

Tactical Asset Selector

Why investment risk is beyond the scope of regulation

Securities regulators classify investment products according to the risk to which the investor is exposed. But what they usually have in mind is a superficial conception of risk kept alive from a century ago, when price volatility was the ball game. While the calculus of modern finance has developed beyond recognition, regulatory thinking has not been able to keep up. Worse, the theory of capital markets has evolved like a branch of mathematics, but the theory of financial regulation has evolved like a body of law. It had to be that way, of course, because regulators are far more likely to be lawyers by training than mathematicians!

This dumbing-down of investment thinking is reinforced by the news media. Hardly swayed by the idea that future returns are unpredictable, elements of the press are open to promoting any piece of investment logic, old or new, that its audience may want to hear about. Assets that are allegedly “mis-priced,” especially if they are cheap by historical standards, are good material for the greed button; assets that are expensive according to historical benchmarks are portrayed as dangerous, thus pressing the fear button. Valuation metrics such as the market’s P/E ratio or spreads between bond yields are further fodder for discussion and dispute,

Measuring investment risk is a big challenge for mathematicians. But it’s a completely impossible task for regulators.

whether or not their predictive power has been established historically.¹

For regulatory purposes the riskiness of an asset is nothing more than the degree of uncertainty about future returns — a proposition with which modern financial wisdom is at odds. Furthermore, uncertainty about future returns is revealed simply by the frequency distribution of past returns. What an irony that the authorities violate the maxim (as *Forbes* puts it) that “past performance is not indicative of future results”! While insisting on universal recognition that future returns are impossible to predict from past returns, they express no doubts whatever about predicting future risk from past risk. The official line implies that the riskiest assets are always the most volatile. Other investment properties get little shrift. It is on these other considerations, such as diversification, economic sensitivity,

and financial insurance, that this report therefore dwells.

Risk is a broad and deep subject. And it is multi-dimensional, the volatility of prices being just one of these dimensions.² It is not a public service to warn investors away from funds merely because their histories look to be volatile, nor to endorse others which seem more stable. We outline here a number of ways in which overly narrow attitudes toward risk tend to hold investors back, or perhaps mislead them.

One “bell shape” doesn’t fit all.

Volatility itself is a complex property of investment. Although computationally easy, it does not easily lend itself to measurement. Like so many variables found in Nature, historical frequency distributions for asset returns resemble some sort of a bell-shape curve. Expectations about future asset returns are usually presumed to be bell-shaped as well.³ In the stock market, for example, the original convention was to assume that the probability distribution of percentage returns was “normal” (Gaussian), an assumption changed later for the sake of realism to logarithmically normal. On that basis, the standard deviation of the distribution would be a perfect characterization of volatility. But that never happens in practice;

1. The predictive power of a number of popular valuation metrics is explored in an HCWE & Co. webcast under the title “The limited value of ‘value’” at <http://www.hcwe.com/wc/WC-0614-FULL/WC-0614-FULL.html>.

2. “Why standard deviation won’t serve to classify the risk of a portfolio,” *Tactical Asset Selector*, HCWE & Co., March 31, 2012.

3. They are observable, at least approximately, by analyzing the prices of call and put options. When this is done, fat tails and asymmetry are immediately evident. A forthcoming HCWE report will illustrate the derivation of probability distributions for future returns from S&P 500 index options.

distributions are usually both fat-tailed and asymmetric.

Investors are notoriously more sensitive to downside risk than to upside risk, and if these are not equal they need to be estimated separately. Relying as usual on histories of past returns, parameters such as the semi-variance or the Sortino ratio can be used to do that. Thus asymmetry presents a soluble problem, although solutions have yet to enter everyday use by practitioners or regulators.

Fat tails are a much bigger challenge. Indeed, all by themselves they are a killer for standard deviation as a parameter to measure dispersion. The variety of fat-tailed distribution formulas that could fit real-world data is endless, but generally speaking their standard deviations cannot be expressed mathematically – they are infinite. This is not immediately obvious when a standard deviation is being computed, because the formula always produces a finite result from a finite body of data. But mathematics dictates that the estimated standard deviation will increase without bound as more and more data are added to the history. Some statistic other than standard deviation must be used as a measure of dispersion. Again, this is mathematically doable, but it's a problem that regulators have yet to face up to.

Nominal returns aren't necessarily real. It is a mortal pitfall that asset returns are conventionally denominated in dollars, and that the dollar is an unstable unit. For good reason it's conventional to convert foreign investment returns to dollars for comparison or analysis by American investors. To the extent that the relevant exchange rate is variable, foreign returns are not taken at face value since they are not expressed in "hard currency." For the same reason it makes little sense to report indices for foreign stock markets without converting them too into US dollars.

But while Americans recognize that foreign currencies can be unstable, they

often neglect to take into account the instability of their own currency. Since the end of the gold standard, the U.S. dollar has not been a hard currency either, nor is the US inflation rate fixed at zero. The variability of inflation and the instability of currency values are ubiquitous today, and the dollar is just one among a variety of unsatisfactory measurement units in which changes in wealth are expressed.⁴

Compared to many unstable currencies, the dollar is certainly "hard" in a relative sense, but it is not hard in an absolute sense. In the end, the use of dollars to express investment returns is a convention and not the tautology it is thoughtlessly assumed to be.

