual; rather than solely how traditional finance theorists identify it. The difference among investor perceptions, which usually leads to such errors as misinterpretation of information or overreaction to market swings, is due to a number of decision-making biases:

\[21 \text{ Frank J. Williams, } If \ You \ Must \ Speculate, \ Learn \ the \ Rules, \ Burlington, \ VT: \ Freiser \ Press, \ 1930.\]
Heuristics

Heuristics can be defined as the mental strategies, or “rules of thumbs”, developed from one’s past experience that a person employs to solve a specific problem, especially under circumstances of high uncertainty or risk taking. The significance of heuristics in judgments under risk taking was proposed by one of the most important works in the development of behavioral finance, Prospect Theory: An Analysis of Decision Making under Risk, by Amos Tversky and Daniel Kahneman in 1979. They argued that the two types of heuristics that influence a person's perception of risk are the availability heuristic and representativeness heuristic. Individuals who employ the availability heuristic find it easier to judge an event that they are more familiar with. This tendency can distort judgments, because events that are more recent and salient will weigh more heavily than others. Representativeness heuristic is a cognitive bias, which implies that investors tend to assess the likelihood and frequency of an event by its similarity to other events. For example, if an investor finds out that a respected brokerage firm has recently invested in a particular stock, they are more likely to buy the same stock without much objective deliberation.

Anchoring

The “anchoring effect” is the mental tendency to easily credit and become attached to any number we hear, because there is simply too much information for investors to collect and analyze adequately. Paulos illustrated this mental bias with

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a simple example: If a subject is requested to estimate the population of Ukraine, which he has little or no knowledge of, with the question, “Is it more or less than 200 million people?”, his number will tend to stay close to this number, say, 175 million. If the question is slightly changed, “Is it more or less than 5 million people?”, the answer will most likely be slightly higher than this, but much lower than the initial estimation, with an average around 10 million. The subjects usually shift in the right direction, but nevertheless remain heavily anchored to the number presented to them as a possibility. “Price targets” of stocks work the same way.

**Overconfidence**

As the term itself suggests, overconfidence is defined as the overestimation of oneself and one’s abilities, which often results in excessive trading. Experts can be more prone to overconfidence than non-experts due to the tendency to perceive themselves as more skilled than average, which is fed by a certain level of success they may have achieved in their past. Mazzoli and Marinelli pointed out that overconfidence is often strengthened by (1) the *self-attribution bias* (the tendency of people to credit success to their own skills while blaming others on bad luck); (2) the *hindsight bias* (to believe that they predicted an event beforehand, but after it actually happened, following a retrospective picture of events), (3) the *cognitive dissonance* (trying to persuade themselves that they are a skillful decision maker by developing twisted reasoning to explain their past actions), (4) *rationalization* (constructing a plausible rationale for past choices to help them feel better about
their decisions), and (5) the *confirmation bias* (staying consistent with their own prior beliefs when interpreting ambiguous information)*23*.

**Mental accounting**

Mental accounting is a cognitive concept which suggests that investors categorize and place their investments into separate mental accounts to keep track of them, and react separately and in different ways to each investment based on which account they are in. Mazzoli and Marinelli suggest that there are three typical categories of mental accounts: consumption account (addressed to general expenses), the income account (addressed to revenues), and wealth account (consisting of different sources of wealth)*24*. When an investor buys a new stock, he automatically starts maintaining a new virtual account for it in his mind. Once an investment is assigned a mental account, the mind starts “stereotyping” that investment, making it difficult to view the investment in any other way. This mental process often results in some misevaluation effects, because interactions among assets in different accounts, which are highly influential to the volatility of the portfolio’s effectiveness, tend to be neglected.

There are many other behavioral anomalies and mental errors that can highly affect judgments, such as framing, ambiguity aversion, current feelings and mood, and social influences. Such effects cannot be explained using standard fundamental or technical theories. It is essential for individual investors to

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*24* Camilla Mazzoli and Nicoletta Marinelli, 2011
understand behavioral issues in order to avoid overlooking them while formulating investment strategies.
CHAPTER 4: BOTTOM LINE – WHICH APPROACH WOULD YOU TAKE?

To sum up the most important points to keep in mind when evaluating a stock, Thomsett considered the comparisons between stocks with technical and fundamental attributes in the table below.

