

Some Interesting and Valuable Things I've Learned about Investing

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This study of investing that I'm going to share with you today started during my last sabbatical in the fall of 2007. Pat Weaver was and had been for many years teaching a bunch of overloads and she was teaching our series of three one-credit investing sequence courses and really needed a break. I was somewhat interested in investing. Finance is a branch of economics, so it is a logical next step. It interested me, and the department needed it, so those things dovetailed really nicely. So I started studying finance and then investing, which is a branch of finance, back in 2007. I have since been teaching two out of the three investing classes for the last few years. And I have taught all of the three one-credit classes. I also taught the entry-level course with Rob Yelnosky for three years, and every other year I teach a course called Financial Theory and Analysis.

First of all, nothing, not one damn thing, in this presentation is meant to be construed as investing advice. I really mean that.

Now, some basic stuff. I want to make sure that everyone has some of the background information so we all know what we're talking about. Stocks. Those are the investments that are talked about on the news. Stocks are just part-ownership in a company. It gives you a little piece, or share, of the company. In general, an asset is just a claim on some future payment. Someone owes you money. Asset classes are divided up into different categories based on certain features. For example, the stocks we're accustomed to hearing about are domestic. Think about Microsoft, for example, or IBM or General Motors. Those are companies that are owned by shareholders, and they're based in the United States. We also have an asset class based on stocks that are in other countries, countries of Western Europe or countries of the Pacific Rim like Japan and Australia. Those are foreign developed equities, basically stocks from rich countries other than the United States. Emerging market equities are another category. The name itself was an idea by an investment banker who realized that not a lot of people want to invest in third world countries because it just doesn't sound good. We need a cooler name, so how about "emerging markets"? That will sell a lot more mutual funds. There is even another one for countries that are at an even more nascent level of development, "frontier markets." Again, a real cool name!

Within each of these categories, companies are divided by size: small cap, mid cap and large cap. The large caps are the ones that we're accustomed to hearing about and seeing in the news, but there are also midsize and small companies. They're also divided by style: growth versus value. A growth company, as the name suggests, is one that has been growing rapidly in recent months or recent years. It has had quite a bit of price appreciation. Often these are hot companies; they are the new, next big thing. They are in the news. They are on the front page of the *Wall Street Journal*. And then you have value companies, which are almost the reverse. Often, in recent months or years, they have done poorly relative to their previous performance or to the performance of the industry in which they operate, and so their prices have fallen and they are generally out of favor.

Then we have bonds. Bond has a one-word definition: loan. That's all a bond is. Normally, when you talk about buying something you talk about buying an item like a car or a chair or a table, but you buy a bond. That's strange language to use when you are talking about investing in something, but when you buy a bond, you are making a loan. So you make loans to the U.S. government. That's the most common bond that's out there. You can also make loans to corporations when you buy corporate bonds. A traditional bond is one in which there is a fixed payment every six months or so for, say, five years. The bond makes payments, and at the end of the five years you get your interest payment plus your principal back. There are also what are called inflation-protected bonds, which came out in 1997. The thing about inflation-protected bonds is that they are really a unique, new asset class, because the principal adjusts in value based on the prior six-month inflation rate. So if you get unexpected inflation, the value of the bond goes up. If the value of the bond goes up, that means your interest payment will go up because it is based on the principal of the bond. In other words, it adjusts for the rate of inflation. Foreign developed bonds are issued by rich countries that are not the United States, such as Western European nations, Japan, Australia, and New Zealand. Then again we go back to emerging markets, the sexy name for third world countries. They issue bonds, too. Finally, there are REITs, which is short for Real Estate Investment Trusts. In this case what happens is they take your money and other investors' money and they pool it and then they buy real estate with it. For example, they may buy malls and then lease out the malls. They might buy office buildings or apartment complexes and then lease them out.

The key investment vehicle is a mutual fund. A mutual fund pools investors' money and invests it for them. Many people have a retirement account, and that is how their retirement funds are invested. An index fund tracks some type of index. It doesn't try to beat the index; instead it just tries to track it. So an S&P 500 fund will just track the Standard & Poor's 500. They will buy those 500 stocks in given amounts by something called market capitalization, and they just track the index. And there's an investment vehicle that's a little over two decades old called an exchange-traded fund, or ETF. It's a lot like an index fund. The vast majority of them track an index, though some now are starting to be what's called actively

managed. They are going to try to beat the market. The difference between an ETF and a mutual fund is that ETFs trade like a stock. So you can buy shares of an ETF, and the advantage of that is that you can start at smaller amounts. For example, an ETF might trade for \$40, so you could buy ten shares for \$400. Mutual funds often have minimums of \$3,000, \$5,000, or \$10,000. If you are just starting out, it might be tough to raise that much. An exchange-traded fund is an easier way to begin.

