

# The Concentration Crisis

## *Risk Without Reward*

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Based on the title of this paper, and having just read *Atlas Shrugged* by Ayn Rand for a second time, I was tempted to write about our country's loss of "rational thought," "logic," the "value of man's mind," and the need to "check our premises when we perceive contradictions". While I'd love to pontificate on the subject of "concentration," what this commentary will discuss is a taboo subject for legislators, corporate executives, and investors and is a frustrating struggle for professional financial advisors attempting to help their clients achieve their financial goals. This paper exposes the insane amount of un-rewarded risk being assumed by investors who have portfolios with material over-weighting of one or two stocks or... concentration risk.

Millions of investors, for what initially appears to be rational reasons, are exposed to un-rewarded concentration risk. Are you or your clients exposed to this risk? Do you or your clients have a large position in a low cost basis stock that you are avoiding selling to defer the payment of taxes? Do you own significant positions in the stock of your employer through an Employee Stock Ownership Plan (ESOP)? Is a significant amount of your future wealth dependent on options of the stock of your employer? Do you have one stock that has performed exceptionally well and dominates your portfolio? If you have 10-20 percent of your net worth in a single stock, then you are potentially exposed to significant risk without reward.

#### ASSET ALLOCATION MATH, METHODS AND MISTAKES.

In our recent paper, *Asset Allocation Math, Methods and Mistakes*, we examined some of the most popular theories of asset allocation, what conclusions were erroneous and what one should apply from these works. One of the most common threads that ran through these studies is that you should diversify your portfolio.

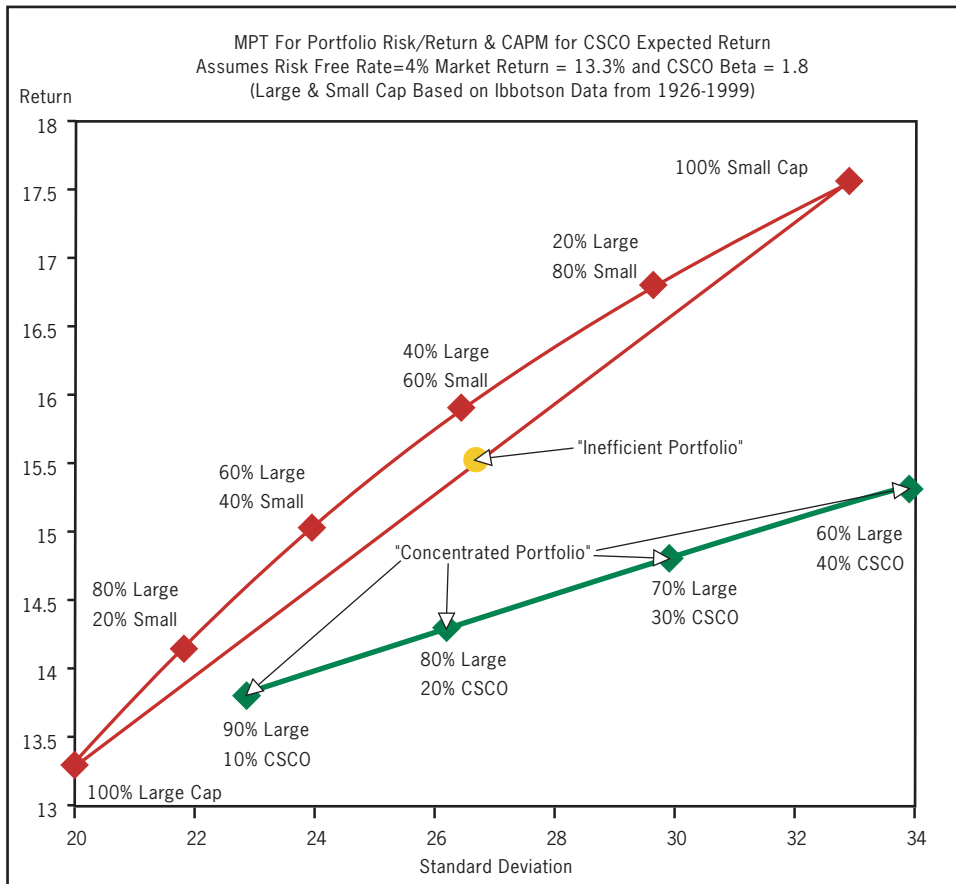
Unfortunately, over recent years we have been so focused on diversification across what would be considered obscure asset classes by the studies supposedly supporting this effort that we have forgotten one of the most basic rules: regardless of how many style, market cap and other asset classes you throw into your diversification "pot," your stock portfolio will be inefficient if you are significantly over-weighted in a single position.

