Redefining Risk and Return in Common Stock Investment from a Value Investing Perspective: Some Tenable Propositions

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Redefining Risk and Return in Common Stock Investment from a Value Investing Perspective: Some Tenable Propositions

Eben Otuteye and Mohammad Siddiquee

Abstract

Modern Portfolio Theory, standard asset pricing models and the concept of rational decision makers in efficient markets have major limitations as systems for modeling investor behavior and prices of financial assets. Financial market participants are not a uniform group of rational investors. Instead, they are an amalgamation of heterogeneous traders with varied and sometimes very divergent goals. In fact, not every financial market participant is an investor; a significant number of financial market participants are speculators. Thus, the current paradigm of using Modern Portfolio Theory to represent the activities of market participants as “investor behavior” leads to predictions that do not fit the outcomes that are observed in financial markets. First, we define “investment” and “an investor” from a value investing perspective according to Benjamin Graham. After discussing some of the standard conclusions of Modern Portfolio Theory and traditional asset pricing models, we present a number of propositions to motivate discussion on ways to rethink the current prevailing view of what is investment and who is an investor. This is with a goal to nudge academic finance back to the ideas of Benjamin Graham as encapsulated in the value investing paradigm, a system of investment decision making that has withstood the test of time and economic, business and financial cycles for over 80 years. We focus particularly on how investors perceive and handle risk in their portfolio management decisions. We conclude that the core value investing framework, as well as analytical tools and methodology as handed down by Benjamin Graham, are capable and sufficient to develop portfolio theory that incorporates time and investor behavior that is different from the homogeneous group of ultra-rational decision makers on whom the current popular models are based.

Introduction

“The explanation cannot be found in any mathematics, but it has to be found in investor psychology. You can have an extraordinary difference in the price level merely because not only speculators but investors themselves are looking at the situation through rose-colored glasses rather than dark blue glasses.” – Benjamin Graham.¹

¹Eben Otuteye and Mohammad Siddiquee were runner-up winners for the Brandes Institute Award in 2014. The Brandes Institute Award contest attracted submissions of unpublished, academic research addressing: Benjamin Graham-based investment principles; behavioral biases; risk and its relationship to volatility; and/or new perspectives for retirement planning. Otuteye is Professor of Finance, Faculty of Business Administration at the University of New Brunswick, Fredericton. Siddiquee is Lecturer in Finance, Faculty of Business at the University of New Brunswick, Saint John.

In modern portfolio theory (MPT), risk (defined as volatility) and return are positively related. While this assertion makes intuitive sense, it is not an accurate reflection of the behavior of decision makers in stock markets or financial markets in general. The goal of this paper is to highlight some of the questionable aspects of standard portfolio theory and asset pricing models that have been taken for granted and to re-examine some of the traditional ways of thinking. In particular, we discuss the use of volatility (either in the form of standard deviation or beta) as the measure of risk and show how it is deficient in capturing the true essence of risk in investment. We start with the assertion that, at present, the concept of risk is both elusive and intractable because of inherent flaws in the definition of investment. Once investment is appropriately defined and clearly distinguished from speculation, and risk is perceived as the possibility of loss of capital rather than volatility of asset prices, it is then possible to model a relationship between risk and return that reflects more accurately what is empirically observed in financial markets.

We use value investing as the standard of investment for purposes of our discussion. A question that immediately arises is “Why value investing?” First of all, since there are many investment styles, explicitly defining a specific investment paradigm helps to anchor the discussion. Second, there is a preponderance of evidence that value investing yields the highest risk-adjusted returns compared to other investment styles (see for example, Tweedy Browne Company, 1992; Fama and French, 1998; Piotroski, 2000; Lakonishok, Shleifer and Vishny, 1994; Chan and Lakonishok, 2004). Thirdly, as we will show in the rest of the paper, risk as defined in value investing is meaningful and well aligned with the goals and psychological disposition of investors and does not have the ambiguities inherent in defining risk either as standard deviation of returns or the beta of an asset.

The main thesis and contribution of this paper to the discussion of risk and return in portfolio management is:

i. to make a case for Graham and Dodd’s (1934) definition as the proper concept of investment from an operational perspective;

ii. to show that the commonly used notions and measurements of risk as volatility are not meaningful indicators of risk given the goal of investment;

iii. to offer a number of propositions aimed at generating discussion as to how to properly characterize risk and return in portfolio management; and

iv. to make a case for making Graham’s principles of value investing the central concepts in investment curriculum both in academia and professional certification (such as the Chartered Financial Analyst or CFA designation).

We will also address issues pertaining to behavioral finance. It is worth noting that, while margin of safety is the cornerstone principle of value investing, investor psychology plays a central role in determining the final outcome of an investor’s endeavor. Although behavioral finance as a distinct discipline of knowledge derives its formal beginnings from the late 1980s and early 1990s, it has always been a central concept in Benjamin Graham’s investment philosophy.

Value Investing

In standard financial economics literature, investment is defined as foregoing current consumption in order to create the opportunity for a higher amount of consumption in the future. While this definition is conceptually correct, it is not operational. Therefore, for purposes of our propositions, we will use
Graham and Dodd’s (1934) definition of investment, which has an operational meaning built into it. This approach to investing originated by Graham, as described in Graham and Dodd (1934) and Graham (2006), has come to be known as value investing.\(^3\) According to Graham and Dodd (1934):

> “An investment operation is one which, upon thorough analysis, promises safety of principal and a satisfactory return. Operations not meeting these requirements are speculative.” (p. 54)

There are three main aspects to this definition that are very important and worth emphasizing. First, for an operation to qualify as investment, it should be based on thorough analysis. With regard to thorough analysis, Graham’s main advice is for the analyst to establish by means of data, logic and experience the continued profitability and financial stability of the company. Second, there should be a promise of safety of principal. And third, there should be a reasonable expectation of satisfactory return. Both the assurance of safety of principal and expectation of satisfactory rate of return hinge on the concept of margin of safety, which is the central concept of value investing.

This definition serves a dual purpose. It not only defines investment, it also defines speculation. Whereas definitions are typically given in a sentence, this definition of investment is in two sentences, highlighting not only what it is but also what it is not. In the process, it deliberately puts speculation (which unfortunately gets confused with investment quite often) under the spotlight. This is in line with what Graham had stated explicitly—that a fundamental requirement for an investor and his or her advisors is to be sure “particularly as to whether they have a clear concept of the differences between investment and speculation...”\(^4\) and “between market price and underlying value,” which we address below.

Value investing as an investment paradigm has one primary overarching distinguishing feature, namely, margin of safety. Margin of safety is the positive difference between the market price of the asset and the asset’s intrinsic value (intrinsic value minus price). What this boils down to in practice is that all value investing decisions culminate in buying an asset only when the market price is significantly below its underlying (intrinsic) value. A disciplined application of the margin of safety principle seeks to protect the investor from losing money and ensure a reasonable expectation of satisfactory returns. Thorough analysis and margin of safety are the value investor’s principal tools for handling risk.