Question: Who is the most dangerous investor in this room? Your first hint is “Y,” as in chromosome. The second hint is “letters after your name.” It turns out that much research shows that women are better investors than men, and that the more educated an investor, the more poorly they tend to perform. So a highly-educated male is the most dangerous investor, and when we add on to that someone who really thinks they know what they are doing, forget about it. The reason is that women actually stick to the plan even when they may think that it is not working right. They stick to the plan. Generally men don’t. They have far more overconfidence in their ability. And more often than not, men are wrong.

What’s the most consistent predictor of mutual fund performance? Answer: the expenses added on to a mutual fund. Just to give you an example, assume a \$10,000 initial investment, compounded at 8% annually. You have a low cost fund (0.2%) and a high cost fund (2%). Every mutual fund has various expenses. The average stock mutual fund has an expense ratio of about 1.1%. And what that means is that when you take the expenses and divide them by the amount you invest, roughly 1.1% of your investment goes to expenses. Say you have a \$10,000 investment; 1.1% would be about \$110 of your money going to pay for the management of that fund. So, 0.2%, or \$20 a year on a \$10,000 investment, is actually a pretty low expense ratio when we compare that to a high cost fund. Some funds share what’s called the load. Technically, it’s the sales charge. They charge you for buying their fund. This still goes on. I don’t know why. There are funds that charge 2% or more annually. And there is also something called the 12b-1 fee, which is basically charging you for the mutual fund’s advertising.

So how does this affect performance? After thirty years, the low cost fund has risen up to about \$95,000, while the high cost fund is \$50,000. Again, the most consistent predictor of performance is expenses. Expenses represent a drag on performance. A low cost fund charging 0.2% gets a head start over a high cost fund charging 2%. That high cost fund has to beat the low cost fund by 1.8% before they even break even. That is really hard to do. It is a rare person that can regularly beat the market by 1%. A balanced mutual fund is one that invests about 50% to 60% stocks and 40% to 50% in bonds. When we compare the average fee for the most expensive half and the average fee for the least expensive half, there’s about a 0.8% difference in expenses, in fees, and a 1% difference in performance. Now 1% is huge. It doesn’t seem huge, but compounded over thirty to thirty-five years, that is a large number. I calculated it for me. For me, we are talking about in the area of \$80,000 to \$90,000 more. So that is big. The same is true for bond funds. Bond funds pool your money and buy bonds. The most expensive half

have fees that are about 0.6% higher than the least expensive half. And the expensive ones underperformed by about 0.4%. It's a smaller amount, but the same effect.

What is arguably the number one source of profits for the financial services industry? Getting their clients to pay way more than they should. Just to give another example, TIAA-CREF is the company that provides retirement fund services for this college. Their S&P 500 fund has a 0.32% expense ratio, which is low. Nationwide! Is Nationwide on your side? Not here, they're not. Nationwide's S&P 500 fund charges you 0.57% for the same product, which is 0.25% higher than TIAA-CREF charges you. The funds' holdings are identical. They buy the same stocks in the same proportion. These are identical products. However, Nationwide's fund has an expense ratio that is a quarter of a percent higher, and they charge you a 5.75% fee for buying it. So if you invest \$10,000, only \$9,425 is invested for you. And people still invest with them because they don't know any better.

Diversification is one of the hallmarks of investing. The idea is that by not putting all your eggs in one basket, by investing in several different asset classes, you will reduce risk per given level of return. The problem is, you have years like last year. Josh Brown, a former broker, runs an entertaining blog called *The Reformed Broker*. For obvious reasons, this post stuck out last summer: "I'm at a conference with hundreds of asset allocators and PMs [Portfolio Managers]. Everyone's got a global portfolio up 3 or 4%. They're f***ing miserable."¹ Last year one asset class, U.S. stocks, did fabulously well relative to just about every asset class that you could imagine. So, if someone was highly invested in U.S. stocks, then he or she did well. An asset allocator is really someone who practices diversification, and last summer, when the U.S. stock market was going gangbusters, the rest of the asset classes went down. Bonds last year were negative, down by about 6%. So asset allocators were miserable over the summer. They were practicing a sensible strategy, and it was not doing well. It was doing what it was supposed to, but the problem is when you do what you are supposed to and you allocate the assets, unfortunately there's always going to be at least one asset class that out-performs your average performance. Many people focus on this, but they shouldn't. The main purpose is to not perform badly, but it is really easy to focus on the fact that you're not performing spectacularly well. This is especially true if you're a portfolio manager, because your clients are calling in. Having spoken to some of these portfolio managers, there's an inverse correlation between the amount of money the clients have invested and how much they call. The people with \$547 in their accounts are the ones on the phone weekly wanting to know what you're doing to increase their returns. You are always going to under-perform something.

