

The Alternative To Alternative Classes

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I've written many controversial papers before, but this one will certainly have me looking under my car before I get in and turn the ignition. The topic is "alternative investments," an asset class that is growing more in popularity with each negative year we add on to the bear market in stocks.

Calling "alternative investments" an asset class is a bit of a misnomer when compared to other classes like cash equivalents, equities, or fixed income. Most asset classes have some fundamental characteristics that logically permit them to be assembled into an asset class. For example, any investment of high credit quality and ultra-short duration is considered a member of the cash equivalent class. Any stock, be it foreign or domestic, large or small, high yield or no yield, still represents ownership of a for-profit (or attempted profit) enterprise. Even all the variations of fixed income be it short or perpetual, junk (sorry, did I mean to say the more politically correct "high yield"?) or government backed, zero coupon or inflation indexed, still represents investments that are a loan to an entity, which is why they are also known as debt.

But what makes "alternative" investments interesting is there are no fundamental characteristics that tie them together, other than they do not belong in traditional asset classes. Here we have the world of hedge funds and managed futures, private equity, leveraged buy-out funds, mezzanine financing funds, and venture capital, to name just a few. It is an asset class made up of "misfits" where membership is determined by having no other club where one would be welcome.

There are some things that I wish to be clear about. First, I am not against these investments, and in various fiduciary roles I have had in my career, I supported and was on record as voting in favor of placing well over \$1 billion of assets in such investments. I have therefore willingly put other peoples' money where my mouth is. When I served on the investment advisory committee for the Virginia Retirement System, I voted against terminating their revolutionary managed futures program (my vote was not enough to prevent the demise of the program). Finally, the funding for my company came from venture capital funds (in addition to many individual "angels"). There are many reasons and rationale for these investments. Capitalism works.

As both benefactor and beneficiary of such vehicles, one might think I would have nothing but praise for such investments. Those that would think I would have such an opinion...praise without objective consideration...do not know me. While there are some potential positives to these investments for certain purposes, that does not mean that they are free from their share of potential problems. This is not to say they are uniformly "bad," it is merely a statement that says there are some things we need to think about with these investments **and it is our job to objectively consider them.**

Unfortunately, many professionals evade the effort of this thoughtful consideration once they cross the line of "not all bad, and potentially good." This approach leads them into a trap by moving from what we do know about these investments into a realm of making assumptions about them that we simply do not have the evidence to support. Even worse, by accepting some of these erroneous assumptions, these professionals may take previously better assumptions that are more material, and makes those material assumptions erroneous and contradictory. **The result is materially misleading information.**

I've often wondered how we ended up in this position as an industry. There are two fundamental causes. First, we cannot escape the fact that many in our industry are not sufficiently knowledgeable about what they are doing. Second, we have many in the software industry that add features to their software based on this wider universe of potential users that are not sufficiently knowledgeable. This combination does nothing other than perpetuate and broaden the misuse and has the effect of encouraging previously or potentially competent users down the road of misinformation.

For example, if you examine the software market for mean variance optimizers, observe that there are none of any significant market penetration that do not enable the user to set allocation "constraints." So

what you say? Perhaps you may be one of those potentially competent users that have been led down the road of misinformation. (I understand that some clients will specifically ask for inefficient allocations by imposing constraints.)

Despite the mysticism many perceive in these tools, understand that all these tools do is solve a mathematical equation. They do not know what you are inputting into them and will calculate whatever you ask them to. These tools don't even know they are solving financial problems (or creating them). Unfortunately, the creators of these tools often have little knowledge about what a stupid input would be (or they evade their knowledge to sell another copy of their tool, ignoring the consequences on people's lives) so they not only let you input stupid things, they actually make it easy for you to do so.

Some of us are better at math than others, so instead of the quadratic equation necessary for mean variance optimization, I'll use a simple algebra problem to demonstrate this constraint issue. See if you can solve this problem:

$$4x = 4$$

While this equation is much simpler than the equation for a mean variance optimizer, conceptually we can think of it as being similar to what it is solving for. Algebraically the math formula doesn't know it is talking about investments, it is solving for a number that is TRUE.

$$x=1$$

Like the mean variance optimizer, this problem has one answer that it solves for and there is only one true answer. Similarly, an optimizer solves for the combinations of allocations that produce the highest mean return per unit of standard deviation...it solves for what numbers make the statement true, just as our easy sample equation solves for the number that makes this statement true.

Now, let's apply a constraint to this problem, like we do in most mean variance optimizers, and see what we get. Let's tell it to solve the problem, but we constrain $x=0.5$.

This is what we are telling it: $4(\leq .5) = 4$ or $\leq 2 = 4$, or the best answer it can provide based on the constraint we gave it is $2=4$. Is this true?