The other key characteristic of value investing is that security analysis is carried out from an overall business ownership perspective. In other words, investors should approach investment in common stock the same way they would carry out their analysis if they were interested in buying the entire business. In the value investing paradigm, investment is carried out in two steps. The first step involves analysis of the nature of the business, management and the company’s financial statements with the goal of deciding if the company is worth investing in. This first step is a process to answer the question: “Is this a company to own?” If the answer to this is “yes,” then the investor proceeds to step two to estimate the intrinsic value of the company in order to decide what is the right price to pay for it. The intrinsic value per share sets the upper limit of the stock price. Graham then goes a step further to recommend that the stock be purchased only if it is selling at a significant discount to the intrinsic value. This discount to the intrinsic value he calls the “margin of safety.” He recommends a margin of safety of 20% or more.\(^5\)

We have developed a system,\(^6\) completely based on the philosophies of Benjamin Graham (Otuteye and Siddiquee, 2013a).

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\(^3\) Benjamin Graham himself (Graham, 2006) referred to it as “the value approach to stock investment.” (p. 204).


\(^5\) Benjamin Graham talks about two types of investors, the defensive investor and the aggressive investor. He recommends a 50% margin of safety for the defensive investor and 20% or more for the aggressive investor.

\(^6\) Details about our approach may be found at www.patienceinvesting.com. In short, we suggest a simple, three-step process to security selection consisting of a preliminary, valuation-based screen, a series of additional fundamental-based questions designed to narrow potential investment candidates and a final assessment of intrinsic value using an approach based either on P/E ratios or discounted free cash flows. Visit www.patienceinvesting.com for more information.
Risk in Common Stock Investment

In traditional finance and economics discourse, the topic of risk starts with Frank Knight's (1921) distinction between risk and uncertainty. Knight (1921) classifies risk as situations where outcomes are random but the probability distribution governing the outcome is known and, therefore, expectations (for example, expected returns) can be quantified. Uncertainty, on the other hand, describes situations where the outcomes are random and the probability distribution of the outcomes is unknown and, therefore, it is not possible to make a quantifiable assessment of expected values of outcomes. The idea of risk as a characteristic of the probability distribution of security returns was formalized by Markowitz (1952).

But that is not what common sense or value investors consider as risk. Malcolm Mitchell of the Center for Investment Policy Studies commented on redefining risk:

“The fact is that Markowitz did not find a way to measure the risk that investors care about: the risk that arises from an uncertain future, the risk that things will turn out to be worse than we expect. He simply ignored that kind of risk and focused instead on variability—or, to take the term more commonly used today, volatility. Instead of measuring risk, Markowitz demonstrated how to measure volatility in a portfolio. Why volatility? One obvious reason is that volatility is measurable, whereas uncertainty is not.”

(Mitchell, 2002, p. 6)

Despite obvious differences between the two words “uncertainty” and “variability,” Markowitz used both words as synonyms for risk. In the index to his 1959 book, the entry under Variability is “see Risk.” The entry under Uncertainty is also “see Risk” (Markowitz, 1959, pp. 343-344).

In Markowitz (1999), Harry Markowitz, known as the father of Modern Portfolio Theory (MPT), gave a very fascinating history of some of the early thoughts on risk and diversification in investment and paid generous tribute to the early thought leaders. He then went on to give his autobiographical account of how he came to develop what we know today as MPT which eventually led to his Nobel prize in 1990. We believe readers of this paper are all familiar with MPT, so we will not spend any time to present it. Our first comment is that MPT has no doubt served the investment community and academia well in formalizing the rationale for diversification and developing methodology for accomplishing it. It is also well known that MPT and Markowitz personally contributed to motivate William Sharpe to develop the Capital Asset Pricing Model or CAPM (Sharpe 1963, 1964). What we propose here is that, if we go back to re-read the contributions of these early thought leaders, but this time through behavioral finance lenses, we will be able to see more and be able to advance the concept and operation of portfolio management and investment decision making in general.

Markowitz (1999) used the following quote from Shakespeare’s Merchant of Venice in the introductory paragraph to make the point that diversification of investments was a well-established practice long before he published his seminal work on portfolio selection (Markowitz, 1952):

*My ventures are not in one bottom trusted,*  
*Nor to one place; nor is my whole estate*  
*Upon the fortune of this present year,*  
*Therefore, my merchandise makes me not sad.*

Act 1, Scene 1 (Emphasis added)
Markowitz (1999) used this quote to highlight the idea of diversification which is no doubt contained in that verse. We are suggesting that there is more than diversification in that quote. The two phrases are highlighted above for a reason. The reason is that MPT as we have it today does not incorporate the highlighted parts of Shakespeare’s quote. What the quote is saying is that, apart from diversification (which is why Markowitz found it relevant), the investor’s time horizon and emotions also play important roles in evaluating the success of a risky venture. These two attributes—emotion and time horizon—are missing from MPT as we have it today. Some of the efforts to close the gap between MPT and what investors actually care about are behavioral models such as Prospect Theory (Kahneman and Tversky, 1979; Tversky and Kahneman, 1992) and Behavioral Portfolio Theory (Shefrin and Statman, 2000).

If we followed Markowitz’s example and try to model Shakespeare’s verse, which in fact reflects investors’ attitude towards investment, it will be:

Maximize: the investor’s happiness by increasing his fortunes (expected returns) measured over multiple time periods,

Subject to: Spreading the investment over multiple ventures (diversification).

The time dimension is something that is important, especially when it comes to determining the extent to which standard deviation or volatility in general is a source of risk to the investor. Apart from the variance of returns, higher moments also play significant roles in determining the outcome of an investment and the investor’s satisfaction. MPT, however, limits the analysis to mean and variance and ignores higher moments of probability distribution. It appears anchoring bias got the better of us and we limited the development of portfolio theory to using only the first two moments of probability distribution. It is also important to note that all the standard developments of portfolio theory and asset pricing models assume there are no market imperfections and no inefficiencies.

In Markowitz’s (1952) development of MPT, he “assumed that ‘beliefs’ or projections about securities follow the same probability rules that random variables obey” (Markowitz 1999, p.5). Today we don’t have to make that assumption. Now we have Prospect Theory, for example, that demonstrates that we can use decision makers’ decision weights, which have properties similar to objective probabilities but avoid the big assumption of equating decision makers’ beliefs with objective probabilities.

For value investors, financial markets are not always efficient. Indeed, the whole value investing paradigm requires that markets not be always efficient. Value investors also adhere to the principle that, even though markets are not efficient, it is not possible for anyone to consistently beat the market by picking stocks randomly. However, they believe that, from time to time, the market does systematically overreact or underreact to company and market events leading to undervalued and overvalued securities. Their strategy is to look for opportunities to buy the undervalued securities at a good discount (margin of safety) and either keep forever or sell as the asset price approaches its intrinsic value.

