

An Unnecessary Gamble

Take calculated risks. That is quite different from being rash.

—George S. Patton (1885–1945)

For much of modern history, personal investing revolved around the idea of buying and holding individual stocks. Consequently, many investors have embraced the idea that stock picking is the most effective way to generate wealth. The truth is, for the vast majority of individual investors, buying individual stocks to achieve investment goals is inefficient, risky, and costly. Stock picking represents an unnecessary gamble with higher risk and lower rates of expected growth than more diversified investment strategies. Moreover, few investors appreciate the impact of large individual stock holdings on portfolio risk. If you do choose to hold individual securities, make sure you mitigate the risk to your overall portfolio by keeping your holdings to a small fraction of your portfolio.

Okay, I admit it. Picking stocks can be fun. Even index investing advocates like Burton Malkiel admit to audiences that the temptation to pick stocks is difficult to avoid. It feels good to spot that hot company that nobody else noticed right before it takes off. You look smart and perhaps enjoy the envy of your friends and family. On the cocktail circuit, it is much more entertaining to discuss your latest prescient stock purchase or to debate the finer points of Jim Cramer's latest televised rant than it is to talk about how your 401(k) fund portfolio performed in line with market averages. Holding a diversified portfolio for the long term (if you are doing it right) is, well, boring, and it certainly doesn't make you look like a master of the universe. So yes, picking stocks can be an exciting hobby (at least for some people). But when it comes to the more serious objective of meeting financial goals like retirement, buying individual stocks is not a great strategy. In fact, it can easily be a disastrous one.

If you go back just a couple of decades, you would be hard pressed to find individual investors holding positions in anything *but* individual stocks and perhaps a few bonds. Indeed, the whole idea of “investing” meant buying stocks as opposed to putting your money in a savings account at the bank. Going back to the 1950s, about 90 percent of the shares of America’s corporations were held by individual investors. Today about three quarters of the shares are held by professional investors like mutual funds, endowments, and pension funds. In the last few decades the concept of prudent investing has matured considerably to include investment products that are more suitable for personal investors than individual stocks. Products like mutual funds and exchange-traded funds (ETFs) provide easy and flexible diversification at low cost. However, many investors still believe that holding small numbers of stocks is the most effective way to generate wealth. Of course, they get a little push from brokerage firms and the financial media, who also profit from the stock-picking culture.

It may come as no surprise that the popularity of investing in individual stocks waxes and wanes with how the markets are doing. During the run-up to the dot-com bull market of the late 1990s, newspapers and magazines were filled with stories of dry cleaners and bartenders who had quit their jobs to pursue *day-trading* of stocks. Neighborhood book clubs transformed into investing clubs overnight, and kids dropped out of college convinced that they could make a fortune by spending a few hours a day in front of their computer trading NASDAQ stocks. It seemed as if every casual conversation turned to the subject of yet another technology miracle stock that was going through the roof. When the market eventually came back down in the early 2000s, the ranks of these newly converted stock traders thinned considerably. Many would-be day traders had to go back to their day jobs, often with quite a hit to their bank account. And almost everyone has a story, or has heard a story, of how they lost a ton of money on a stock pick that went south during this period.

There are at least three big problems with relying on individual stocks to build wealth. First, holding concentrated positions in a small number of individual securities exposes you to much greater risk than a more diversified portfolio built around aggregated products such as mutual funds or ETFs. Second, the rate at which such concentrated portfolios can be expected to grow is much lower than for comparable, but more diversified investment strategies. Third, unless you have several millions of dollars to invest, the costs of building an adequately diversified portfolio from individual securities can be quite high.

But what if you (or your broker) only pick good stocks? Surely there is a lot of money to be made? True, if you could identify stocks that will go up in value *after* you purchase them then you could make big profits. The press is filled with stories of people who have made fortunes speculating on stocks. “Buy low and sell high” sounds easy, but the devil is always in the details. As Will Rogers once said, “*Don’t gamble; take all your savings and buy some good stock and hold it till it goes up, then sell it. If it don’t go up, don’t buy it.*”

All kidding aside, for the reasons discussed in Chapter 2, consistently picking stocks that will *do well in the future* is extraordinarily difficult. The cards are really stacked against you. Billions of dollars are spent every year by brokerage firms, investment banks, hedge funds, mutual funds, and investment management companies on research to identify under- or over-priced stocks and other securities. If there are any easy opportunities out there, they have likely been well mined by professional investors. Sadly, picking stocks that outperform the market on a consistent basis has proven to be very difficult, even for the well-capitalized and sophisticated institutional investors. The notion that typical individual investors will be able to *consistently* identify such opportunities (using simple or complex methods) does not really stand up to even casual examination.

