



# A NEW (OLD) ERA OF RISK MANAGEMENT

**DGINV.COM****A FRESH LOOK AT MANAGING RISK IN EQUITY PORTFOLIOS**

The *Oxford American Dictionary* has a pretty good definition of risk: “the possibility of meeting danger or suffering harm or loss.” We face risk every day in everything we do. We learn to manage our affairs so as to minimize the chances of harm or loss to ourselves. In the 16th century Niccolo Machiavelli (author of *The Prince*), concisely captured the essence of managing risk in investments or in life. “All courses of action are risky” he wrote, “so prudence is not in avoiding danger (it’s impossible), but calculating risk and acting decisively.”

The primary means of risk calculation today in most investment activity—and specifically in equity investing—is volatility. Volatility as a measure of risk is fatally flawed, as it does not measure the risk of suffering a permanent loss of capital; nor does it tell us anything about the actual intrinsic value of the underlying asset.

The seductive allure of volatility lies in the precision with which we can measure it. But as the eminent economist and social philosopher Frederick A. Hayek observed: “They are measuring what is measurable, not what matters.” Mr. Hayek was not referring specifically to volatility, but the validity of his insight is relevant when applied to volatility as a tool for predicting and managing risk. The ability to quantify past volatility can give the dangerous illusion of an ability to predict future volatility.

But the real stake in the heart of volatility as a measure of risk is the uncertain linkage between changes in the price of a stock and changes in the intrinsic value of the company underlying the stock. If the stock price declines in price, but the intrinsic value of the company has not changed to the same degree, then volatility has offered a seriously flawed view of the risk of that investment.

## THE RISK OF VOLATILITY

The idea of using historic volatility as a measure of risk began in the 1950s. Harry Markowitz, then a student at the University of Chicago, published his seminal theory on Modern Portfolio Theory (MPT). This theory, along with the subsequent Capital Asset Pricing Model (CAPM) and the Efficient Market Hypothesis (EMH), suggested that because market prices reflect all public knowledge and opinions, they are the best possible estimate of value. Volatility in the price of an asset then could be interpreted as the uncertainty surrounding the valuation, and thus the risk of an asset.



MPT asserted that if an investment portfolio is adequately diversified, no one event, such as a company bankruptcy can substantially harm the overall portfolio performance. With proper diversification, the only relevant measure of risk was the volatility of the portfolio in relation to the market. The fundamental risk profile of individual investments became irrelevant and could be ignored. Despite a lack of empirical effectiveness and numerous critiques, MPT caught on with both academics and practitioners, and in 1990 Markowitz was awarded a Nobel Prize for his work.

The adoption of historic volatility as the key measure of risk was stimulated by the widespread availability of both computing and networking capabilities. Since about 1995, investors have been able to analyze and exchange copious amounts of data. Instead of using the newly accessible data narrowly to deepen their understanding of individual securities, investors migrated toward the broadest and easiest use of computing power—measuring historic volatility. Hayek’s astute observation comes to mind.

By 2007 virtually the entire investment world (with the exception of Disciplined Growth Investors and a few others) was using volatility as the primary measure of risk. The results of this flawed view of risk are especially clear today after the near-systemic collapse of the worldwide financial system in 2008. There are numerous and painful examples of risky and perverse investment activities masquerading as low risk because of low volatility.



## **BERNIE AND VOLATILITY**

The story of the Madoff Ponzi scheme is a grotesque illustration of the excessive reliance on volatility as a measure of risk. About 10 years ago we lost a client to Mr. Madoff. The client had an IRA with a balance of bonds and stocks. The client asked if we could earn him a steady 11% or better return without any downside volatility. We replied that we thought we could match the return, but that he would experience annual volatility around that long-term return. The client concluded our approach was riskier than Madoff's, fired us, and hired Madoff. On the way out he commented that Madoff was considered a genius by those who knew him and that nobody was quite sure how Madoff did his magic.

After the Madoff scandal erupted we read his Form ADV, a mandatory public filing with the SEC. In that document Madoff disclosed that he had both custody and trading discretion over the client assets at his firm. He also executed the trades with his own broker-dealer. The combination of custody and discretionary trading with oneself is akin to the fox guarding the henhouse. Investors with Madoff should have alerted themselves to this potentially dangerous set of practices. Which is the better measure of risk: the fully disclosed trading and custody practices of Madoff or long-term, consistent performance results?

This is the key point of the Madoff scandal. Even though Madoff's investment process was not transparent, and his Form ADV disclosed a potentially dangerous situation, many investors invested all or nearly all of their liquid net worth with him. Had they properly assessed the risk inherent in Madoff's investment operation, they would likely have had a small percentage of their assets with him. If his investors would have placed 1-3% of their liquid assets with Madoff, his fraudulent activity would have been an embarrassing annoyance, not a catastrophic loss of principal. Why did investors leave such a high proportion of their liquid assets with Madoff? They were seduced by his low level of historic volatility.