As taught by Graham (Graham and Dodd, 1934; Graham, 2006), value investors view stock purchases as indeed purchasing a piece of the underlying company. Thus, while they actually purchase shares that in some cases are a very small fraction of the company, true value investors are always required to do the analysis as if they were buying the entire company. This idea of focusing on the entire company instead of focusing just on the stock appears trivial on the surface, especially in the context of standard finance’s rational investor, but it has tremendous behavioral implications and outcomes.8

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7 Over the years, there have been attempts to model portfolio theory and asset pricing using higher moments but those efforts did not gain much following; e.g. Arditti (1967), Kraus and Litzenberger (1976).

8 In simple terms, this is an example of framing (Tversky and Kahneman, 1974): the choices that people make when they look at the company as a whole are different from the choices they make looking at pieces (shares) of the company one at a time.
For Graham, the key determinants of the quality of a common stock or bond investment are: (i) sustained profitability of the enterprise, (ii) financial stability of the company as indicated by a history of its financial statements, and (iii) margin of safety (price relative to intrinsic value) in the purchase decision. He did not believe in taking risk and getting rewarded for it with investment income or high returns, arguing that an investor cannot play the role of an insurance company on a sustainable basis. Thus, by applying sound security analysis methods and insisting on a significant margin of safety, the value investor protects his portfolio against losses. The only risk from the security analysis and stock purchase decision is what Frank Knight called uncertainty. In other words, the investor is aware that not all contingencies are covered but does not have a probability distribution to describe those potential residual random events—for example, uncertainty due to the fact that nobody knows what will happen tomorrow or possible human error in carrying out the analysis.

Investors’ protection against loss is, first of all, to avoid any undesirable outcomes that they are aware of and then cover themselves against residual uncertainty with a good margin of safety. A value investor does not trade risk for return. The way to handle risk in value investing is that (i) you avoid what is possible to avoid, (ii) protect yourself (using margin of safety) against what cannot be avoided, and (iii) ignore things that appear to be risk but have no relevance to your desired outcome. An example of the third category is short-term volatility. For instance, if your holding period is ten years, then you should not care about and do not pay to avoid volatility in the early years. It is in this spirit that Charlie Munger, Vice Chairman of Berkshire Hathaway, once said, “All I want to know is where I’m going to die so I’ll never go there.” A reasonable understanding of how and where we will “die” may help us to avoid costly mistakes.

Apart from risk due to the characteristics of the company, another source of risk that Graham’s value investing methodology is designed to avert is risk due to the psychology of the market. Graham was a quintessential behavioral investor who always factored human psychology into market outcomes. He characterized the stock market crash of 1927-1933 as the result of an “abnormal gambling frenzy” and that “its history teaches us more about the nature of human beings than the nature of common stocks” (Graham and Dodd, 1934, p. 12). Graham developed the parable of Mr. Market to explain the irrational behavior of the market in general.

One of the strengths of Graham’s investment strategy is that it is deliberately anchored on intrinsic value. “In general terms, [intrinsic value] is understood to be that value which is justified by the facts, e.g., the assets, earnings, dividends, definite prospects, as distinct from market quotations established by artificial manipulation or distorted by psychological excesses” (Graham and Dodd, 1934, p. 17). Of course, we know that anchoring is one of the behavioral biases that plague decision makers, including investors (Tversky and Kahneman, 1974). The majority of investors tend to be anchored on market prices in making their investment decisions. But Graham wants the investor to be anchored on intrinsic value instead of the market price.

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9 Benjamin Graham means that in an insurance setting, the insurance company assumes a risk and then receives premiums in order to pay benefits when the insured incurs a loss. An investor is acting as an insurance company if he/she offers to assume a risk in order to get paid a premium. Graham asserts that this is not sustainable and therefore cannot be a viable way of thinking about investing. On page 87 of Graham and Dodd (Security Analysis, 1934), they state: “It is not his [the investor’s] function to be paid for incurring risks; on the contrary it is to his interest to pay others for insurance against loss.” Later on the same page, in developing the same theme of not trading risk for return but more specifically with regard to bonds, they went on to say, “The investor cannot prudently turn himself into an insurance company and incur risks of losing his principal in exchange for annual premiums in the form of extra-large interest coupons.” Their argument is that an insurance company can always calculate the actuarial break-even point and set a premium to match the risk that it is taking. On the contrary, an investor does not have that leeway nor the capacity to set the premium that they want. The two situations (investor vs. insurance company) are not comparable and the investor cannot put himself in the position of playing the role of an insurance company by taking high risk and hoping to be rewarded with high returns.

10 For a detailed presentation of Benjamin Graham’s allegory of Mr. Market, see Ch. 8 of The Intelligent Investor, p. 204-205.
Propositions to Engender Discussion on Traditional Risk vs. Return

In this section, we make a number of propositions as a means of prompting discussions that we hope will lead to rethinking and re-examination of our traditional paradigms. We hope these discussions will contribute to the drive for new models. Some of these propositions are standard axioms of investment (e.g. Proposition 1) and are not necessarily subject to debate but are stated for completeness. Since we are using value investing as the working paradigm, the propositions are stated from that perspective.

Proposition 1: The goal of investment is to expand one’s consumption opportunity set.

Warren Buffett explains the goal of investing in his 2011 letter to Berkshire shareholders:

“... laying out money now in the expectation of receiving more money in the future. At Berkshire we take a more demanding approach, defining investing as the transfer to others of purchasing power now with the reasoned expectation of receiving more purchasing power—after taxes have been paid on nominal gains – in the future. More succinctly, investing is forgoing consumption now in order to have the ability to consume more at a later date.” (Buffett, 2011)

Berkshire Hathaway’s compounded annual gain over a period of almost 50 years (1965-2013) is 19.7% compared to the S&P 500 Index’s 9.8%, and the overall gain for the same period is 693,518% compared to a mere 9,841% for the S&P 500 (Buffett, 2013). Please note that the S&P 500 numbers are pre-tax, whereas the Berkshire numbers are after-tax. If you invested $1,000 in Berkshire Hathaway in 1970, that amount would have been worth $4.86 million on June 30, 2014.

Similarly, David Dreman laid out the goal of investing, which is to “protect and increase our portfolio on an inflation-adjusted basis and (where appropriate) tax-adjusted dollars over time” (Dreman, 2012, p. 367). As stated earlier, there is no controversy about this view of investment as giving up consumption now in order to have more in the future.

Proposition 2: Investment focuses on the value of the underlying business and is a long-horizon endeavor.