Simply put, an inefficient portfolio is one that takes an excessive amount of risk for the return it is expected to generate, or conversely produces too little return for the risk being taken. Our efforts to achieve portfolio efficiency have shifted to extreme theoretical precision and are blindly being applied, as many people have come to believe that asset classes matter more than the positions. With all the focus on the asset classes, however, we have forgotten that the risk and return on our portfolio is based on the portfolio's standard deviation as calculated by the risk, return and correlation of the assets, and that a single stock has far more volatility than the "class" for which it may be a member.

What assets are in your portfolio? Many investors and advisors are making a mistake by focusing their effort on the "proper" classification by style, market cap, or other definitions and have forgotten the simple rule of avoiding uncompensated risks. I can't tell you how many asset allocation studies I've seen where the investor has a very large position in a stock of their employer (for example Cisco – CSCO), but the asset allocation study ASSUMED that what was important was to classify the stock as a large cap growth stock and IGNORED the fact that the position represented 40 percent of all of the investors assets. There are many asset allocation software programs that make this mistake. In fact, this mistake is made by most of the programs that allow you to input specific securities so the software can "properly" classify your positions. If CSCO represents 40 percent of your portfolio, though, what impact do you think will be bigger? The fact that CSCO is a large cap growth stock or the fact that 40 percent of your portfolio is in a single, highly volatile stock? We have been so focused on getting the "right mix" of assets classes we have totally forgotten how to calculate the risk of the portfolio.

Exhibit 1 shows the huge impact this can have on portfolio efficiency. The industry has been focused on the “extra” efficiency we garner by blending asset classes, often justified by the Brinson Beebower & Hood studies (*Financial Analysts’ Journal*). (For more on this subject and to gain a better perspective, review our paper Asset Allocation Math, Methods and Mistakes.) Exhibit 1 shows the value of “optimizing” a blend of small cap and large cap stocks, versus having some of my portfolio concentrated in Cisco. I’m not going to get into the debate about all the sub classes, style, foreign allocations, etc. as we have addressed those issues at length in other papers.

Exhibit 1: Impact of “Portfolio Inefficiency” for one volatile, concentrated stock (CSCO)



As you can see from Exhibit 1, the portfolio risk of having your large cap stock allocation dominated by a single stock has far more impact than your allocation to another class, like small cap. At Financeware, we have grown tired of these risk versus return charts since they don’t show us the impact to the odds of achieving investors’ financial goals. Let’s examine what the impact to the investor might be using the “inefficient portfolio,” an “optimized” portfolio and a concentrated portfolio.

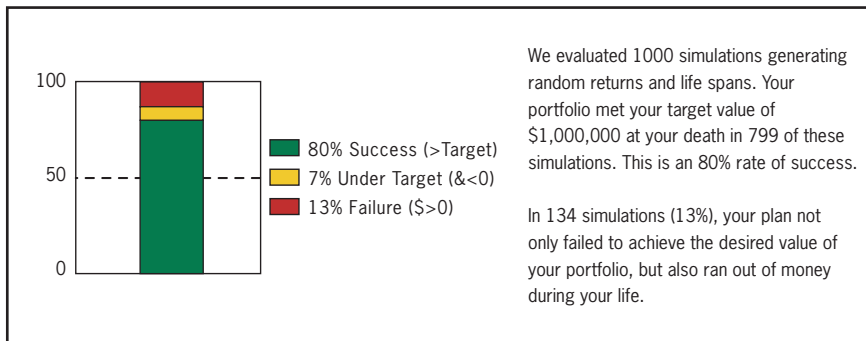
Harry is 55 years old, has \$1 million in investments (all tax advantaged), is saving \$10,000 a year and wants to retire at age 65, take a \$75,000 retirement income, and leave a \$1,000,000 estate (he doesn’t want to deplete his principal). Now there are a lot of “Harry’s” out there. Some of them have inefficient portfolios like the one in the chart above. Some of them have optimized their asset allocation, and some of them have a chunk of their portfolio in an Employee Stock Ownership Plan or a low cost basis stock that dominates their portfolio.