The good news is that you don’t have to be a gifted stock picker to profit from the market. You don’t even have to beat the market to be successful; you just have to make sure you get your fair share of the expected returns. The key is to ensure you are taking the right kind of risks, in particular those risks for which you earn expected returns. Financial economics teaches us that it makes sense for many investors to hold a significant portion of their assets in stocks—but the trick is to own a lot of them. Only then are you eliminating the unnecessary sources of risk from your investment portfolio.

My personal view is that most individual investors are better served by assuming that the market accurately prices stocks the vast majority of the time. I’m not saying the market always gets it right. The assumption that the market has already factored in all the relevant information into the price of the stock might not always be true, but it is quite likely to be true most of the time (and figuring out when it is not true is really hard). What this means is that when you purchase a stock, you should have no inherent expectations that it will perform better or worse than expected given its correlations with the overall market. This *does not* mean that stocks will have the same returns as the overall market, since stocks have much higher volatility and are affected by many things beyond the performance of the overall market. In fact, you can safely assume that a given stock will usually

perform differently from the overall market. In any given time period, some stocks will do much better than the market, while others will substantially underperform. But on average, there will be no positive or negative bias to this performance. For every dollar invested in a stock that beats the market, there is another dollar invested in a stock that does worse. The winners and losers must add up to yield the overall market performance.

As we have seen in previous chapters, simply observing that some stocks greatly outperform the market during certain periods says almost nothing about whether it would have been possible to identify such opportunities prior to the run-up. Stock picking only works if you can identify the profitable opportunities *before* they transpire. Random noise and inherently unpredictable events play a significant role in the price movements of any individual stock and thus make picking good stocks a tricky exercise.

The goal of this chapter is not to be a buzz kill, but instead to illuminate some of the obvious and not so obvious perils of investing in individual securities. While picking stocks can be an exciting hobby, you should proceed with caution when it comes to your core investments. The vast majority of investors, even high net worth ones, are better off using more efficient investment vehicles to achieve their financial goals. If after considering my warnings, you still want to play around with stock picking, make sure that you treat it for what it is, a hobby, and make informed decisions that appropriately control your risk. If you are just looking for an adrenaline rush, perhaps you should look elsewhere, like an occasional trip to Vegas. You don't want to gamble with your financial future.

A DIFFERENT SORT OF BEAST

When I talk to many individual investors about stocks, particularly those with limited experience in the market, it is readily apparent that their perception of the risk-and-return characteristics of individual stocks is way off base. It is a natural tendency to think that the risk and return of a single stock must be comparable to that of a more diversified mutual fund. After all, a fund is simply composed of a collection of individual stocks. Why should the risk be that different?

The reality is that individual stocks are *much* more risky, and have different return characteristics, than more broadly diversified instruments like mutual funds. When you consider the very wide range of possible investment outcomes associated with a portfolio concentrated into one or a

TABLE 6.1 Comparison of Risk Levels for Popular Mutual Funds and Individual Stocks

Mutual Funds	Risk Level	Stocks	Risk Level
Vanguard 500 Index/Inv	1.5	Dell Inc	3.7
Washington Mutual Investors Fund/A	1.3	Merrill Lynch & Co.	3.1
T Rowe Price Mid Cap Growth Fund	1.6	Pfizer Inc	2.6
Vanguard Explorer	1.8	Tivo Inc.	5.5
Putnam International Equity Fd/A	1.5	Marriot International	2.4

Source: Financial Engines calculations as of January 2007.

few individual stocks, you realize that it is very different from investing in a diversified equity fund.

First of all, almost all individual stocks are much more risky than a broad-based portfolio like the S&P 500 index or a diversified equity mutual fund. The reason is that the performance of an individual stock is highly dependent on the fortunes of that particular company, whereas the performance of a fund is driven by the average performance of all the stocks in its portfolio. As an example let's compare the overall volatility estimates for some popular mutual funds with those of some popular individual stocks. Table 6.1 shows the relative total volatility of a group of mutual funds and individual stocks expressed as a proportion of market risk (remember that the market portfolio has a risk of 1.0 on this scale).