*Figure 9 – Stock Comparisons*  

<table>
<thead>
<tr>
<th>Positive Attributes</th>
<th>Negative Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical Analysis:</strong></td>
<td>volatile trading range with unpredictable direction or trend</td>
</tr>
<tr>
<td>narrow trading range moves upward over time</td>
<td></td>
</tr>
<tr>
<td>gradual price growth over many years</td>
<td>gradual price decline over many years</td>
</tr>
<tr>
<td>P/E ratio between 10 and 25</td>
<td>P/E ratio between 60 and 110</td>
</tr>
<tr>
<td><strong>Fundamental Analysis:</strong></td>
<td></td>
</tr>
<tr>
<td>current ratio of 2 to 1</td>
<td>current ratio of 1 to 3</td>
</tr>
<tr>
<td>debt ratio between zero and 25% and remaining the same over many years</td>
<td>debt ratio between 50% and 75% and increasing each year</td>
</tr>
<tr>
<td>dividend above 4%</td>
<td>dividend between zero and 1%</td>
</tr>
<tr>
<td>dividend has increased every year for 10 years or more</td>
<td>dividend has not increased or some dividends have been skipped</td>
</tr>
<tr>
<td>sales and earnings increase every year</td>
<td>sales grow but earnings fall</td>
</tr>
<tr>
<td>net earnings and core earnings are close together with only minor adjustments</td>
<td>big adjustments occur every year between net and core earnings</td>
</tr>
</tbody>
</table>

---

25 Current ratio of 1 to 3 is considered as a negative tribute. Shouldn’t it be lower or equal to 1 instead?
Now that you have had an insight into what is going on behind investors’ decisions, you may start wondering: Among the professional investors on Wall Street, how many are actually basing their assessments on what is usually taught in business schools: building an optimal portfolio based on a rational statistical analysis and calculations of fundamental economic data? And how many are burying themselves in charts, hoping to find patterns and signals hidden therein, or simply conducting a Keynesian beauty contest everyday in their heads, trying to guess what other investors think? Which method would you rather take to arrive at with your own decisions?

Interestingly, human nature seems to favor order over randomness, despite the fact that the laws of chance have been statistically proven. When you do the coin flipping test, even if you have got seven heads in a row, the chance of the coin falling on head at the eighth flip is still 50 percent. If the coin is indeed a fair one, having no bias or memory, then each outcome should be completely uncorrelated with the previous. Yet the human brain still has the tendency to search in the hope of finding patterns among random events wherever they might occur. As Robert D. Edwards and John Magee put it in their classic book Technical Analysis, “The price formations from which extensive new trends proceed take time to build. One does not bring instantly to a stop a heavy car moving at seventy miles per hour all within the same split second, turn it around and get it moving back down the road in the opposite direction at seventy miles per hour”. Their argument received strong support from the loyal following of technical analysts. Expressing their antagonism
against the fundamentalists’ point of view, Andrew Lo, a Professor of Finance at the MIT Sloan School of Management and a leading authority on hedge funds and financial engineering himself, co-authored with Craig MacKinlay, from the Wharton School, in a book titled *A Non-Random Walk Down Wall Street*, provided a critical counterpoint to Malkiel’s classic. They contend that in the short run, overall market returns are positively correlated, much like the local weather. A hot, sunny day is apparently more likely to be followed by another one, just like a good week in the stock market is a bit more likely to be followed by another one. Likewise for gloomy rainy days and bad weeks in the market.

Now, no matter which point of view you are leaning towards, here is something that you cannot deny: If stock prices are not random, then their movements should be distinguishable from counterfeits generated by a computer. To respond to the question “Are stock prices random after all?” I could remind you of the experiments which involved chimpanzees throwing darts. But for now, let us forget the primates and try looking at a fascinating experiment conceived roughly 40 years ago by Harry Roberts, a professor at the University of Chicago. He simulated movements in the market by plotting price changes that were conducted from completely random events, such as flipping a coin. With this method, these movements, obviously, could not have any predictable trends. However, these simulations looked just like the charts of actual stock prices, forming shapes and trends that are deemed by chartists to be significant indicators of future returns. Jeremy J. Siegel extended Professor Robert’s experiment with the following graphical illustration. He programmed the computer to generate prices randomly,
and used the results to construct bar graphs that are similar to those founded in chart publications and newspapers. The figure below contains eight charts, four of which are made from actual data of the Dow Jones Industrial Average over recent years, and the other four are created with a number generator. Do you think you can determine which are real historical data and which are computer-generated numbers?

*Figure 10 – Real and Simulated Stock Indexes*

To be frankly honest, I couldn’t. If you could not either, maybe we actually do not have to feel that bad about ourselves, because according to Siegel’s interesting findings, most of the top brokers at a leading Wall Street firm found it impossible to tell the distinctions between the real and the counterfeit data. Only
Figure D was correctly identified by two-thirds of the brokers as the period around
the October 19, 1987 stock crash, also known as the dreaded Black Monday, when
the DJIA dropped by 508 points (22.61%). The brokers did not seem to show any
more capability than us novices to identify any of the remaining 7 charts. (And here
is the answer keys to the graphs above provided by Siegel if you want to try testing
your own judgments: The true historical prices are represented by the graphs in
Figure B, D, E, and H; and the meaningless computer-generated counterfeits are
represented by the graphs in Figure A, C, F, and G.26)

Malkiel, who expressed a strongly blunt disbelief in the technical approach
in A Random Walk, told this short story that highly amused me: To test the random
walk theory, he gave his students a hypothetical stock which was initially worth 50
dollars. The students were asked to determine the closing stock price by a coin flip:
if the result was heads, the price would close half point higher, and half point lower
if the result was tails. Each time, the price had a fifty-fifty chance of closing higher
or lower than the previous day, with each result being completely unrelated to the
previous.