The first problem we need to address is determining the assumptions we should use for the risk and return of the stock. Operating under the false premise that the asset class matters more than anything else, many asset allocation systems (and therefore the financial advisors that use them) would classify CSCO as a large cap growth stock and run projections assuming that this highly volatile stock will perform like a diversified portfolio of large cap growth stocks. This is a huge mistake and is obviously erroneous. In making this assumption and inputting this “garbage in” in any asset allocation modeling system (including Monte Carlo), we are assuming that simply because this one stock belongs to a group of stocks that the risk and return assumptions for the diversified group are a reasonable proxy for the single stock.

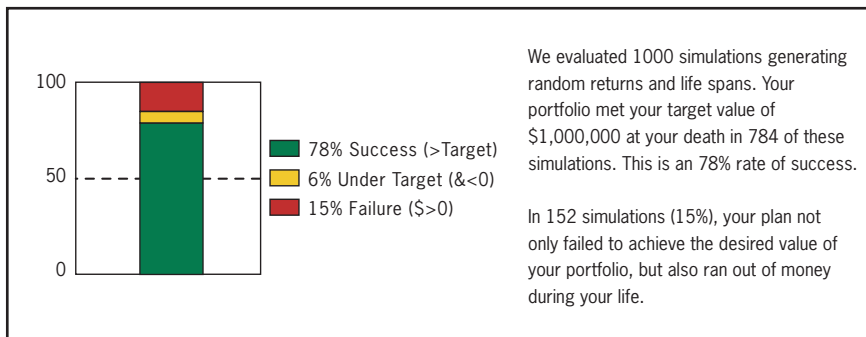
This assumption is breaking one of the most basic rules of investing: you do not get reward for investment risks that can be diversified away. The single stock will likely have two to three times the volatility of its index benchmark. Over the last three years, out of 6,698 stocks, over 90 percent had more volatility than their index benchmark. On average, they had over 3.2 times the volatility. The median was 2.6 times as volatile, and at the lower third of all stocks, their relative volatility was still 1.8 times that of their benchmark. It is amazing how we apply an inordinate amount of effort to “accurately” estimate portfolio risk based on style, sub-asset classes, and market capitalization while this far more significant risk is being ignored. All of the optimization effort normally produces an “improvement” in standard deviation of two to three percent, or basically, something that is statistically meaningless (at least relative to concentration risk) and is so sensitive to estimation error from the inputs that the optimized results are purely theoretical. Yet, something like concentration risk, when we know that the stock will be significantly more volatile, is totally ignored even though the portfolio volatility due to concentration will impact risk not by the two to three percent we theoretically achieve through optimization, but instead 2-3 times the volatility of the index.

Ignoring this reality produces projections that are very misleading. If I make the assumption that the stock will perform like the index, and focus on optimizing the inefficient portfolio, Harry looks like he is in pretty good shape relative to his goals.