Investment in the value investing context focuses on the underlying business and what it is worth. It is also, by definition, a long-term endeavor. As Charles Brandes aptly put it:

“Investors and speculators approach their tasks differently. Investors want to know what a business is worth and imagine themselves as owning the business as a whole. Unlike speculators, investors maintain a long-term perspective. Speculators, on the other hand, are less interested in what a business is actually worth and more concerned with what a third party will pay to own shares on a given day. They may be concerned only with short-term changes in a stock’s price, not in the underlying value of the company itself.” (Brandes, 2004, p. 14)

MPT and its associated asset pricing models and efficient market hypothesis tend to be short-term oriented. For example, the idea of using variance or standard deviation as risk is a short-term phenomenon. But “short-term investment” cannot increase future purchasing power. Therefore, the only meaningful way to view investment is with a long-term perspective.
Proposition 3: Not every participant in the financial markets is an investor.

Participation in the stock and bond markets can be classified into two main categories:

1. Value investing, which is based on the economic and financial fundamentals of the underlying companies, and

2. Purported rational von Neumann-Morgenstern (vNM) expected utility maximizing decision makers (“purported” because, although these people think they are rational expected utility maximizers, in fact, they are not, given what we know about them from behavioral finance regarding the decisions and choices they make under conditions of uncertainty).

This proposition simply asserts that financial markets are full of heterogeneous groups of people with different goals and methods of achieving their goals, and that they are not all investors in the value investing sense. The essence of this proposition is that investment is separate and distinct from speculation or gambling. Not all financial market activities are investment. Although there are uncertainties in investment outcomes, that is as far as investment goes in terms of having anything in common with speculation or gambling. Therefore, it does not make sense to model investment along the lines of gambling. The problem with our traditional investment models is that these vNM-type decision makers make decisions as if they are gambling. In a free world, people are free to use financial markets for speculation, but that should not be confused with investment. As Graham (2006) put it: “… in the easy language of Wall Street, everyone who buys and sells a security has become an investor, regardless of what he buys, or for what purpose or at what price” (p.19). That is why Graham and Dodd (1934) defined investment in a way that clarifies how distinct investment is from speculation.

Proposition 4: The best way to handle risk in investment is to avoid it.

The thinking in traditional financial theory is that, in order to gain higher returns, you need to take more risk. Thus, return is the reward for taking on risk. Furthermore, depending on your risk tolerance, you can take as much risk as your utility function makes you comfortable with. Thus, the one with higher risk tolerance should expect to earn higher returns.

“The proper choice among efficient portfolios depends on the willingness and ability of the investor to assume risk. ... If a greater degree of uncertainty can be borne, a greater level of likely return can be obtained.” (Markowitz, 1959, p. 6)

But in value investing, risk is not a thing to endure in order to be rewarded. Rather, the true investor is expected to make every effort to avoid risk. For value investors, taking risk is a choice rather than a fate. (See Perold, 2009). In the value investing context, if risk is defined as probability of permanent loss of capital, the value investor can have some control over the risk of his/her portfolio by choosing the stocks of companies with strong financial statements and low probability of losing money or going bankrupt altogether. With risk defined as volatility there is very little control because, by definition, the market will fluctuate; risk is a fate in that context.

According to Graham, the secret of sound investment can be distilled into three words – “MARGIN OF SAFETY” (caps and emphasis in the original, Graham, 2006, p. 512). An investor should only buy a stock at a price below the estimated intrinsic value. Specifically, the aim of security analysts should be to select stocks for “which the market price falls far short of reflecting intrinsic value...” (Graham and Dodd, 1934, p. 613).

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11 Risk as a choice rather than a fate is a quote from Perold who, in turn, was quoting Peter Bernstein’s Against the Gods: The Remarkable Story of Risk (John Wiley and Sons, 1996).
The risks that an investor should guard against are the risk of paying too much for a stock (even if it is of good quality) and the risk of buying low-quality securities at times of favorable business conditions. These are the things that can lead to loss of capital, which is the true risk in value investing. The strategy for handling risk in value investing is that, having done all that is possible to eliminate the risk that is known, you guard against residual uncertainty through margin of safety.

In Graham's own words, “... the risk of paying too much a price for good-quality stocks – while a real one – is not the chief hazard confronting the average buyer of securities. Observation over many years has taught us that the chief losses to investors come from the purchase of low-quality securities at times of favorable business conditions. The purchasers ... assume that prosperity is synonymous with safety.” (Graham, 2006, p. 516)

For value investors, return is not based on the amount of risk you take but rather on the margin of safety. The return on investment to a value investor is determined by the extent to which he/she is able to avoid risk, not by how much risk he/she is willing to take. Hence Warren Buffett's two rules of investing:

Rule #1: Don't lose money, and
Rule #2: Don't forget rule #1.

While a value investor is required to carry out thorough analysis before making an investment decision, there is no guarantee against human error. Even if a company's intrinsic value is miscalculated, a large margin of safety may protect the value investor against these errors. As stated by Seth Klarman, “a margin of safety is achieved when securities are purchased at prices sufficiently below underlying value to allow for human error, bad luck, or extreme volatility in a complex, unpredictable, and rapidly changing world” (Klarman, 1991, p. 92). Graham also states, “… margin of safety is counted on to protect the investor against loss or discomfiture in the event of some future decline in net income” (Graham, 2006, p. 517).

Proposition 5: Volatility is more meaningful as part of the identity (nature, characteristic or attribute) of an asset rather than the risk of the asset.

In MPT, volatility as measured by standard deviation is the total risk of an asset. The rationale is that, if you invest in an asset with high variance, the chances that you may end up selling at a lower price are higher than for someone who buys an asset with little or no volatility. The value investor's definition of risk may not fit in a fancy theory, but risk is defined in a simple common sense fashion as the possibility of permanent impairment of capital.

Value investors are aware that different assets have different volatilities. Volatility of the asset is only part of the asset's identity. For example, Treasury bills have a level of volatility that is part of their identity. Similarly, common stocks have a level of volatility that is part of their identity. The way you handle volatility is first through diversification and second by selecting the level of volatility that is meaningful relative to your planned holding period. Thus, it does not make sense to put funds that you need a year from now into stocks. Recall that the value investor's way of handling risk is to avoid what is known and take care of residual uncertainty with margin of safety. Volatility is not a surprise, so it does not make sense for an investor to suffer loss from an attribute that is known in advance. Volatility is neutral; it is just part of what the asset is. But you can turn it into risk if you mishandle it.