There are many other examples of misguided investment practices spawned by the reliance on volatility to measure risk. Investors who watched their stock portfolios crumble in 2001 and 2002 were willing to pay extortionate fees to hedge funds to achieve low volatility. Not only did the hedge fund clients enter into a fee structure that virtually guaranteed mediocre results after fees, but in 2008 the hedge fund industry largely failed to do what it was supposed to do: achieve low volatility.

The private equity business has eerily similar practices. The private equity investment manager buys public companies and takes them private, charging the investor client high fees to hold and manage the asset. The key feature of the private equity business is that the specialist can estimate the value of the assets, thereby ensuring a tolerable level of annual volatility for the customer.

Consider the following example. In the second half of the 1990s we accumulated a large position in a retailer named Michael's Stores.

We paid about \$4 per share on average. Our customers paid less than 1% per year in management fees to hold the stock. In 2007, two private equity firms (Bain Capital and Blackstone Partners) co-purchased our holdings for \$44 per share in cash. The private equity firms borrowed most of the money for the purchase, and so far as we can determine, will charge their customers 1-2% annual fees plus 20% of the profits to "manage" the asset. True, our clients suffered some anxious volatility during the period when we held the company's stock. Yet the private equity customers now own a heavily leveraged, illiquid asset at 11 times our price with an exorbitant fee structure. They are now in an extremely risky position but will not suffer annual volatility. We wonder about the ultimate cost of this low-volatility approach.

## **BIRTH OF AN "INVESTMENT" STRATEGY**

For traditional money managers, the use of historic volatility has given birth to a concept called "deviation from the benchmark." Perceived riskiness increases as a manager deviates from the return offered by the benchmark. This has spawned a large number of managers who purport to only slightly deviate from the benchmark. Putting aside the insane notion that an investment manager would deliberately seek to achieve average results, the idea of managing a portfolio to slightly deviate from the benchmark is unworkable. At the most basic level, an investor must calculate and decide what each stock offers as a return to the investor at the price of purchase. Since an investor cannot reasonably calculate the expected return from a benchmark over an appropriate forecast period, how does the investor evaluate whether the stock offers a greater expected return than the return available from the benchmark?



At DGI we use an ambitious, consistent discount rate to evaluate whether our stocks are candidates for purchase. If our portfolios achieve our expected hurdle rates, we will take our chances on whether our portfolios exceed the benchmark.

Excessive reliance on “deviation from the benchmark” allowed many investment managers to get away with practices that have been predictably adverse to their clients’ best interests, including closet indexing and investment by economic sector. Many of these “investors” turn their portfolios over wildly, often in excess of 100% per year, in a mad search for those lucky stocks likely to outperform the benchmark over the next 12 months.

### **DOES VOLATILITY HAVE ANY APPLICATION IN MANAGING RISK?**

Our comments do not rule out historic volatility as an important factor in portfolio management. Here are some instances where volatility is a significant factor in managing portfolios:

#### **1. CLIENT MANAGEMENT**

Annual fluctuations in the market value of a portfolio must be constrained within the bounds of the emotional tolerance for risk of the client. In this matter we are speaking about downside fluctuations. (We rarely receive complaints about upside volatility). Based on historical data, it is reasonable to forecast the range of likely fluctuations over the next 12 months. The prudent and unchanging use of fixed income securities can reduce the degree of annual fluctuations. This policy will reduce the long-term returns for the portfolio but minimize the risk that the client will capitulate after market declines.

#### **2. SHORT-TERM INVESTING**

If an investor needs liquidity within the next 12 months or sooner, then short-term volatility becomes very important. The need for liquidity may be driven by planned calls on the capital of the fund (i.e., scheduled distributions to participants) or artificially created via the excessive use of leverage (i.e., margin calls).

#### **3. PURCHASING SECURITIES**

As Warren Buffett wrote in *The Essays of Warren Buffett: Lessons for Corporate America*: “In fact, the true investor welcomes volatility. Ben Graham explained why in chapter eight of *The Intelligent Investor*. There he introduced ‘Mr. Market,’ an obliging fellow who shows up every day to either buy from you or sell to you, whichever you wish. The more manic-depressive this chap is, the greater the opportunities available to the investor. That’s true because a wildly fluctuating market means that irrationally low prices will periodically be attached to solid businesses. It is impossible to see how the availability of such prices can be thought of as increasing the hazards for an investor who is totally free to ignore the market or exploit its folly.”