Many of the stocks on the right side of the table are actually constituents of the funds on the left. There are a few striking things about this table. First, the equity mutual funds are all concentrated around similar levels of risk, ranging from 1.3 to 1.8 times the volatility of the market portfolio. Despite the fact that they invest in different types of assets (large-cap stocks, small-cap stocks, international stocks), each mutual fund represents a diversified portfolio of many stocks, hence, limiting the risk. There are certainly mutual funds with higher and lower levels of risk (for instance, sector funds can be much more risky), but these funds are representative of the risks common to broadly diversified investments.

The individual stocks, on the other hand, have much higher and much more varied levels of risk. A more mature company in a less volatile industry like Marriot International has a risk level of 2.4, while a smaller technology company like Tivo, from a more volatile sector, has risk of 5.5 times that of the market portfolio. However, even the relatively sedate Marriot

International stock has 64 percent more volatility than that of the S&P 500 index fund. The more volatile Tivo stock has 267 percent more volatility than the S&P 500. As will become apparent, this large amount of additional volatility has profound implications for potential portfolio outcomes. Note that in the case of both funds and stocks, the specific risk levels of securities can change over time.

THE RISK OF INDIVIDUAL STOCKS

Where does all this extra risk come from? The risk of individual stocks comes from a variety of sources, but generally can be broken down into three major components: risk from the overall market, risk from industry-related factors, and risk from factors unique to the company itself. Each of these types of risk can impact the fortunes and thus the stock price of a given company. For instance, if the market as a whole drops, chances are that the stock price of most companies will fall as well. If the industry of a given stock is adversely impacted by a new regulatory mandate, it is likely that stocks in that industry may also suffer, or it may alter the competitive balance among firms in the market. Finally, if a company's new product fails to achieve success in the market, that failure might negatively impact the future value of the firm and cause its stock price to drop.

Remember from our prior discussions that the risk related to the overall market cannot be diversified away. No matter how many stocks you own, the fundamental risk correlated with the market will remain. When markets go up, your stocks will tend to go up, and vice versa. On the other hand, the industry- and company-specific risk factors can be diversified away by holding enough stocks from varied industries. In theory these types of risks can be virtually eliminated by holding a very broad cross-section of individual stocks. The specific events that impact one company generally will not impact another company. If you hold both stocks, the events that impact each company individually, tend to be averaged away.

Standard financial economic theory tells us that expected return is only earned for bearing market risk. Industry- and company-specific risks are easily diversified away and do not come with any additional expected return. Of course this means that the extra volatility from industry- and company-specific sources can sometimes work out in your favor (for it is precisely this extra volatility that allows individual stocks to dramatically outperform the market in some scenarios). But just because a stock *might* outperform the market does not mean that you get any expected benefit *on average*. As

we demonstrated in Chapter 2, there is no inherent reason why expected return should be associated with risks that can easily be diversified away.

The bottom line is that if you want to earn the full benefit of the expected returns from stocks, you need to hold enough of them to diversify away the uncompensated industry and company risk. Otherwise, you are just taking on avoidable risk with no additional expected return.

With mutual funds, the vast majority of the risk (typically 95 percent or more for diversified funds) is related to the movements of underlying asset class exposures. Even for actively managed mutual funds, what happens with asset classes will have the greatest impact on the fund's returns. Another way of saying this is that if you want to guess the daily return on your large cap equity mutual fund, just take a look at the return on the S&P 500 index. Chances are the two returns will be quite similar on any given day.

Not so with individual stocks. In many cases, the majority of the risk comes from factors related to company-specific characteristics, not to the overall market. Different stocks have varying degrees of correlation with the overall market. Because of this correlation, stocks have expected returns that are dependent on the degree to which they move with the market. Stocks with lots of market correlation (like brokerage firms) tend to have higher expected returns than those with less correlation (like utility companies).

But the majority of the risk of an individual stock comes not from the market, but from factors that impact the industry and the fortunes of that one company. This may not be obvious when you look at the newspaper or your favorite stock web site each day. After all, when the Dow Jones index drops 300 points in a day, chances are your favorite stocks drop as well. But over the long run, most of the risk of an individual company's stock is not related to the market but to factors unique to that stock. For instance, a drug company's stock might fall precipitously when its latest drug fails to win approval from the Federal Drug Administration (FDA), even on a day where the market goes up.

Table 6.2 shows an interesting breakout of the components of risk from five popular individual stocks. The first column shows the proportion of the total risk (variance) of the stock that is related to movements in the market. This is the risk that cannot be diversified away by holding more stocks. The second column calculates the remaining risk that is related to industry- or company-specific factors (the two proportions sum to 100 percent by construction).