In the context of volatility, we will address beta specifically. Beta is not a meaningful measurement of risk. To the extent that we can create different portfolios with equal beta but different probabilities of losing money, beta cannot be a viable representation of risk.
Buffett explained his take on beta in his 1993 letter to Berkshire shareholders:

“In assessing risk, a beta purist will disdain examining what a company produces, what its competitors are doing, or how much borrowed money the business employs. He may even prefer not to know the company’s name. What he treasures is the price history of its stock. In contrast, we’ll happily forgo knowing the price history and instead will seek whatever information will further our understanding of the company’s business. After we buy a stock, consequently, we would not be disturbed if markets closed for a year or two. We don’t need a daily quote on our 100% position in See’s or H. H. Brown to validate our well-being. Why, then, should we need a quote on our 7% interest in Coke? In our opinion, the real risk that an investor must assess is whether his aggregate after-tax receipts from an investment (including those he receives on sale) will, over his prospective holding period, give him at least as much purchasing power as he had to begin with, plus a modest rate of interest on that initial stake.” (Buffett, 1993)

Graham, as cited in Montier (2007), commented on beta:

“Beta is a more or less useful measure of past price fluctuations of common stocks. What bothers me is that authorities now equate the beta idea with the concept of risk. Price variability yes; risk no. Real investment risk is measured not by the percent that a stock may decline in price in relation to the general market in a given period, but by the danger of a loss of quality and earnings power through economic changes or deterioration in management.” (p. 291)

In the same vein, Seth Klarman states:

“If I find it preposterous that a single number reflecting past price fluctuations could be thought to completely describe the risk in a security. Beta views risk solely from the perspective of market prices, failing to take into consideration specific business fundamentals or economic developments.” (Klarman, 1991, p. 113)

Academics (Markowitz, 1952; Tobin, 1958; Sharpe, 1964; Lintner, 1965; and Merton, 1973) have traditionally associated risk with the variance and beta of a portfolio—the higher the return, the higher the risk. However, a body of research has emerged to challenge this concept. For example, despite lower betas, value stocks, usually defined as having low price to earnings (P/E) and low price to book (P/B) ratios, have higher historical return than growth stocks (Graham, 2006; Basu, 1977; Buffett, 1984; Oppenheimer, 1984; Rosenberg, Reid and Lanstein, 1985; and Ibbotson and Riepe, 1997), which is in contradiction to the axiom that risk and return are positively correlated. Klarman, in the preface to the sixth edition of Security Analysis by Graham and Dodd (2008), stated:

“... by insisting that higher expected return comes only with greater risk, MPT effectively repudiates the entire value-investing philosophy and its long-term record of risk-adjusted investment out-performance. Value investors have no time for these theories and generally ignore them.” (p. xxxi)

Since the 1990s, a long debate has been going on as to whether beta is dead or alive.12 The main argument provided by the “beta is dead” school is that beta fails to explain the behavior of security returns. Fama and French (2004) found almost no relationship between returns and beta examining all the listed securities on the New York Stock Exchange, American Stock Exchange and NASDAQ13 between 1929 and 2003.

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12 One school of thought led by Fama and French, 1992, 1996a, 1996b; Roll and Ross, 1996 demonstrates that beta is dead or at least fatally ill as opposed to the other school of thought led by Kothari, Shanken and Sloan, 1995 and Kandel and Stambaugh, 1995, Hsia, Fuller and Chen, 2000 that beta is still alive if annual return data and generalized least squares regression are used rather than monthly or daily return data and ordinary least squares method.

13 NASDAQ refers to the National Association of Securities Dealers Automated Quotations system, an electronic trading venue created in 1971, as well as the subsequent licensed national securities exchange.
To the value investor, maybe the dictionary definition is more meaningful than the academic one (i.e., beta as a measure of risk). For instance, Buffett writes in Berkshire Hathaway’s 1993 letter to shareholders:

“We define risk, using dictionary terms, as the possibility of loss or injury. Academics, however, like to define investment ‘risk’ differently, averring that it is the relative volatility of a stock or portfolio of stocks—that is, their volatility as compared to that of a large universe of stocks. Employing databases and statistical skills, these academics compute with precision the ‘beta’ of a stock—its relative volatility in the past—and then build arcane investment and capital-allocation theories around this calculation. In their hunger for a single statistic to measure risk, however, they forget a fundamental principle: It is better to be approximately right than precisely wrong.” (Buffett, 1993)

In a more recent article in Fortune (February 27, 2012), Buffett asserts:

“The riskiness of an investment is not measured by beta (a Wall Street term encompassing volatility and often used in measuring risk) but rather by the probability—the reasoned probability—of that investment causing its owner a loss of purchasing power over his contemplated holding period. Assets can fluctuate greatly in price and not be risky as long as they are reasonably certain to deliver increased purchasing power over their holding period. And as we will see, a non-fluctuating asset can be laden with risk.”

(Emphasis added)

Another important aspect of risk in value investing is that the same asset may have varying degrees of risk depending on how the investor handles it. For example, the common stock of a good business that is financially sound has no risk if you hold it as part of a diversified portfolio for ten years or more, whereas if your holding period is one year, then that very stock becomes a risky asset in your hands. Or the same common stock bought at $50 when the intrinsic value is $100 is of little risk, whereas if you buy it at $110, then it is a high-risk asset.

**Proposition 6: The proper characterization of risk is the possibility of impairment of capital.**

We will not deliberate on this further, as it has been amply dealt with under Propositions 4 and 5. However, in that regard, for empirical purposes, tools such as survival analysis of common stock portfolios may be appropriate for comparing the riskiness of different portfolios.

**Proposition 7: There is no risk-free asset.**

In applying MPT, a common practice is to use the 90-day Treasury bill as the risk-free asset. The problem with this “risk-free asset” is that it is actually one of the riskiest assets over a long holding period because investing in Treasury bills decreases your purchasing power due to inflation.

In the pre-World War II era, the risk of inflation was insignificant. However, that changed after World War II, according to Dreman (2012), and the disparities in return among stocks, bonds and Treasury securities widened enormously. For example, if an investor put $100,000 into Treasury bills in 1946, adjusting for inflation, it would have increased to only $133,000 by 2010, a gain of just 0.004% annually. Bonds did only slightly better: $100,000 in 1946 became $280,000 by the end of 2010, for a return of 1.6% annually. By comparison, the same amount of investment in stocks back in 1946 would become $6.025 million, 45 times as much as Treasury bills and 21 times as much as bonds, before taxes (Dreman, 2012).

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14 Oxford dictionary defines risk as a situation involving exposure to danger (noun); expose (someone or something valued) to danger, harm, or loss (verb).

15 Survival analysis is a statistical tool commonly used in medical research where the outcome variable is how long it takes for a certain event, such as death, to occur. The statistic used for making that determination is called the hazard ratio which measures the rate at which the event of interest happens. In value investing, although we know how to avoid risk (through Graham’s Margin of Safety) we do not have an index for measuring risk in advance. As “scientists,” financial economists like to deal with measurable concepts, not just how to avoid undesirable outcomes. One way to satisfy the quest for a risk index in value investing is to apply survival analysis to common stock portfolio management and, with the use of hazard ratio, to determine the relative vulnerabilities (time to major loss of value of a portfolio, say 20%) of portfolios and use that as a prior indicator of risk or indicator of risk inherent in the portfolio. The hazard ratio could be constructed on the basis of the financial strength of the companies in the portfolio using their financial statements. If the future returns of the portfolio can be simulated then, in that case, it can also be a form of stress testing.
Now, adjusting for taxes and inflation, the relative return for stocks over bonds and T-bills widened considerably.