*Exhibit 2- Odds of Success Assuming CSCO Performs Like Its Asset Class – “Optimized Portfolio”:*



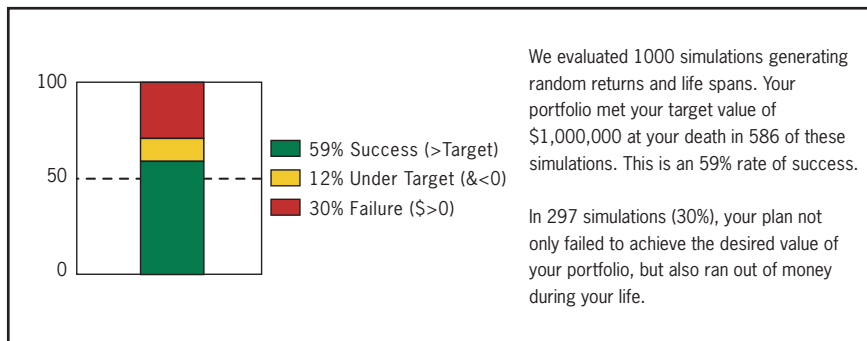
*Exhibit 3- Odds of Success Assuming CSCO Performs Like Its Asset Class – “Inefficient Portfolio”:*



Notice, as one might contemplate from the risk versus return chart in Exhibit 1, how little value is being added through optimization. Statistically, it is practically meaningless. The larger impact of “concentration risk” is far more material. This isn’t meant to argue that optimization is “bad,” but instead to demonstrate the relative value of where we are applying our efforts.

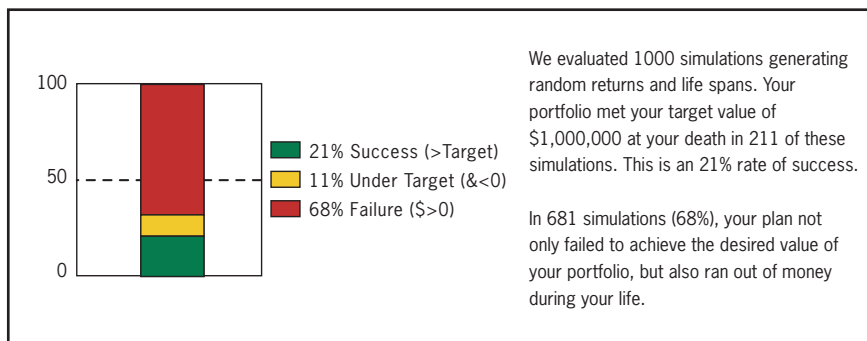
Of course, in reality, and as our study demonstrated, just about any stock will be much more volatile than a diversified basket of stocks. Therefore, my portfolio will also be more volatile. The impact of contemplating the additional volatility can have an enormous impact to the odds of Harry achieving his goals. With just a 40 percent allocation to CSCO, the results look like Exhibit 4.

*Exhibit 4- Harry’s Odds of Success Assuming a 40 percent Allocation to CSCO Adjusting for “Concentration Risk”*

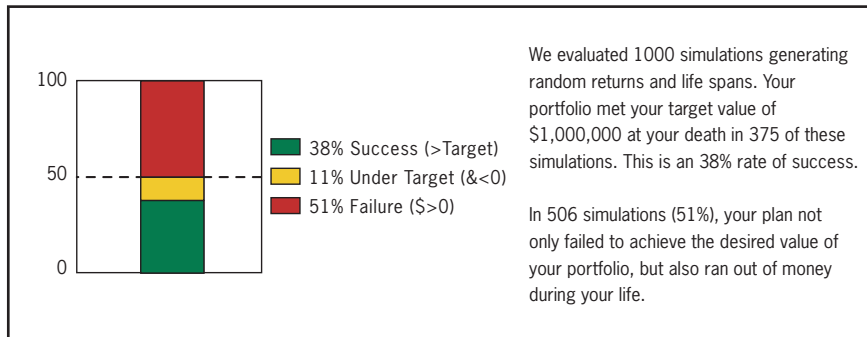


For many investors, the majority (sometimes almost all) of their net worth is in a single stock. The effect gets more extreme the more concentrated your position, as demonstrated by Harry’s results if his entire equity allocation is in CSCO shown in Exhibit 5 or 80 percent is allocated to CSCO as shown in Exhibit 6.