For Dell stock, about one-third of the total variance comes from its correlation with the market. The remaining two-thirds of the variance comes from factors related to its industry or from company-specific risks. In

TABLE 6.2 Proportion of Individual Stock Risk from Market Exposures

Stock	% of Risk from Market	% Company-Specific Risk	Total Risk
Dell Inc.	32.8%	67.2%	3.7
Merrill Lynch	41.8%	58.2%	3.1
Pfizer Inc.	44.5%	55.5%	2.6
Tivo Inc.	12.5%	87.5%	5.5
Marriot International	33.0%	67.0%	2.4

Source: Financial Engines calculations.

contrast, Merrill Lynch has a higher proportion of its risk due to market movements—not surprising for a financial services company whose fortunes are more closely tied to the stock market. But even for Merrill Lynch, the majority of the risk associated with the stock is due to factors that can be diversified away by holding a portfolio of many stocks. In the case of the most risky stock in our small sample, Tivo, the percentage of risk associated with the market is only 12.5 percent. The vast majority of the risk comes from company-specific factors. In each case, the proportion of the stock risk coming from the market is less than 50 percent.

What does this mean? *You can eliminate the majority of the risk associated with an individual stock by holding a broadly diversified portfolio of stocks.* When you hold many stocks, the company-specific risk factors are averaged away. A broadly diversified equity portfolio is not without risk, as the impact of market risk can be substantial, but the risk is far below what you experience with a single stock. The corollary is also true: if you choose to invest in a single stock, most of the risk you are taking is not related to the market. Accordingly, you take on much more risk than needed to earn the expected return associated with the stock. The magnitude of the company-specific portion of the volatility for stocks implies that it has a major impact on potential portfolio outcomes. Just how big might surprise you.

THE IMPLICATIONS OF INDIVIDUAL STOCK RISK

To give you an idea of the impact of the risk associated with individual stocks that is not due to the overall market, let's use the Financial Engines

TABLE 6.3 Simulated Forecasts of an S&P 500 Index Fund

Value of \$10,000 Initial Investment in the S&P 500 Index (in today's dollars)				
	At 1 Year	At 5 Years	At 10 Years	At 20 Years
Upside	\$13,200	\$23,600	\$40,100	\$100,000
Median	\$10,400	\$13,100	\$17,400	\$30,500
Downside	\$8,170	\$6,880	\$6,890	\$8,070

Source: Financial Engines calculations as of May 2007.

simulation engine to illustrate the range of portfolio outcomes with such strategies.

For a baseline reference, we will compare the results for several of the above stocks with an investment in a more diversified S&P 500 index fund. Table 6.3 shows the range of investment outcomes associated with a \$10,000 investment in the S&P 500 index over different time horizons. To keep things simple we will assume no taxes and report everything in today's dollars (adjusted for inflation).

As noted before, the median portfolio values steadily increase as the horizon lengthens, culminating in a healthy forecast of \$30,500 at 20 years. As we noted in Chapter 5, the downside values represented by the lower 5th percentile of portfolio outcomes drop until about 10–12 years out, when they begin to rise again. Of course the upside values, represented by the upper 5th percentile, rise at all horizons and become a larger multiple of the median value for longer holding periods.

Now let's take a look at a simulation for a portfolio consisting of a single individual stock. In the first example I show the results for a portfolio consisting entirely of Oracle common stock, which has a risk level of 3.9. Table 6.4 illustrates the portfolio outcomes.

As you can observe in Table 6.4, there are some big differences in the individual stock outcomes compared to those of the S&P 500 index fund. Even though Oracle is a component of the S&P 500 index itself (at the time of this writing), the simulated portfolio values are very different from the more diversified index results in Table 6.3.

