

Trust Depends on Authentic Communication (Expanded)

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The overwhelming majority of the financial industry, and the business schools that feed it, are focused on predicting the future. If the basic calculation methods they employ to evaluate past results are inexact or even confused, they are not particularly concerned since predictions are at best approximate. Also, those predictions are usually tied more directly to raw pricing data than they are to other more summary-level measures of past investment success that are calculated to get broader views of past results. Thus, the industry generally does not put much if any effort into ensuring the clarity of the methods used in ex post reports for the evaluation of past results.

Nonetheless, it remains a fundamental responsibility of a money manager to explain to clients what is happening to their assets. The trust of their clients in their own asset managers and in the financial industry as a whole depends on the industry's authentic communication of meaningful and consistent measures of past investment performance. However, financial firms have been allowed, by their clients and their regulators, to uniformly provide misleading evaluations of all of the most meaningful measures of financial success. And these firms have not themselves appreciated the value to themselves and to others of ensuring the fundamental correctness of this information about their own past performance. These evaluations based upon incorrect calculations leave money managers misunderstanding both the actual impact of the markets and the actual impact of their own actions within the investment process, both of which could and should be illuminated by proper measurements of past performance. These incorrect calculations leave Chief Investment Officers (CIOs) unable to correctly evaluate the strengths and weaknesses of their investment teams and thus to effectively deploy them. And these incorrect calculations leave misinformed asset owners tripping over inconsistencies and misdirections, and thus losing trust in the reports they receive from their asset managers and losing trust in the integrity of the financial industry as a whole.

Some entities do try to take ex post evaluations seriously.

For example, there is the CFA Institute, which certifies financial analysts and performance measurement professionals, and puts out the Global Investment Performance Standards (GIPS). The SEC can take enforcement actions against a firm claiming GIPS compliance when they in violation of GIPS rules. However, these standards do not require that any descriptive terms be calculated in a specific manner. Rather they suggest the general form of some calculations but then indicate that their suggestions can be ignored and that any reporting entity, like a financial consultant or money manager, can actually calculate performance in any way they want as long as they tell clients when they change methodology. Not that the approaches suggested by the CFA society end up being any less problematic than the ones that individual firms employ. It is just that, in addition to being definitively problematic in the ways, among others, that are discussed below, the unrecognized variation in the methods from firm to firm makes the comparison of results across firms seem more informative than it is.

These reporting entities, when they are confronted with a problem with their reporting methodology, respond and act according to the view that they do not need to fix it since everyone else is making (some version of) the same mistake.

If everyone else is misleading their clients, it must be OK. Why go out on a limb and do something right if it is going to take some effort and then be seen as different from what everyone else is doing?

That is why we have pervasive problems like the following that exist everywhere in the industry today, and which in each case is caused by the deployment of a wrong mathematical model.

Returns

1. Annualization is intended to provide the ability to fairly compare results from periods of different durations, like four years of returns from one fund with five years of returns from another, or of eight months of return from this year with all of last year's return. But since the annualization of returns is uniformly done incorrectly, such comparisons cannot generally be trusted.
 - a. The annualization of a one-year return should not be changed when it is annualized. But this is not ensured by any currently employed universally applicable annualization methodology. For example: a 10.00% return for the 365-day full year from the open of March 1, 2016 to the close of February 28, 2017, is often annualized as $1.1^{(365.25/365)} - 1 = 10.01\%$.
 - b. The annualized arithmetic difference of returns is the proper measure by which firms claim they report the average yearly amount by which a fund has outperformed its benchmark. However, firms at best make the error of reversing the order of operations and provide instead the arithmetic difference of annualized returns. For example: If two years of fund returns are 70% and 10%, and two years of benchmark returns are 20% and -40%, then the arithmetic difference of returns is 50% each year, and thus so must be its annualization. (The annualization of 50% and 50% must equal 50%). But, instead, the reported arithmetic difference between their annualized returns is 51.90%. This error, of reversing the order of operations, not only leads to results that contradict our understanding of how averages such as annualizations are supposed to work, but it also leads to the unreliable ranking of fund outcomes. For example, consider another fund that achieved 46.00% and 46.00% against its two-year benchmark of -5% and -5%, giving it an active return of 51.00% each year and both an annualized return difference and a difference of annualized return of 51.00%. The second fund, by achieving a 51.00% return each year, had a better true annualized return than the first (51.00% > 50.00%), but it had a worse difference of annualized returns (51.00% < 51.90%). The correct method shows that the second fund did better, but the incorrect method declares that the first fund did better.
Now these may seem like negligible errors. But if someone stands up and tells you that two plus two equals 3.998 instead of four, are you going to think less of their analytic abilities? I think that cogency matters, so I think the answer is yes

you should and that you almost surely will. Furthermore, just because some error is usually small, does not mean that there cannot be some other cases where it is large enough to destroy a reputation, if not more.