... In other simulated stock charts derived through student coin
tossings, there were head-and-shoulders formations, triple tops and
bottoms, and other more esoteric chart patterns. One of the charts showed
a beautiful upward breakout from an inverted head and shoulders (a very
bullish formation). I showed it to a chartist friend of mine who practically
jumped out of his skin. “What is this company?” he exclaimed. We’ve got to

26 Figure B covers February 15 to July 1, 1991; Figure E covers January 15 to June 1,
1992; and Figure H covers from June 15 to November 1, 1990.
buy immediately. This pattern’s a classic. There’s no question the stock will be up 15 points next week”. He did not respond kindly to me when I told him the chart had been produced by flipping a coin.27

Technical schemes often do make profits; otherwise this approach would not have attracted such a loyal group of following. But this strategy does not seem to be more effective than a simple buy-and-hold tactic, which is buying a stock or a group of stocks and holding on to them for a certain period of time. According to Malkiel, a naïve buy-and-hold strategy, using a portfolio consisting of an adequately broad variety of stocks, has provided an average annual rate of return of approximately 11 percent over the past seventy years; and no technical schemes seem to have consistently produced better returns than that.

Technical rules, however, should not be completely disregarded; neither should behavioral factors. I would not say that there is a tactic that is completely optimal and guaranteed to work more efficiently than others. However, there should be core values on which an investor should keep a good grip as a foundation for their evaluations. In my opinion, it is the best strategy to value stocks using a combination of techniques. In order to make the best stock investment decisions, I would suggest these several important points to keep in mind:

(i) Buy stocks that have, or are expected to have consistent long-run earnings growth rate. Stable growth does not only increase the earnings and dividend yields of the stock itself, but more importantly, it has the multiple effect of

increasing market confidence in that stock, thus increases its value. Therefore, it is a good strategy to keep track of a stock's history, preferably of at least five years.

(ii) Never pay more for a stock than its estimated intrinsic value. Needless to say, one can never tell exactly what a stock's intrinsic value is. However, besides using the fundamental indicators to evaluate a stock's value, many analysts believe that you can roughly get the idea when a stock seems to be reasonably priced.

(iii) Buy stocks that produce “good feelings” in the minds of investors. This is to take the behavioral factors into consideration. Individual and institutional investors, again, are not machines. They are emotional human beings whose decisions are profoundly driven by factors like greed, fear, hope, and instincts. A stock that seems to receive positive reactions from the crowd is more likely to sell, even if the growth rate is only average.

Right at this very moment, million of stocks trading activities are occurring all over the globe. Millions of investors will continue to bet their money in the market, trying to “beat the market” with their own speculation. With the boom of technology and the development of the free market, it has never been easier to be a part of this crowd. Even though everyone is probably aiming for the same ultimate goal, which is to make money, each may take his own approach to determining the right value of stock market prices and the correct timing to trade them.

The belief that there is a difference between the real value of a stock (what its price would be if future earnings were known) and its perceived value (what someone would actually pay for it in the open market) is how the two primary schools of thought emerged: The Fundamental view and the Technical view.
Fundamentalists do stock evaluations by taking into account all the factors that make up its true market value, buy stocks that they believe are underpriced, and wait until the market justifies their judgment. Technicians, on the other hand, ignore the ideal theoretical value of a stock. They try to predict, not the potential future earnings of the stock itself, but how the market will evaluate the stock in the future based on psychological patterns observed from past price trends and volume of trading. The third approach, which can be called the Behavioral view, was developed by a group of investors who believe that psychological considerations are a crucial feature of our stock markets. The behaviorists study market fluctuations with a lot of emphasis on the cognitive and sociological aspects of market behavior, applying psychology theories in explaining phenomena that occur in the market.

Investing, as a decision-making process, is subject to much complexity, and bears a great deal of risk and uncertainty. There is, of course, no absolutely optimal strategy when it comes to investing, otherwise everyone would have been rich by now. Even though I lean towards the view that stock prices are random and unpredictable, neither technical analysis, which analyzes the past price movements of stocks, nor fundamental analysis, which analyzes more basic information about individual companies and the economy, seems to consistently yield profits. However, it is important to know about the best of the modern techniques of the new investment technology.
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