*Exhibit 5 -- Harry’s Odds of Success Assuming a 100 percent Allocation to CSCO Adjusting for “Concentration Risk”*



*Exhibit 6 -- Harry’s Odds of Success Assuming an 80 percent Allocation to CSCO Adjusting for “Concentration Risk”*



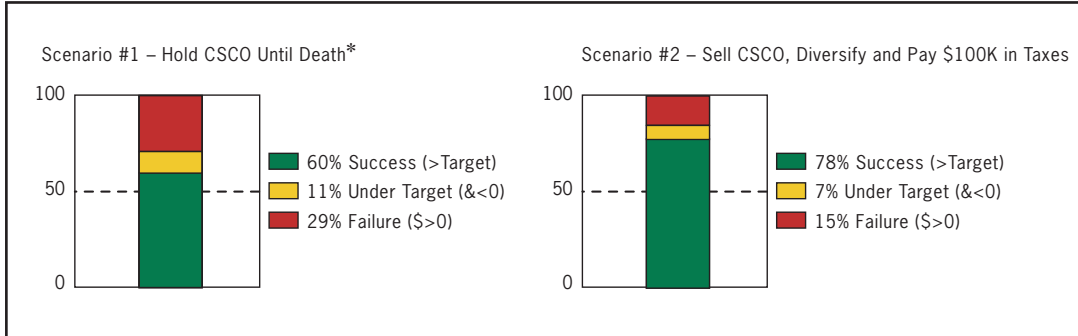
It is important to note in these examples that the return assumption for CSCO was adjusted relative to the market using the Capital Asset Pricing Model (CAPM). We do not believe that the beta of a stock determines its return as assumed in CAPM and would not recommend making this adjustment in running simulations. We used this only to appease those investors who would argue that their stock will perpetually out-perform the market, just as every investor assumes. When running simulations, it is best to use the asset class return since the volatility of the stock will produce a distribution set of results that contemplates some scenarios as the investor hopes, yet realistically considers the likelihood that the bet on the single stock may not work out, as one hoped.

Many investors are exposed to concentration risk and are living their life accepting or ignoring it. Often, investors accept this risk to avoid taxes on low cost basis stock. However, making investment decisions solely on the tax issue is a grave mistake. It also contradicts logic. Think about the premise of avoiding selling a stock to avoid taxation. Under this premise, if it were rational, no investor would ever sell any stock that has a gain associated with it, since there would be taxes to pay. While there may be some benefit to considering short-term vs. long-term capital gains rates, once the stock is in the long-term category, the decision to sell it should not be on the basis of whether there are taxes to pay on it. A stock is only worth what you can convert it to in cash... taxes are a mortgage on your portfolio value. When you calculate the net worth on your home, you reduce the value of your home by the mortgage you have on it. Why do we calculate our net worth on stocks ignoring the tax "mortgage" we owe?

Some would argue we do this because we get a stepped up basis when we die, or at least prior to a new tax law. But, by the same token, I could make that argument on calculating the net worth of my home, if I have mortgage life insurance. In either case, whether eliminating the tax mortgage on my stocks by dying and getting a stepped-up basis, or eliminating the mortgage on my home by dying and receiving life insurance proceeds to pay off the mortgage, the event of death could eliminate the liability. Tax decisions are more psychological than rational, and investing should be rational. Many investors believe it is satisfactory to realize a small gain and pay a small amount of taxes, but if I have a large gain where I'd owe a lot of taxes then I shouldn't. How do we determine how much of a gain and how big of a tax bill makes sense? Unfortunately, this is usually an emotional decision, rather than rationally evaluating the impact to achieving our financial goals.

Let's revisit Harry, but instead this time we will assume that Harry's 40 percent allocation to CSCO has a zero cost basis and is in a taxable portfolio. We can evaluate the impact of paying the taxes and diversifying vs. remaining concentrated and deferring any of the tax liability until death, which when adjusted for inflation is essentially an immaterial impact. Exhibit 7 compares the odds of these two scenarios. Scenario #1 estimates the odds of Harry achieving his goals if he stays the course of avoiding any tax liability on his zero cost basis stock. Scenario #2 contemplates selling all the stock (that wouldn't be necessary to achieve reasonable diversification, but it is the most extreme assumption) and paying a tax bill next year of 25 percent of the total value of his zero cost basis stock.