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When nominal does not equal real, nominal risk is not the same as real risk. Because the past real value of the dollar has been variable and its future value both variable and uncertain, the uncertainty attached to both past and future performance is not what it appears to be. Expressed in nominal dollars, the value of investments in the US stock and bond markets appears to fluctuate less than it "really" does, while the prices of physical assets such as gold, commodities and real estate are much more stable in real terms than they appear to be in nominal terms.

Assets that are physical, or whose prices mimic the prices of physical assets, we can call "hard." Domestic stocks and bonds we can call "soft." In this sense, a simple comparison of nominal-dollar volatility grossly overstates the riskiness of hard-asset funds

relative to soft-asset funds. Even cash is a risky asset.⁵

What can be a distortion in comparing the risk of different asset classes can also be a distortion within an asset class. Mortgage companies and gold miners, to take an extreme example, though both may be included in a stock-market index, have very different responses to inflation and currency depreciation. Nominal estimates of volatility exaggerate the riskiness of gold stocks and understate the riskiness of the mortgage company equities.

The same is true of the bond market. If wealth is to be valued in real terms, nominal estimates of volatility understate the riskiness of high-grade bonds such as Treasuries, while exaggerating the riskiness of other species of bonds such as high-yield, adjustable-rate, or foreign bonds. That's because these other bond categories are generally boosted by inflation and currency depreciation, as well as by risk tolerance, while Treasuries are hurt by both.⁶

The difference between "stand-alone" and "contributive" risk. Even if all the pitfalls already described could be overcome, the solutions would have yet to address the seminal idea of Modern Portfolio Theory. That was the introduction of covariance in place of variance (the square of the standard deviation) to measure the risk of an asset. This is universally accepted among trained analysts. But regulators proceed as if investors never bother to diversify their portfolios, in which case variance would be sufficient. Realistically, investors do attempt to diversify, and so the riskiness of an additional asset depends on how it affects the portfolio as a whole.

According to the theory, two stocks whose price volatility is the same will be priced differently if one is more correlated with the market index than the other. The lower the correlation the more valuable the asset, and the higher the market will price it. This is an expression of the principle that, from a

4. "Don't be fooled when all asset classes seem to prosper at the same time," *Strategic Asset Selector*, HCWE & Co., September 16, 2016.

5. "Cash is never King," *Strategic Asset Selector*, HCWE & Co., April 30, 2007.

6. "Debt markets that cushion the effect of rising interest rates," *Interest-Rate Outlook*, HCWE & Co., April 28, 2017.

market point of view, the riskiness of an asset considered in isolation differs greatly from the risk it contributes when added to an existing portfolio. A high-beta stock tends to be riskier than a low-beta stock even if the low-beta stock has greater volatility. At the very least this would suggest that regulators place weight on covariance rather than volatility when prescribing rules for what fund sponsors must report to their prospective investors.

The difficulty cuts deeper. If riskiness is contributive, then the riskiness of an asset cannot be summarized except with regard to the particular investor who is considering whether to purchase it. There is no unique way to rank assets by riskiness. Again, this is an issue of covariance. Past return histories demonstrate that an investor who is heavily invested in one class of assets could achieve an enormous degree of diversification by adding a polar opposite asset class to her portfolio. For example, a Treasury bond investor could greatly reduce the dispersion of investment returns by placing part of the portfolio in commodities, floating-rate debt, or low-grade bonds.⁷ A stock investor could greatly reduce dispersion by including a moderate quantity of gold in the portfolio.⁸

Investment conclusions. It's standard practice for those who launch and manage regulated funds to characterize the riskiness of their investment products in terms of their historical risk-return characteristics. In particular, regulators require them to report the dispersion (volatility) of historical nominal returns. The standard deviation of percentage returns is the most relied-upon statistic.

... regulators [should] place weight on covariance rather than volatility ...

In forcing fund managers to provide investors with doubtful information of this kind, regulators violate their own rule that "past performance is not indicative of future results." On the one hand they insist on universal recognition that future returns are impossible to predict from past returns. On the other, they express no doubts whatever about predicting future risk from past risk. Quite apart from side-stepping this question, the entire process is subject to countless pitfalls, and amounts to an attempt to dumb down investor choices to the point of directing them to absurd conclusions.

To begin with, since frequency distributions of returns are often fat-tailed and unsymmetrical, and vary from asset to asset, dispersion cannot be summarized in a single statistic, and certainly not in the hallowed standard deviation. Nor can one distribution be easily compared with another.

In any case, when they think about it, investors are not concerned with nominal returns, but with real returns. The use of nominal dollars to express performance may greatly understate the real volatility of stock and bond investors, while greatly overstating the real volatility of portfolios of hard assets such as gold, commodities or real estate.

Finally, the notion of standalone risk is itself unrealistic. Risk is 'contributive' in the sense that an investor adds (or subtracts) from the riskiness of her existing situation when adding a new asset to her holdings. The net change in the investor's risk position depends on the covariance (positive or negative) between the new asset and the existing portfolio. It has little or nothing to do with the volatility-ranked tabulations of riskiness that investors are urged to go by.

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7. "Do nervous investors need to reduce the duration of the bonds they hold?" *Interest-Rate Outlook*, HCWE & Co., November 30, 2015.

8. "A powerful way to stabilize the performance of a US stock portfolio," *Strategic Asset Selector*, HCWE & Co., May 29, 2015.



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