### **THE TWO RULES OF RISK MANAGEMENT**

Let’s return to the *Oxford American Dictionary* definition of risk: “the possibility of meeting danger or suffering harm or loss.” Investors must choose to ignore volatility when computing risk. Instead, they must focus on the two essential rules each of us must follow to minimize our chances for harm or loss. These are like the laws of gravity—violate them at your peril.

The first rule (arguably the “Golden Rule of risk management”) is that we must know enough specific knowledge about the investment or activity into which we are about to enter. This is by far the most important rule. We all teach our children “look before you cross.” By this admonition we are teaching our children to gain prior knowledge before crossing the street. For investing in stocks, we must have sufficient knowledge to be able to reasonably estimate the value of the specific investment and to know whether today’s stock price will offer us a reasonable return on our investment. If we do not perform these most basic steps, we have little idea of the riskiness of our stock portfolio. No amount of diversification can or will suffice for lack of specific knowledge.

The second rule is to thoroughly know oneself. Each of us has a unique tolerance for risk. Generally, our assessment of the riskiness of an endeavor is based on our own disposition, experience, and training. Snow skiing provides an appropriate framework to illustrate this thought. An accomplished skier will ski easily down a black run while a novice struggles on a green run. The difference between the two is experience and training. We also vary our risk management by specific activity. The same individual can be skillful at managing risk in one endeavor and a virtual novice in another. Investing in securities—along with flying an airplane and skiing—are within our group’s range of training and skills. Performing surgery on someone would be a totally different matter.

The interplay between one’s own experience and the risk management in a specific enterprise is a topic worthy of much more discussion. For our purposes here, we think Clint Eastwood’s famous line in the movie *Magnum Force* captures it nicely: “A man has got to know his limitations.”

The Golden Rule of risk management has been thoroughly and repeatedly violated over the centuries by investors. The long list of these violations is less important than the effects on those investors who experience unexpected and undesirable outcomes because of their violations. Yet, violations of the Golden Rule mean that we did it to ourselves, which brings about a choice: We can blame others or external events for our problems, or we can acknowledge that we broke the Golden Rule of risk management, then truly learn from our experience.



## OUR RISK MANAGEMENT MODEL

Let's discuss DGI's method of managing risk in equity portfolios in the context of the two rules of risk management.

DGI has built three levels of risk management into our investment process. The first two are designed to honor the Golden Rule of risk management. The third level is designed to honor the second rule of risk management. The levels are:

### LEVEL 1 – KNOW WHAT YOU OWN

We must be able to know and understand the company behind the stock. We always begin with a rigorous analysis of a company's financial statements. We review the 10-Ks, 10-Qs, and proxy statements required by the SEC. Initially, we are seeking to understand how the company operates. If we cannot understand how the business operates, we abandon the effort.

Let me repeat: If we cannot understand how the business operates we abandon the effort.

Far too often it is not easy to move on because we must admit that we are not smart or clever enough to figure out how the business operates. If the stock is flying high we might feel additional pressure. How can we be missing what others are seeing so clearly?

### LEVEL 2 – BUILD IN A MARGIN OF SAFETY

Once we understand how the business operates, we seek to build a margin of safety into our investment. This is a natural extension of the Golden Rule that introduces the concept of price/value into the purchase decision. Benjamin Graham first introduced the concept of margin of safety in his book, *Security Analysis*. He defined margin of safety as "the excess of calculated intrinsic value over the price paid." This suggests that creating a margin of safety depends on both our ability to make a reasonable estimate of intrinsic value and our discipline in avoiding paying too dear of a price for the securities we purchase.

Our assessment of intrinsic value begins by estimating normalized revenue, earnings, and cash flow today and seven years into the future. We then capitalize the projected earnings using a proven valuation methodology. While the output is highly quantitative (i.e., a specific estimate of intrinsic value), the process is driven by our qualitative assessment of the business and its long-term growth prospects. Therefore, we incorporate a number of safeguards to ensure that our key financial assumptions are reasonable such as:

- Capping revenue and earnings growth rates at 20%, even when our assessment of the business suggests that more robust growth is likely
- Reducing earnings growth rates in the terminal year (year seven and beyond) to a level generally approaching nominal GDP growth, which results in lower capitalization ratios

- Using the low end of our estimated range of revenue, earnings, and cash flow estimates given the inherent uncertainty of these long-term forecasts.

Once we have a reasonable assessment of intrinsic value, our consideration turns to price. Margin of safety is always dependent on the price paid. We build a margin of safety into our purchase price discipline by using challenging hurdle rates of return: 12% for our mid cap stocks and 15% for our small cap stocks. This return cushion helps us avoid paying a price that would be vulnerable to an unexpected downward revision in our estimate of intrinsic value. For instance, if we purchase a stock at a price level that equates to a 15% annualized return, we would generate a 7% annualized return, even if our estimate of intrinsic value is off by a whopping 40%!