2. Trades and Shorts

- a. In order to be anywhere close to accurate, daily returns must take into account the trades made by a fund. Trade-inclusive returns are universally calculated by the industry in ways that allow some results to require the division of the gain by zero or by a negative value even for a long portfolio, making trade-inclusive return results nonsense. For instance, Dietz methods calculate the return of a component of a fund for a single day using the calculation $\text{Return} = \text{Gain}/\text{Basis}$, where the Basis is the opening market value plus some parameter times the purchases and trades. But no matter what the parameters picked, to get the weights to sum to one as they need to, the Basis of either a traded holding or the bucket to which its proceeds go or come from must, for all Dietz methods, have the possibility of becoming zero or negative. But that causes the return to either be infinite or the opposite value of the gain even when everything is held long. When such situations arise, the incorrectly calculated trade-inclusive return of the component can be hidden, and its corresponding weight can be commensurably warped so that the roll-up to the fund-level works. But there is often justifiable interest in and subsequent use of the returns of components, so they also need to be correct. The universally employed calculations for the daily returns of components of funds do not prevent them from being patently incorrect. And then all analysis based upon them becomes misleading and/or suspect.

- b. In a related manner, returns for shorts are misleadingly calculated in such a way that losing a dollar on a short position creates a positive return just like gaining a dollar on a long position. When returns are compounded across time, losses on longs (100 becomes 99) with negative returns ($R1 = [V_f - V_o]/V_o = [99 - 100]/100 = -1\%$) can be canceled out by losses on shorts (-99 becomes -101) with positive returns ($R2 = [V_f - V_o]/V_o = [-101 - (-99)]/(-99) = +2\%$) to create multi-period positive returns. This allows a consistently losing (sub)portfolio to report a positive return:

Time-weighted Return = $(1+R1)*(1+R2) - 1 = (99/100)*(-101/-99) - 1 = +1\%$.

Internal Rate of Return = NA.

GIPS requires either time-weighted returns or internal rates of return. So, using the common approaches to them in cases similar to the above, will ensure that reports satisfying GIPS requirements will provide misleading information.

3. Accruing

Accruing is needed to price out-flows during multi-day periods over which an effect on a later day applies. For example, a bond that pays quarterly might be sold in the middle of the quarter, far from the day upon which the dividend is paid. Accruing intends to

enable the determination of a fair trade price by creating alternate daily market values to what is booked. Similarly, when a fee is assessed at the end of each quarter, the fee that is to be assessed for a withdrawal during the quarter will have an impact on the net return of the entity withdrawing funds and of the net return of the fund from which they are withdrawn. But the process of determining the net return with accrual for the year of the portfolio that held the bond or assessed the fee has more freedoms with untoward implications than are supposed.

If a dividend or a fee is accrued, firms must choose between whether they will preserve the total “net” return for the period or the closing market value of the period. It is not in general possible to have the net return and closing market value of the fund with accruals match the net return and closing market value of the fund without accruals. For example, when a \$3 end-of-period fee reduces the unaccrued \$110 closing value to \$107, producing an unaccrued 7% net return, either the accrued closing market value will differ from \$107 or the accrued net return will differ from 7%. Blind to the span of possibilities and their difficulties, firms often falsely think that they are using the optimum method that everyone else is. But different firms accrue in all sorts of misleading ways. Many such calculations either make nonsense of gross returns, or net returns and/or unacceptably misreport the closing market value of the fund. So, reported returns of accrued histories are neither optimally informative nor comparable across firms.

Attribution

4. Ex Post Attribution

At its best, Ex Post Attribution explains how much each of the causes that brought about the results of a fund’s past experience impacted each and every relevant measure of the investment results obtained for that period.

- a. There is an important difference between explaining a fund’s investment results in terms of uncontrollable market effects and explaining these results in terms of controllable investment decisions. An explanation can either be an explanation in terms of the market impacts on the portfolio in the context of what investment decisions were implemented during a period, or it could be an explanation in terms of the controllable financial decisions that actually created a fund’s history over a period in the context of the market history for the period. However, while knowing about what the generally uncontrollable market has done can be interesting, we cannot make the market repeat or not its past process. But knowledge about the effect of the decisions we controlled can allow us to strategically adjust the decisions we will make in the future. For example, if a fund took \$100 from cash and bought a share of a stock and the price of the stock when up 1% making the fund \$1, one could explain the \$1 of earnings by saying that the price of the owned stock went up, but more helpfully one can explain the \$1 earnings by saying that a purchase was made of a holdings whose

price when up. Then we can decide whether we want to make similar decisions in the future.