*Exhibit 7 – Harry’s odds of success if he defers taxes until death (Scenario #1), versus diversifying and paying the taxes now (Scenario #2)*



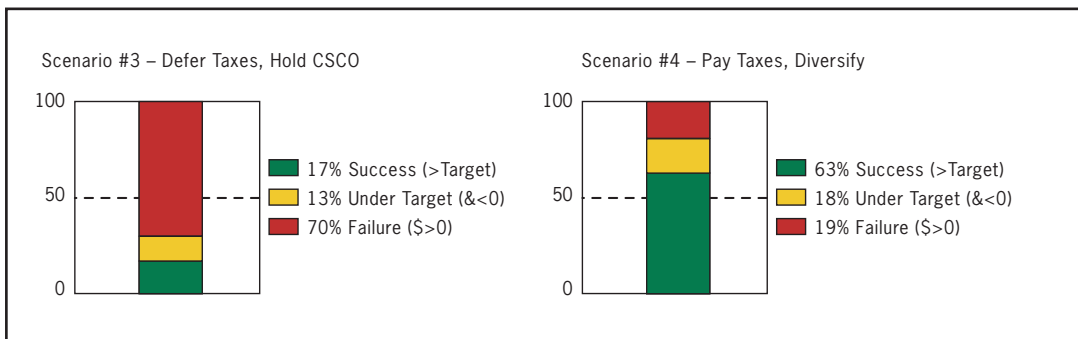
\*Note, the odds of Scenario #1 are slightly different than the 40 percent allocation to CSCO in Exhibit 4 due to the stock being held in a taxable account

Does it make sense to avoid paying the taxes? Every scenario is different and each investor’s goals have a significant impact on this effect as well. In Harry’s case, paying the taxes and diversifying cut his risk of running out of money during his life nearly in half. His odds of successfully living his life without dipping into principal increased from a 60 percent chance to a 78 percent chance. It may be painful to write the \$100,000 check to the government. However, it would obviously be more painful to be forced into eating cat food during retirement!

There is no way to achieve the efficient portfolio results we originally demonstrated in Exhibit 2 since that projection was based on the incorrect assumption that his single stock position would not be any more volatile than if he owned a portfolio of 500 stocks. By paying the taxes and diversifying, however, we brought him to within 2 percent of those odds and more importantly protected him from a significant risk most investors and many advisors ignore.

Of course, the results are even more extreme with a more concentrated portfolio. In Exhibit 8, we see what the odds of success would be in Harry meeting his goals if his entire portfolio consisted of CSCO in a zero cost basis taxable account which he attempted to defer the tax liability until death (Scenario #3), versus selling all of the CSCO, diversifying and paying \$250,000 in taxes next year (Scenario #4).

*Exhibit 8 – 100 percent Allocated to CSCO, Zero Cost Basis Taxable Account, Versus Paying \$250,000 in Taxes and Diversifying*



Clearly, the desire to avoid writing the check to the government influences many investors. The financial services industry is supposed to exist to help investors meet their goals. Ignoring concentration risk

can expose investors to absurd amounts of un-rewarded risk. There are many other issues to consider. Advisors that practice wealthcare and our advisory process, which is focused on achieving investors' most important financial goals, consider these risks (and many others) and help investors live their lives as planned. This is the future of financial advising.

*\*Important disclosure – None of the references herein are a recommendation or solicitation to buy or sell a specific security. All references herein to specific securities are for example purposes only and are not intended to convey any opinion whatsoever about the security or its investment merits. Offers to buy or sell can only be made by licensed broker/dealers and professionals appropriately licensed to deliver such advice. The characteristics modeled in the examples used statistics based on CSCO's historical performance relative to the Financeware capital market assumptions used to model the estimated probabilities which are not an indication of future results.*