The downside values are much lower, the upside values are much higher, and the median is strangely flat over the different horizons. To better understand how the higher volatility of an individual stock influences portfolio outcomes, look at the downside estimates for the various horizons

TABLE 6.4 Simulated Forecasts of an Investment in Oracle Inc. Common Stock

Value of \$10,000 Initial Investment in Oracle Inc. Common Stock (in today's dollars)				
	At 1 Year	At 5 Years	At 10 Years	At 20 Years
Upside	\$18,500	\$46,700	\$94,200	\$244,000
Median	\$10,400	\$10,200	\$9,500	\$7,800
Downside	\$4,300	\$1,300	\$400	\$100

Source: Financial Engines calculations as of May 2007.

in Table 6.4. One huge difference is that the downside value at a one-year horizon implies a potential loss of 57 percent of the initial investment if the stock performs poorly. Mutual funds (at least reasonably diversified ones) almost never see this kind of volatility, but these types of potential losses are common for individual stocks. In fact, unlike a mutual fund, it is quite possible for a single stock to lose *all* its value by going bankrupt. With a more diversified portfolio, the probability of bankruptcy outcomes quickly diminishes to an insignificant concern (unless you borrowed a lot of money to invest in the fund, a mistake that more than a few hedge fund managers have made over the years). Figure 6.1 shows a graph comparing the downside estimates for the Oracle and S&P 500 portfolios. The additional risk not only creates a higher probability of near term losses, but also the chance of bigger losses over longer time periods as well. In other words, things do not look any better in the long run.

Concentrating your portfolio into a single security increases your risk dramatically at all timescales. In fact, the longer you hold the stock, the worse the potential downside outcomes become. This has nothing to do with whether Oracle is a good company, it is simply a function of the higher volatility of the stock compared to a more diversified portfolio. Put almost any company with comparable risk characteristics in the chart, and it will look similar. This characteristic of the downside estimate is true of almost all stocks, and the higher the volatility of the stock, the more dramatic the effect. For many higher volatility stocks, the downside values can easily go to zero (bankruptcy) for horizons of more than a few years.

On the other hand, the upside values for the individual stock portfolio are also much higher, reflecting a significantly wider range of potential outcomes. If you get lucky and hit it big, a single stock can provide returns far beyond that of more diversified investments (this, of course, explains

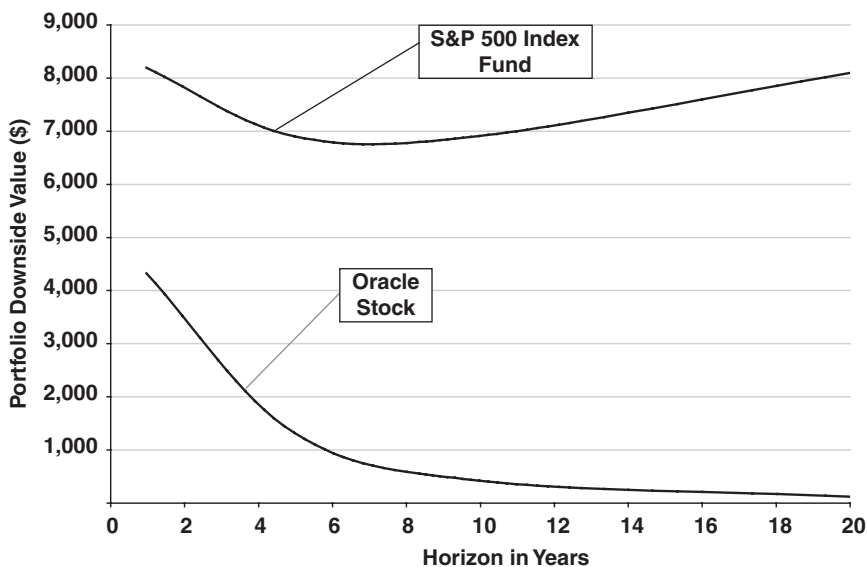


FIGURE 6.1 Comparison of Portfolio Downside Values for an Initial \$10,000 Investment in Oracle Common Stock or an S&P 500 Index Mutual Fund

Source: Financial Engines calculations.

the allure of stock picking). But the probabilities of such extraordinarily positive outcomes are low. *A diversified portfolio has a much higher probability of ending up with more money, but a lower chance at that really big score.*

Perhaps most curiously, the median outcomes for the individual stock portfolio trend down as the horizons increase from one year to 20 years. The median estimate at 20 years is only \$7,800 after adjusting for inflation. All that time to end up less than where you started? This is in stark contrast to the median outcome for the S&P 500, which steadily increases with longer investment horizons. What is going on here? Does Oracle stock have a negative expected return?

No, to the contrary. In fact, Oracle stock has an expected return that is about *40 percent higher than the S&P 500*. But that higher expected return comes with much higher volatility (more than two-and-a-half times as high as the S&P 500). It is this extra volatility that accounts for the big difference in median (and downside and upside) portfolio outcomes.

How can more risk imply lower median estimates than the S&P 500, even if the expected return of the individual stock is higher? The difference