When asked how their decisions created a result, portfolio managers often answer with how market forces or other factors that were not decisions they controlled created those results? They say they lost money because the uncontrollable market took the price of one of their holdings down, instead of saying that one of their controllable decisions lead them to hold more of the underperformer than their benchmark. This way portfolio managers avoid responsibility by having their analysis assign effects to the market rather than to the decisions they themselves controlled. But they also set aside any insights they might garner as to how their investment process works or not.

Thus, the following three points will focus on the attribution of results to controllable investment decisions as opposed to the attribution of results to the uncontrollable effects of the market.

- b. Order again matters when addressing the level of an investment decision.

The impact of the decision as to how to distribute a fund's money among the industries within a sector is not the same as the impact of the decision as to how to distribute the fund's money among the industries within the fund as a whole or within countries. The common confusion between these misleads us about the success of the individual investment decisions that were actually made. So, if an investment process is allocate among sectors with the fund and then allocate among industries within sectors, the combination of allocating within sectors within the fund and allocating within industries within the fund will not explain the results obtained by the fund.

- c. Decisions evaluated for multiple time periods create unnecessary havoc in financial reports.

The impact of a decision made on one day upon that individual day's active return is not the same as the impact of that decision made on that day upon the active return of the year. It is the accumulation, over all days in the year, of the later that is desired but not provided. For example, we want the impact upon annual performance, not upon each day's performance, of the total over all days by each day's industry allocation decision within the tech sector. It is a mistake to think that starting with a measure of the impact on a measure of today's result is going to seamlessly lead to a clear explanation of a measure of the temporally compounded effect for a year. Reporting entities take the error resulting from confusing these concepts and spread it among all their attribution effects. This warps the impacts on daily effects they (mistakenly) began with. Adding up such warped results does not create a coherent explanation of anything. And justifying reporting them because they sum to the right final measure is like saying that depicting me with two dogs and you with three is informative enough of a situation where I have one dog and you have four because the total number of dogs in both stories is five. Rather the correct story

is not just the one with the right end point, but the one that is also true to the way that we got there.

- d. Reporting the impact of controllable decisions only on returns is in contradiction to the central insight of Modern Portfolio Theory, that understandings of returns without commensurate understandings of the risk taken to obtain those returns is dangerously misleading. Contrary to universal practice, reports on the ex post attribution of return should either also include the ex post attribution of at least one appropriate risk measure and/or provide the ex post attribution of a risk-adjusted return, so that it can be known whether the investment decisions that contributed positively to an active return were truly successful in terms both of returns and the risk take to achieve them.

Authentic financial communication requires proper descriptions of the experience of assets. For money managers and CIOs to be effective and for their reports to be trusted and to correctly inform us, clients and regulators must learn to insist that firms do what is necessary to ensure that all reported financial results correctly communicate their intended meaning. Even cases of “small” discrepancies often imply real problems and invite mistrust. As examples of misinformation are repeatedly uncovered and not corrected or even addressed, trust in the whole financial industry will continue to be squandered. Happily, there exist methodologies that consistently and precisely avoid all of the misdirected evaluations described above, but firms need to be incentivized to acknowledge the need for them.

The result of all these confused, mistaken and/or insufficient, though correctable, calculations is that it unnecessarily misleads their client-users, whether they are portfolio managers trying to glean insights from information about the past to guide them in their future investment process or their own managers trying to decide how to employ them, or the ultimate asset owners trying to evaluate the success of various aspects of the investment process they are staking their fortunes upon.

When particular problems like those discussed above are pointed out to the report generators, they often simply fudge the particular report to make any blatant mistakes invisible. And when pressed on the persistence of problems they retort that that is how everybody does it, so we just have to live with the fact that we are going to be misled.

Therefore, reports end up continuing to be produced by processes that systematically misinform people. After a while the clients realize that they are being consistently misinformed, causing them to lose confidence in the reporting entity. When this misleading process, where the reported results are unreliable, is discovered to be pervasive in the industry, the trust that their clients and the general public have in the financial industry as a whole decreases.

Asset owners should be less dismissive of reporting problems and less accepting of ridiculous results. Instead they should demand reports that actually and demonstratively informatively evaluate the process by which their money is run and its ultimate results. And firms should take more seriously their fiducial duty to properly inform, instead of knowingly mislead, their clients.