We also have something called the recency bias. The recency bias is the tendency to take the recent past and use it as a basis for projecting forward. It is well established in the literature; finance people borrowed it from the psychologists. I have personal experience with this. A few years back, my in-laws were with one of those Nationwide-like financial managers and they were getting charged something

like \$3,000 a year and the weighted average fees were about 1.2%. I said, “You just give me a place to crash when I come here in the summer, and I’ll manage it for you. Well, just give me the remote, too, and then we’ll call it even.” So I made changes. I reduced the risk of their portfolio, but then 2008 came, and everything went to hell. Everything just collapsed. So there we were, Christmas 2008. It’s really hard to tell your in-laws that if they had stuck with the other guy, they’d be a lot worse off. That logic just doesn’t fly. I was listening to them talking and seeing clear evidence of recency bias. Based on what had been happening in recent months, they were projecting ahead and assuming that their 30% loss was going to become 40% or 50%. They told me, “We want you to put it all into a savings account.” Then they left, and I was in pain because I thought, “If I do that, I’m going to lock in all these losses.” So I took a risk. They didn’t know how to switch the money in their account to something safer. So every time they called, I made sure I wasn’t there. I dragged my feet, because I knew we weren’t going to see them again until the summer. Thankfully, the market bottomed out in March 2009, and then we visited them in July of 2009, and by that point the market was up double digits, and they had regained part of what they had lost. The recency bias worked in my favor because I knew that markets eventually revert to the mean; they revert back to their average level of performance. I was banking on that happening and, luckily, it did. By the end of 2009, they had regained 20%.

The practical implication of mean reversion is something called rebalancing. Let’s just say that you chose a portfolio of 60% stocks and 40% bonds starting in 2013. By the end of the year, it was 68% stocks, 32% bonds. That’s because stocks far outperformed bonds. So now you have almost 70% stocks, 30% bonds. The standard financial practice is to rebalance back to 60/40. I’ve got to tell you, for a lot of people that just seems really counterintuitive. Because what you’re going to tell them is, “You know that asset class that’s done really well? We’re going to sell part of it, and we’re going to buy the one that did horribly.” Say what? Letting it ride just seems more intuitively appealing and maybe more emotionally satisfying, while rebalancing is just counter-intuitive. But the thing is that you don’t want to get caught with a huge allocation in just one asset class just as mean reversion occurs. For example, let’s say you let it ride in Japanese stocks in 1989, just before they tanked. You would have lost a lot. However, let’s say you rebalance. What does this do? It is a simple, mechanical way of buying low and selling high. It improves your risk of adjusted returns. Not a lot; maybe you earn a quarter or half of a percent annually higher returns rebalancing, depending on the time period you look at. It tends to reduce your risk a little bit. It goeses your returns just a bit.

There’s another implication of mean reversion. When a particular asset class has gone up quite a bit over a period of time, it’s very likely that over the next several years, it’s not going to do nearly as well as it did in the past. Now, this is data from an investment manager, Mebane Faber. He has calculated the cyclically adjusted price-to-earnings ratio for the S&P 500 over the last several decades, and then he

has calculated subsequent ten-year returns. This model predicts a 2% real return for stocks over the next decade. Now, keep in mind, this is not predicting what's going to happen next year or the next two years. It's predicting that over long periods of time, assuming mean reversion occurs, these are the returns you are looking at. He is predicting returns that are historically very low, relative to average real returns in the U.S. stock market. When I say real, I mean inflation-adjusted returns are about 6.5%. With an average inflation rate of about 4%, we are talking about 10.5% returns, 6.5% when you adjust for inflation. So 2% over the next decade is not very good. He is not the only one predicting that. Another psychological bias is the home bias. This is basically the tendency to overweigh your portfolio to assets that are from your own country. If Faber and others are even remotely right regarding the United States, that is a really dangerous thing to do.