If we conceptualize this absurdity, we will see that this isn't true and what we are asking the equation to solve for exists only in some fantasy universe where 2 can equal 4. If we are confident that $x \leq 0.5$, then any high school algebra student could tell you that something is WRONG with the OTHER inputs in the formula. Maybe the first 4 should be 8? Maybe the second 4 should be 2? Maybe the .5 is wrong and should be .3 or .2 or .6? WAIT! That is what we are trying to solve for. How can I solve for it if I don't know what the other numbers should be?

If the purpose of the formula is to solve for x , but our inputs into the formula give us an answer that we "know" is wrong, or appears irrational, can we "will" the formula into compliance by telling it to solve for untruths? Every optimization that is run with constraints is as absurd as saying $4(.5) = 4$ or $2=4$.

"But Dave, if I don't constrain my allocations, I get really silly results and the optimizer wants to put 100% into Managed Futures." I would concur that is a silly result. But, I don't think it is the formula that you need to change (that is what you are doing with a constraint...solve for x , but not really) instead it should be obvious that something is amiss with your INPUTS.

It is certainly much easier to tell the optimizer to go ahead a let $2=4$ than to figure out whether the first 4 should be 8, the second 4 should be 2, or whether all of the INPUTS are wrong and the formula should really be $10(x)=3$ or $x=0.30$.

“But Dave, I’m using the longest common period for which I have data.” *You* are using the data? It sounds to me that perhaps *the data is using you*.

Perhaps instead of attempting to “will” into reality that $2=4$, might you consider the possibility that the *data that is using you* is bad data? If the only way I can get a rational solution to the problem is by accepting $2=4$, perhaps you should examine your data and see if there is something skewed in the data that requires you to accept $2=4$.

For example do you have sufficient data to draw a conclusion that you *know* to be a well reasoned approximation? Does the data appear to be representative of the nature of the investment? Is the data rational...meaning would it appear to be contradictory to reality? Was the data constructed using a reasonable and consistent methodology? Instead of accepting the data and modifying the equation to solve for the unreal, how about fixing the inputs so the equation can do its job?

Absurd allocations are evidence you have bad or biased data, not that we have a bad formula that you need to override. The formula works...***it is what you are using to get an answer***. Fixing the inputs is the only way to get to a reasoned approximate answer. If you have to break the formula to get a reasonable answer, you may as well not run the formula. **IF THE RESULTS FROM A SET OF DATA APPEAR IRRATIONAL, THE DATA THAT FORMS YOUR INPUTS IS PROBABLY ERRONEOUS.**

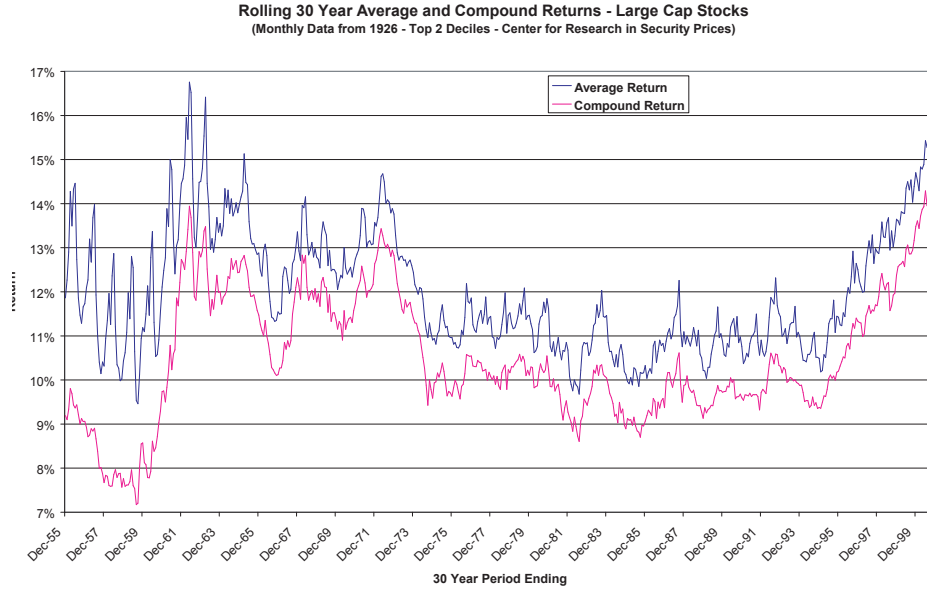
No amount of math can take bad inputs and make them good. Therefore, I do not get better answers by taking good data and mixing it with bad. If I am reasonably confident that I know the approximate nature of stocks and bonds, I do not end up with a better or more accurate result by mixing in data that I have little confidence in, or worse yet, poisoning the data I have more confidence in with data that appears erroneous.