Table 1: Historically, Stocks Outperformed Bonds and T-Bills
Compounded Returns After Inflation: 1946 – 2010

<table>
<thead>
<tr>
<th>Holding Portfolio for…</th>
<th>Returns</th>
<th>Percent of Times Stocks Beat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stocks %</td>
<td>Bonds %</td>
</tr>
<tr>
<td>1 year</td>
<td>6.5</td>
<td>1.6</td>
</tr>
<tr>
<td>2 years</td>
<td>13.4</td>
<td>3.2</td>
</tr>
<tr>
<td>3 years</td>
<td>20.8</td>
<td>4.9</td>
</tr>
<tr>
<td>4 years</td>
<td>28.7</td>
<td>6.6</td>
</tr>
<tr>
<td>5 years</td>
<td>37.1</td>
<td>8.3</td>
</tr>
<tr>
<td>10 years</td>
<td>87.9</td>
<td>17.2</td>
</tr>
<tr>
<td>15 years</td>
<td>157.5</td>
<td>26.9</td>
</tr>
<tr>
<td>20 years</td>
<td>252.9</td>
<td>37.3</td>
</tr>
<tr>
<td>25 years</td>
<td>383.7</td>
<td>48.7</td>
</tr>
<tr>
<td>30 years</td>
<td>563.0</td>
<td>61.0</td>
</tr>
</tbody>
</table>


Table 2: Historically, Stocks Outpaced Bonds and T-Bills After Inflation and Taxes16
Compounded Returns Adjusting for Inflation and Taxes: 1946 – 2010

<table>
<thead>
<tr>
<th>Holding Portfolio for…</th>
<th>Returns</th>
<th>Percent of Times Stocks Beat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stocks %</td>
<td>Bonds %</td>
</tr>
<tr>
<td>1 year</td>
<td>4.4</td>
<td>-2.0</td>
</tr>
<tr>
<td>2 years</td>
<td>8.9</td>
<td>-4.0</td>
</tr>
<tr>
<td>3 years</td>
<td>13.7</td>
<td>-5.9</td>
</tr>
<tr>
<td>4 years</td>
<td>18.7</td>
<td>-7.8</td>
</tr>
<tr>
<td>5 years</td>
<td>23.8</td>
<td>-9.7</td>
</tr>
<tr>
<td>10 years</td>
<td>53.4</td>
<td>-18.5</td>
</tr>
<tr>
<td>15 years</td>
<td>90.0</td>
<td>-26.4</td>
</tr>
<tr>
<td>20 years</td>
<td>135.3</td>
<td>-33.5</td>
</tr>
<tr>
<td>25 years</td>
<td>191.4</td>
<td>-40.0</td>
</tr>
<tr>
<td>30 years</td>
<td>260.9</td>
<td>-45.8</td>
</tr>
</tbody>
</table>


16For Table 1 and Table 2, Ibbotson data reflects returns for U.S. Government bonds and U.S. Treasury Bills. Returns for “stocks” have been drawn from the Stocks, Bonds, Bills and Inflation (SBBI) Classic Yearbook, 2011 edition. SBBI, originally published in 1977, expanded upon data from the Center for Research in Security Prices (CRSP) database, which included all stocks listed on the New York Stock Exchange going back to 1926. According to Ibbotson Associates, which took over SBBI publication in 1993, “The SBBI has evolved since 1977. Each year, new data series are added and contemporary academic research is expounded upon.” For more information, visit https://www.ifa.com/articles/draft_dawn_creation_investing_science_bible_returns_data/
Most of these currency-based investments are thought of as ‘safe.’ In truth they are among the most dangerous of assets. Their beta may be zero, but their risk is huge.

If an investor in the top-tax bracket (average of roughly 60% between 1946 and 2010) had put $100,000 into long Treasury bonds after World War II, he would have had only $27,000 of his original purchasing power left in 2010. Inflation and taxes would have eaten up 73% of the investment (Dreman, 2012, page 364).

Also, the “Oracle of Omaha” mentioned in his 2011 letters to Berkshire shareholders:

“Investments that are denominated in a given currency include money-market funds, bonds, mortgages, bank deposits, and other instruments. Most of these currency-based investments are thought of as ‘safe.’ In truth they are among the most dangerous of assets. Their beta may be zero, but their risk is huge. Over the past century these instruments have destroyed the purchasing power of investors in many countries, even as the holders continued to receive timely payments of interest and principal. This ugly result, moreover, will forever recur.” (Buffett, 2011; emphasis added)

“Academic risk theory also accepts the conventional wisdom by making the T-bill the risk-free investment. But financial academics, like most market participants, have not incorporated into their equations the fact that the largest risk factor today is the decrease in purchasing power of your investment through inflation” (Dreman, 2012, p. 367, italics in the original).

Proposition 8: There is no value in performance measurement over short periods of time.

“If investors are to make money consistently, what is required is a return to farsighted, long-term investing. In my opinion, that is the kind of investing that promises rational investors the greatest potential for rewards over the long haul” (Brandes, 2004, p. 13)

This proposition has some relation with the volatility propositions. Traditional theory of finance places a lot of value on short-term performance measurement. It is usually the short-period performance evaluation that causes investors to be concerned about volatility. To the value investor, short-term portfolio assessment is useful only to the extent that it affords the opportunity to examine the choices he/she has made as to the quality of assets in the portfolio. Short-term assessment for purposes of checking whether you are making money or losing money when that period has nothing to do with your planned holding period is a meaningless exercise. It is estimated that the time span of bear markets in the United States is less than 36 months. Short-term (less than the average time span of a business or market cycle) performance evaluation of portfolios is of no value to value investors.

Investors’ preference for frequent portfolio evaluation can be explained by the concept of myopic loss aversion (MLA), advanced by Benartzi and Thaler (1995). They explain myopic loss aversion as a combination of two behavioral concepts: myopia, in the sense of how investors inappropriately treat the time dimension, and loss aversion, in the sense that investors weigh losses more heavily than gains, as explained by Prospect Theory (Kahneman and Tversky, 1979).

Value investors treat both time horizon and apparent loss differently. With regard to time, value investors tend to have very long time horizons. It appears they want to match the time to maturity of common stocks. The concept of “time to maturity” in common stocks is used as an analogy applied from bonds, as the time to maturity of a common stock is infinity. Our working rule of thumb for how long to hold stocks is that for those who need to liquidate a stock portfolio in 5 years or less, then common stock would be the wrong vehicle as volatility can indeed be a source of risk. If, however, you don’t need cash from that portfolio for 5 or more years, then common stock would be the best vehicle to obtain returns on the investment. As Buffett put it in his 1988 letter to shareholders of Berkshire Hathaway, “…when we own portions of outstanding businesses with outstanding managements, our favorite holding period is forever” (Buffett, 1988).

https://retirementplans.vanguard.com/VGApp/pe/PubVg/News?ArticleName=Stayingcalmbearmkt
With regard to losses, since value investors buy undervalued stocks and the price may not bounce back to the intrinsic value for a quite a while, value investors do not evaluate their performance on a daily basis. There are some advantages associated with that. For example, in the short run, there will be many days when stocks will not generate any returns (or probably even some negative returns). Since investors weigh losses more heavily than gains (loss aversion), frequent evaluations of their portfolio performance may lead to disappointment about the performance of stocks, at least in the short run, and other cognitive biases (for example, illusion of control or action bias) might kick in, leading to inappropriate action.