I also want to talk a bit about what I think is the most underappreciated and under-utilized asset class, emerging market bonds. These are basically bonds that are issued by developing countries: Russia, China, India, Brazil, Argentina. I looked at their returns, and they are really good during the past twenty-years. Now granted, I don't know what's going to happen going forward, but this time period includes a fair amount of financial crises in developing companies. It includes the East Asian crisis in 1997-1998 that then spread to Russia and Brazil. It includes the 2001 meltdown in Argentina that led them into several years of very deep recession, one might argue a depression. It also includes the 2008 financial crisis. Emerging market bonds have good returns and lower volatility than U.S. stocks and developed country stocks. They are actually a good diversifier, with a relatively low positive correlation, meaning they generally don't move at the same time and in the same direction as the U.S. or European stock markets.

Also, if you look at something called the debt-to-GDP ratio, which is how much a country owes relative to the size of its economy, these countries are in a lot better shape than the U.S. or other developed countries. If you look at countries that commonly issue bonds, they have a 34% debt-to-GDP ratio, whereas it is 113% for the United States. My colleague from Japan noted that part of the reason for that is because these countries have a history of defaulting and as a result investors won't lend them that much money. That is certainly true, but still, looking at the history, looking at the lower debt load, and also looking at the fiscal management on average, they're doing a lot better than the developed countries. These under-appreciated bonds illustrate home bias. People know U.S. bonds, but they don't know bonds from Brazil or India.

What do you control that has the biggest impact on your retirement account? How much you save! Say we've got a 37-year-old professor, just promoted to associate, with \$50,000 in their retirement account. Assume over the next 30 years a 5% real return on their portfolio, roughly about a 7% nominal return. So they must have a fair amount in stocks. This person wants to retire at 68. The college requires

you to put in 2% of your salary and they contribute 10%. In today's dollars, adjusted for inflation, how much is the professor going to have at 68? \$805,000. What if every year the person decided to take an additional 1% of their salary and add that monthly? That would be about \$570-\$580 a year, every year. What would that do? How much would that affect the ending portfolio? It would add half a million to the end value. That is actually equivalent to saving the college-required minimum and earning an extra 2.25% a year! How much you save is the one thing you have control over, and that one thing can have a profoundly significant impact on the value of your retirement account when you ultimately retire.

Finally, in terms of interesting and useful things, the theory about risk versus return is that it's a positive relationship. This is really intuitively appealing. It makes sense that if I'm going to take on more risk, I've got to get a higher expected return for it. Now, empirically that's true across asset classes. The average volatility generally goes up as expected return rises. There is an outlier here in non-U.S. stocks, but otherwise it does increase. More risk, more return, across asset classes. What about within a particular asset class? This model is primarily designed to analyze stocks. Is that the case? No. Empirical evidence is that there's a flat relationship between return and risk or perhaps, over some time frames, a negative relationship.

Now I'll give you an example from a relatively recent paper on risk and return from the *Journal of Portfolio Management*. Let me first just introduce one other thing. The Sharpe Ratio is a measure of return per unit of risk taken. Excess returns mean the return of the asset minus the return you get on a risk-free asset, in this case 90-day treasury bills. Now excess return divided by standard deviation gives you the Sharpe Ratio. The Sharpe Ratio measures how much return you get for each unit of risk undertaken, so a higher number is better. A couple of Ph.D.'s that work for an investment management firm in the Netherlands took 1,000 stocks over the period 1968- 2005 and they divided them up based on volatility.² The standard measure of volatility is standard deviation. They sorted the stocks from the highest volatility to lowest volatility. They divided them up into deciles with 100 stocks in each decile. Ironically, they found that the returns for the most volatile stocks were very low. So in terms of risk-adjusted returns, as measured by the Sharpe Ratio, you really get a lot more return for the risk when you own the least-volatile stocks.

Again, this is fairly counter-intuitive. It certainly goes against the theory that I teach in finance, the capital asset pricing model. I teach about positive risk versus return relationship. I have no idea whether this relationship is going to proceed going forward now that it's out there. People might decide to try to take advantage of it. If enough people try to take advantage of it, then this will disappear. As of now, based on the data we have, you don't really get a lot of return by trying to stick with the most volatile stocks. Checking this on a sample with other stock markets around the world, you get very similar results. As a result of this research, there are actually low-volatility ETFs out there. Many companies now

have low-volatility indexes, which the ETFs track. They are taking advantage of that low-volatility anomaly. Theory predicts a positive relationship between return and risk. The fact that it is flat is an anomaly that the theory can't explain yet.

NOTES

1. Joshua M. Brown, *The Reformed Broker*. <http://thereformedbroker.com/2013/07/25/anecdotaly/>.
2. David C. Blitz and Pim van Vliet, "The Volatility Effect," *The Journal of Portfolio Management*, 34:1 (Fall 2007): 102-113.