While building in a margin of safety is a critical part of our risk management process, it is important to note that a margin of safety does not guarantee an investment against loss—it merely shifts the probabilities against loss more solidly in our favor.

### LEVEL 3 – DISCIPLINED CAPITAL ALLOCATION

Every investor continuously faces the same trade off between specific knowledge and diversification. It is important to understand that the resolution of this conflict is often subjective. However, the subjective determination of the proper balance between specific knowledge and diversification must be backed up by a disciplined capital allocation process. DGI's process seeks to maintain our clients' portfolio at the appropriate level of risk, one that offers their portfolios high odds of achieving our hurdle rates and yet protects them from occasional poor investments.

We allocate capital within our portfolios using a five-factor risk management system. We call our system the LIRF (Link Integrated Risk Factor), named after its originator, Scott Link. The five risk factors are valuation risk, business/execution risk, financial risk, fiduciary risk, and allocation risk. Note that we do not compute or track volatility as a measure of risk. Each of the first four risks is out of our control; we choose to measure those risks. The fifth risk, allocation risk, is our lever for managing overall portfolio risk.

Here is how our capital allocation process works in practice. An initial stock position never exceeds 1% of the total portfolio. This helps mitigate the impact of permanent loss of capital in case we are wrong on our original thesis. If we gain confirming evidence on our thesis, the company is meeting the milestones we hoped it would achieve, and the stock price still meets our required hurdle rates, we may choose to increase the position size to 2%. As we become increasingly comfortable with the company's progress and if the stock still meets our hurdle rate requirements, we may choose to increase the position size to 3%. The maximum size we will allocate actively to any position is 3%. A stock may grow to be larger than 3% passively but we do not commit active capital to a position in excess of 3%.



As a holding matures in the portfolio, each risk factor most likely will change. A company that is successful in achieving milestones usually experiences increasing revenues and profitability. This can have the effect of decreasing both business and financial risk while at the same time may result in higher valuation risk if the stock price increase exceeds the improvement in fundamentals. Also, if the stock performs better relative to the other portfolio holdings, it will represent a larger position in the portfolio and therefore have higher allocation risk.

As a stock position grows in the portfolio, we monitor the other risk factors in our model to see if the increase in allocation warrants action. If one or several of the other risk factors decreases, we may choose to leave the position size as is. If the other risk factors have not changed, we may choose to cut back the position to reduce the overall risk profile of the stock.

#### CONCLUSION

The investment community over the years has embraced a flawed view of risk. The crisis of 2008 exposed those flaws. Investors should and will reassess their risk measurement models to honor the two rules of risk management. DGI believes our risk management model honors those two rules. We reserve the right to continuously refine and improve our process.

#### ABOUT DISCIPLINED GROWTH INVESTORS

DISCIPLINED GROWTH INVESTORS IS A MINNEAPOLIS-BASED INVESTMENT MANAGEMENT FIRM SPECIALIZING IN PRUDENTLY EXPLOITING INVESTMENT OPPORTUNITIES IN PUBLICLY HELD SMALL CAP AND MID CAP GROWTH COMPANIES. FOUNDED IN 1997, THE FIRM REMAINS EMPLOYEE OWNED AND COMPLETELY INDEPENDENT.

[DGINV.COM](http://DGINV.COM)



FOR FURTHER INFORMATION ABOUT THIS ARTICLE,  
RELATED MATERIALS, OR FURTHER INVESTMENT OPTIONS  
AT DISCIPLINED GROWTH INVESTORS

#### CONTACT:

ROBERT BUSS  
CFA, CIPM DIRECTOR OF MARKETING  
612 317 4107  
ROBERTB@DGINV.COM

#### ABOUT THE AUTHORS

FRED MARTIN IS DGI'S FOUNDER AND CHIEF INVESTMENT OFFICER. FRED HAS BEEN MANAGING PORTFOLIOS SINCE 1976 AND IS THE PRIMARY ARCHITECT OF THE INVESTMENT PHILOSOPHY EMPLOYED BY THE FIRM.

SCOTT LINK JOINED DISCIPLINED GROWTH INVESTORS IN 1997. SCOTT IS A SENIOR MEMBER OF THE INVESTMENT TEAM, AND ALSO MANAGES CLIENT PORTFOLIOS.

ROB NICOSKI JOINED DISCIPLINED GROWTH INVESTORS IN 2003 AND IS A SENIOR MEMBER OF THE INVESTMENT TEAM. ROB ALSO MANAGES CLIENT PORTFOLIOS.