**Proposition 9:** If there is no risk-free asset and, therefore, the 90-day Treasury bill is not a risk-free asset, then the Equity Premium Puzzle might not be a puzzle at all when analyzed in the context of Prospect Theory.

The demand for, and the returns on, the Treasury bill relative to common stock need to be analyzed in the context of investors’ preferences for different asset classes for reasons other than risk and return. For example, if you have a short holding period, then the Treasury bill is probably the appropriate asset for you and common stock is definitely not. To recall some of the concepts discussed under Proposition 4, the same asset can have different levels of risk in your portfolio depending on how much you pay for it, what assets you combine it with, or how long you plan to hold it.

Mehra and Prescott (1985) noticed that the average return on equity (7% on the S&P 500 Index) has far exceeded the average return on short-term, virtually default-free debt18 (less than 1%) over the 90-year period 1889-1978, which they identified as a puzzle in the absence of an appropriate explanation for this large equity premium. Yet most households keep a hefty portion of their financial wealth in riskless assets, even though equity shares offer more impressive long-run returns. Besides Mehra and Prescott’s (1985) explanation that the equity premium puzzle may not be due to the high average equity return but rather to the low average risk-free rate, other possible explanations are sample selection bias and survivorship bias, or it may be explained using Prospect Theory. Benartzi and Thaler (1995) accept that, when investors are confronted with price volatility, they act myopically—people shy away from owning shares because, at least on paper, they suffer frequent short-term losses, no matter how well stocks perform over long periods. This anxiety accounts for the surprising magnitude of the equity premium.

In a study using Canadian data, Otuteye and Siddiquee (2013b) confirmed what David Dreman (2012) had found earlier with U.S. data—i.e., that holding Treasury bills leads to loss of purchasing power (real wealth). In that context, Treasury bills then become an undesirable asset, which might explain the observed equity premium puzzle.

**Proposition 10:** The relationship between risk and return does not always have to be positive.

In classical finance (i.e., Sharpe-Lintner CAPM), the relationship between the excess return of a security and its beta is linear, although Markowitz (2008) shows this interpretation to be incorrect because two securities may have identical covariance structures with other securities, yet each will have different excess returns. He mentioned, “… if the parameters of the CAPM are generated in a natural way, then securities with the same risk structure almost surely will have different expected returns” (p. 91). Markowitz still considers the market portfolio as an efficient portfolio, and that there is a linear relationship between expected returns of each security and its regression against the market. However, he suggests not to interpret this relationship as compensation for systematic risk.

Although risk and benefit may be positively correlated, psychologists, on the other hand, consider the opposite that risk and return are inversely correlated in people’s minds. Fischhoff, Slovic, Lichtenstein, Read and Combs (1978); Slovic, Kraus, Lappe and Major (1991); Alhakami and Slovic (1994); McDaniels, Axelord, Cavanagh and Slovic (1997); and Slovic and Peters

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18 According to Mehra and Prescott, for the “Nominal yield on relatively riskless short-term securities over the 1889-1978; the securities used were ninety-day government Treasury Bills in the 1931-1978 period, Treasury Certificates for the 1920-1930 period and sixty-day to ninety-day Prime Commercial Paper prior to 1920.”
(2006) reported that, for many hazards, the greater the perceived benefits, the lower the perceived risk, and vice versa.

Fischhoff, Slovic, Lichtenstein, Read and Combs (1978) were the first to document that mean perceived risk and mean perceived benefit are inversely related—i.e., that the greater the perceived benefit, the lower the perceived risk, and vice versa. They found a number of activities that participants rated as very low benefit but very high risk (e.g., alcoholic beverages, handguns, motorcycles, smoking) and a number of activities viewed as having great benefit but relatively low risk (e.g., prescription antibiotics, railroads, vaccinations). Surveying a representative sample of Canadian adults, Slovic, Kraus, Lappe and Major (1991) confirmed the same results—the correlation between the mean of risk and mean of benefit is \(-0.23\). Later, Alhakami and Slovic (1994) also found that judgments of risk and judgments of benefits are inversely related; that is, activities or technologies that are judged high in risk tend to be judged low in benefit, and vice versa.

“… whereas risk and benefit tend to be positively correlated across hazardous activities in the world (i.e., high-risk activities tend to have greater benefits than low-risk activities), they are negatively correlated in people’s minds and judgments (i.e., high risk is associated with low benefit, and vice versa).” (Slovic and Peters, 2006, p. 323)

Finucane, Alhakami, Slovic and Johnson (2000) propose that this inverse relationship occurs because people rely on affect when judging risk and benefits of specific hazards. The negative correlations found in previous studies suggest that people fail to consider the dimensions of risk and benefit separately. These negative correlations may be a manifestation of the halo effect (which occurs when we judge anything in terms of general attitudes toward that thing) or cognitive consistency (which occurs when we operate under a strong need for consistency among our beliefs).

Buffett writes in his postscript of The Intelligent Investor (2006):

“Sometimes risk and reward are correlated in a positive fashion... the exact opposite is true in value investing. If you buy a dollar for 60 cents, it is riskier than if you buy a dollar for 40 cents, but the expectation for reward is greater in the latter case.” (p. 546)

Based on this evidence, it should be fairly safe to assume that people seldom evaluate risks based on statistical evidence. In most cases, they rely on a number of inferential rules or heuristics (such as availability, overconfidence, desire for certainty) in assessing risk (Slovic, Fischhoff and Lichtenstein, 1979), which may lead to serious misjudgments about risk. Slovic, Fischhoff and Lichtenstein (1982) revealed two biases in this regard: i) the primary bias—i.e., the tendency to overestimate infrequent causes of death while underestimating more frequent causes and (ii) the secondary bias—i.e., the observation that overestimated causes of death were generally dramatic and sensational compared to the underestimated causes, which are unspectacular and claim one victim at a time.

Perception of risk has serious policy implications. Citizens of many industrialized countries perceive that they face more risk today than in the past, which may call for a “zero-risk society” that threatens these nations’ political and economic stability. Aaron Wildavsky’s comment on this seems thought provoking:

“How extraordinary! The richest, longest lived, best protected, most resourceful civilization, with the highest degree of insight into its own technology, is on its way to becoming the most frightened.