“The compromise between food and poison is still death - Ayn Rand”

Yet we do this every day. We ignore contradictory evidence. We blindly accept skewed data. We take good data and poison it not only with bad data, but we throw away the good and make all the data bad. For example...

Forty two years sounds like a long time. It happens to be the number of years for which the MLM Index™ has data. Of course, for stocks, we have monthly data that goes back to 1926...some of it probably not the best data, some of it potentially skewed by different regulations and such, and clearly there has been a wide range of long term results (based on monthly 30 year rolling periods, we see a mean return ranging from 9.5% to 16.8%).

Exhibit 1 - Range of 30 Year Mean and Geometric Mean Returns - Monthly Data - Large Cap Stocks - Top Two Market Cap Deciles - Source: Center for Research in Security Prices (CRSP)



With stocks, having the luxury of more data to examine, we can “see” that our perspective might be skewed if we only examine a “piece” of this data...even if this “piece” is 42 years.

Exhibit 2 and 3 - 42 Year “Pieces” of Data - Rolling 30 year Mean and Geometric Mean Returns - Monthly Data - Large Cap Stocks - Top Two Market Cap Deciles - Source: CRSP

Exhibit 2 - 42 Years Ending 12/31/1973:

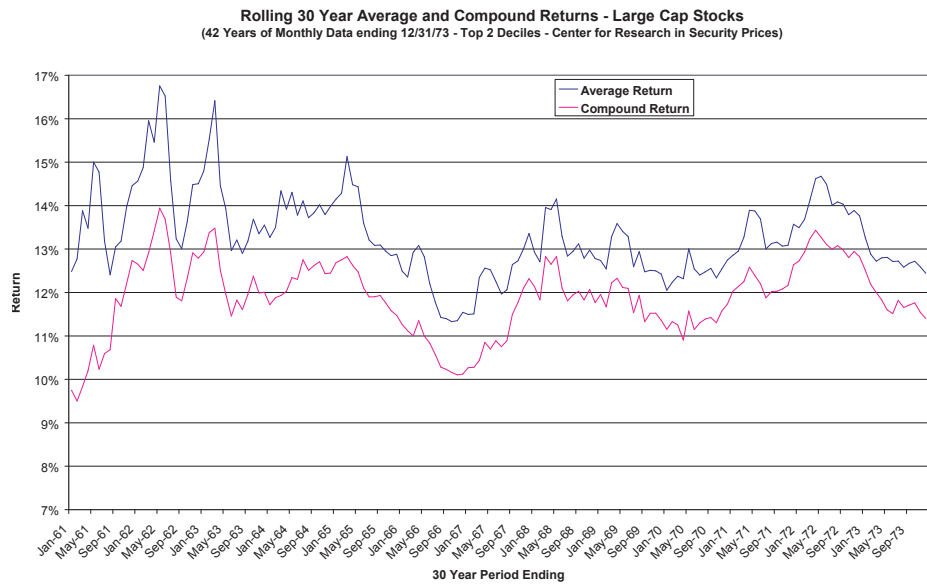
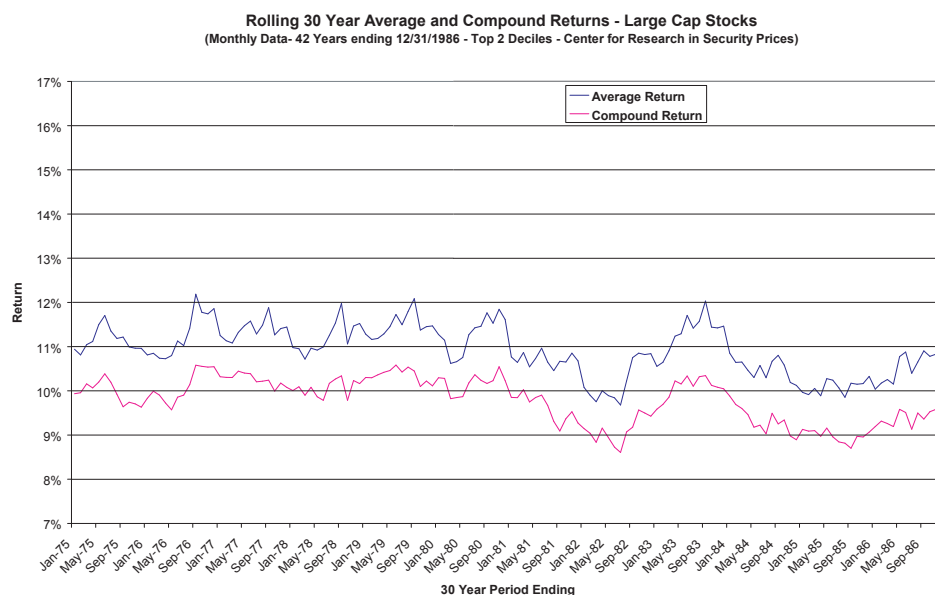


Exhibit 3 - 42 Years Ending 12/31/1986:

With the 42 year period ending in 1973, it would look pretty silly if we assumed anything less than 12-13% for a mean return since it is “obvious” that even over 30 year periods stocks “almost always” average more than 12% and more often than not averaged more than 13% (our mean return should represent the center of the distribution- *Exhibit 2*).