Is it our environment or ourselves that have changed? Would people like us have had this sort of concern in the past? ... Today, there are risks from numerous small dams far exceeding those from nuclear reactors. Why is the one feared and not the other? Is it just that we are used to the old or are some of us looking differently at essentially the same sort of experience?” (Wildavsky, 1979, p. 32)
Traditional finance has no system for dealing with risk perception or affect. Behavioral finance may hold the prospect of dealing with risk in a more comprehensive manner.

**Proposition 11: Time Diversification—Risk should have a time dimension; what is risky in the short run may not be that risky in the long run.**

Time diversification refers to the idea that investments in stocks are less risky over longer periods of time than shorter ones. Starting in 1994, however, the concept sparked spirited debates. On one side, Jeremy Siegel (1994) argued that stocks produced positive real returns in excess of bonds and T-bills in the long run. On the other side, Mark Kritzman (1994) suggested that, although the probability of losing money in stocks is lower over longer investment horizons than shorter ones, the size of the potential loss increases. Bodie (1995), using option pricing theory, illustrated how the cost of insuring against a stock return below the risk-free rate increased, rather than decreased, with longer contracts. Paul Samuelson (1994) argued that “investment horizon can have no effect on your portfolio composition” (p. 29).

There is evidence that investing in equities over a longer horizon preserves purchasing power much better than investing in bonds or T-bills. Once again, using Canadian data on Treasury bill returns, government long-term bonds and the TSX/S&P Composite index, Otuteye and Siddiquee (2013b), show that, whereas over short-term (monthly and annual) horizons, the stock index went through a lot more volatility (high “risk” according to traditional finance) compared to the T-bill or government bonds, during longer holding periods (three years or more), practically all the negative returns in the stock index are eliminated. Thus, the concern of a net negative return is only an issue over short holding periods. With regard to returns, for the entire period (1956 to 2013), $1 invested in the T-bill yielded a cumulative return of $25, barely keeping up with inflation, whereas $1 invested in the stock index yielded a cumulative return of $142. Thus, avoiding volatility by investing in T-bills rather than common stock has a high opportunity cost with no apparent benefit, if holding for the long term, i.e., more than five years.

**Proposition 12: There is an agency problem in coming up with investment models and investment operations that work for investors.**

Two trusted parties—investment managers and academics—have goals that are not aligned with investors’ goals to build wealth. Money managers interested in career security make suboptimal portfolio decisions that are not in line with investors’ goals. Examples of this behavior include strategies such as index tracking so as to follow the herd. Meanwhile, the majority of them do not match the average market return. Academics on their part are more interested in model elegance than coming up with pragmatic models that will deliver what investors need. In the meantime, investors not knowing that the goal of academics is quite different from their goals take everything academics say as gospel truth. If we take the case of risk, for example, one day it is variance, the next day it is beta, then semi variance, then Value at Risk (VaR), and now smart beta and so on. For the academic, it appears that, the more esoteric the model, the more valued it is regardless of whether or not it works in practice. Investors need to become aware of this divergence in goals so that they take advice and models that come from professionals and academics with the right dose of skepticism and scrutiny before putting faith in them.
Conclusion

We have made a number of propositions with the goal of using them as tools to engage in a discussion to change the way we view investment, and to align our thoughts and models with some of the methods that have been known to work for a long time; in particular, value investing. The ideas behind these propositions are not new. But our contribution is that we want to bring them back, and explicitly so, into the models of investment. It was good strategy at the time of developing the current mainstream models to make some simplifying assumptions, such as rational expected utility maximizers, and to assume efficient markets, and to leave out variables such as time and the psychology of market participants. Going back and reading some of the seminal papers on portfolio theory and asset pricing from a behavioral perspective enables you to see things that you did not see before, and to see old things in a completely new light. The things that were left out of the early developments of the models have served their purpose. But now we are at the stage where we need more realistic models. We believe we have the tools to be able to do that; we just need the motivation. Value investing has never been a darling model of academics. A number of academics have described the performance of Graham’s disciples, such as Warren Buffett and his cohorts, as statistical aberration. But a statistical aberration that has persisted for 80 years (since Graham and Dodd 1934) is more than just a persistent anomaly; it deserves our attention. We cannot continue to ignore the evidence. It may contain the seed for a formal theory of a behavioral-based portfolio theory.
Authors’ Biographies

Eben Otuteye is Professor of Finance at the University of New Brunswick, Fredericton, Canada. Dr. Otuteye joined the Faculty of Business Administration at UNB in 1987 where he has been teaching various finance courses, including principles of finance, corporate finance, investments, value investing, personal financial planning, and theory of finance, in both the BBA and MBA programs.

Dr. Otuteye's research interests include behavioral finance, value investing, asset pricing models, portfolio management strategies, and the economics of e-business, topics on which he made many conference presentations all over the world and published in several high-ranking journals.

In collaboration with Mohammad Siddiquee, Dr. Otuteye developed a heuristic (the O-S heuristic) for making value investing decisions. This is a system that incorporates the value investing principles as originally propounded by Benjamin Graham and its extensions as developed and practiced by Warren Buffett and Charlie Munger.

Mohammad Siddiquee is a Lecturer in Finance at the University of New Brunswick Saint John. He studies behavioral finance as well as the psychology of decision making in investment management. Influenced by the works of Benjamin Graham and his disciple Warren Buffett, Mohammad is also studying value investing. He is working with Dr. Otuteye on the project “Redefining Risk,” which may lead to rethinking traditional risk-return paradigms.

Mohammad teaches managerial finance, investment and portfolio management and personal financial planning in the undergraduate program, and corporate finance and entrepreneurial finance in the graduate program.

Mohammad is currently working on his doctoral studies at the University of New Brunswick. He is an avid value investor and runs a value investing web portal, http://patienceinvesting.com
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DISCLOSURES

Standard Deviation: A measure of the variability of a set of data from its mean. The more spread apart the data, the higher the deviation. Standard deviation is calculated as the square root of variance.

Beta: A stock’s (or a portfolio’s) beta measures its volatility versus an index. A stock (or portfolio) with a beta higher than 1 has tended to exhibit more volatility than the index, while a stock (or portfolio) with a beta between 0 and 1 has tended to exhibit less volatility than the index.

Price/Earnings Ratio: Price per share divided by earnings per share.

Price/Book Ratio: Price per share divided by book value per share.

Correlation: A statistical measure of how two securities move in relation to each other.

The S&P 500 Index with gross dividends measures equity performance of 500 leading companies in industries of the U.S. economy.

TSX/S&P Composite Index is the Canadian equivalent to the U.S.-based S&P 500 Index. The S&P/TSX Composite Index measures equity performance of the stocks of the largest companies on the Toronto Stock Exchange (TSX) and includes common stock and income trust units.

Past performance is not a guarantee of future results. One cannot invest directly in an index. Diversification does not assure a profit or protect against a loss in a declining market.

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