Our perception of the 42 years for stocks ending 12/31/1986, assuming we didn’t have the earlier data to examine as is the case with most alternative investments, would have us thinking that 13% not only isn’t a “norm” but never happened and even 12% is a long shot (*Exhibit 3*).

So, how does this relate to managed futures, hedge funds, or other alternative investments? Clearly, based on the previous exhibits, our perception of what may appear to be a rational input can easily be skewed, whether we are looking at 30 years, 40 years and even 76 years for that matter. The fact is we simply do not have the additional data. That does not mean I should blindly accept what I do have...it means I should be particularly cautious in examining it BEFORE I use it. Perhaps this is why we constrain the allocation to these classes?

Before we take the step of accepting the data and constraining our allocation to compensate for our lack of confidence in the input, might it be worthwhile to examine the data to see if it appears biased in the first place?

Exhibit 4 demonstrates how one might examine the data to determine whether it is a reasonable input for a math engine applying a normal distribution (we suggest log-normal for portfolios with stocks which skews the percentage of observations that should fall into various standard deviation groups.)

Exhibit 4 - Examination of frequency distribution of observations for 42 years as of 12/31/2002

	MLM Index™		S&P500	
	# of Years	Results %	# of Years	Results %
>Mean	16	38.10%	23	54.76%
>+1SD<+2SD	3	7.14%	8	19.05%
>+2SD	1	2.38%	0	0.00%
<-1SD>-2SD	1	2.38%	9	21.43%
<-2SD	0	0.00%	2	4.76%
Within +/-1SD	38	90.48%	25	59.52%
Within +/-2SD	41	97.62%	40	95.24%
Mean	15.37%		11.61%	
Standard Deviation	16.91%		16.97%	
Correlation	-0.336			

Does the managed futures data appear to fit the distribution we are using to model our portfolios (does it appear to be normal or log normal)? Is it rational to assume this investment carries a 376 basis point return advantage to large cap stocks with slightly less risk? Is it rational to assume that 97.62% of the time this investment will produce a return in excess of -1 standard deviation (a return of more than -1.54%)? If your perception is that this is realistic and you are confident in it, then you should not constrain your optimizer and go ahead and let it allocate all of the money to managed futures.

If you think that perhaps the data may be a tad skewed, that perhaps investors are not completely irrational by owning some stocks, what should you do? Do you think that by taking these inputs that you perceive as biased...skewed...irrational...wrong...that you will get a better answer in your allocation? You will get an answer...and based on how the data appears to be biased it most certainly will be "better"...so long as we are willing to accept a definition of "better" that we know is biased, skewed and irrational. Industry regulators...should this be disclosed to clients?

And what of the stock data we are now forced into using by biasing the time period for this skewed data? Does the stock data look a bit biased the in the other direction? Should we really base our mean return for stocks (and our standard deviation) based on a sample that has two -2SD observations and no +2SD events? Wouldn't this bias the standard deviation and mean return downward from its true nature (unless we think stock returns are inversely log-normally distributed like this sample)?

Advisors, somewhat at the mercy of tools that do not expose these problems and actually encourage these irrational inputs, accidentally create such misleading analysis everyday by trusting the data...letting the data use them.

The best example I can give for this is from our paper, "[Are You Modeling What You Intended? - Building Capital Market Assumptions for Monte Carlo Simulation.](#)" This paper examined the impact of haphazard capital market assumption construction. For example, if I used the last 20 years risk and return of large cap stocks as an input into a log-normal Monte Carlo simulation, MORE THAN HALF OF THE RESULTS I GET WILL BE BETTER THAN THE BEST THE MARKET HAS EVER DONE. Regulators...should this be disclosed? It exposed the problems of simply using the random trailing returns most software programs commonly use (do I really want to increase my expectations for the market the higher and higher it gets...I'm not a mean reversionist, but doesn't that strike you as counter-intuitive?)

As for alternative investments, I suspect the generally small allocations made to them are immaterial in most portfolio allocations and have little material impact. Trying to model them is another story. You could simply ignore them since we probably do not have inputs we can have confidence in and the small allocation will make little difference anyway. You could try to create more rational assumptions that will not bias the results. Or, you could let the data use you...knowingly and willingly input biased data (if you perceive it as such) poisoning not only the allocation you must constrain but also potentially all of the inputs. Advisors should know better than this and have the ethical responsibility of either avoiding it, or at least disclosing it.