PLAYING A GAME TO LEARN WHAT WORKS

By Jon Grabel

MARCH 8, 2017

It is important to play games. We view gameplay as imperative for children because it helps with cognitive and physical development. Competitions teach children patience, social skills, negotiation, strategy, confidence and how to win and lose. Games are also important for adults. As we age, these activities help relieve stress, maintain brain function, stimulate creativity and help us feel young and energetic. In addition, games enhance our professional development. For example, the military conducts war games to teach our soldiers the complexity of their craft and prevent catastrophic outcomes. Airlines make a significant investment in flight simulators so the 87,000 flights that cross our skies each day take us safely to our destinations. Lawyers hone their skills in mock trials to better advocate for their clients. Professional athletes go through preseason games so they can deliver more victories to their fans. Throughout our lives and across settings, games benefit us in multiple dimensions.

In this spirit, the $14.5 billion Public Employees Retirement Association of New Mexico (PERA) investment division has an internal investment competition. Each member of the team constructs a hypothetical portfolio based on agreed-upon criteria. The portfolios run throughout the calendar year, with weekly checkpoints. This annual exercise began in January 2015 as a way to facilitate an *esprit de corps* and instil incremental investment acumen and discipline. It is a highly productive exercise, as it creates an environment in which all members of the team can challenge one another's hypotheses. Moreover, this atmosphere facilitates constructive feedback in which people formulate ideas and defend their positions. Improving investment knowledge, skill and discipline across the team benefits PERA's 100,000 members, as we continually strive to improve the processes through which we administer the pension trust fund. As we near the end of this year's competition, several themes and behaviours have emerged that are similar to those we see in the institutional investment marketplace. Thus, our friendly simulation has become a microcosm of the asset management space. This virtual reality helps flag behavioural biases across PERA's roster of money managers and allows us to minimise the impact of potential adverse influences.

The rules

Each participant begins the investment period with a fictional $10,000 portfolio. A virtual exchange prices securities and processes trades. Accounts must contain at least three distinct asset categories, hold 10 positions of 5 per cent, have no single holding greater than 20 per cent and have one-third of assets invested internationally. Eligible investments include indices over stocks, bonds, real estate, real assets and commodities. Team members can invest in publicly traded securities and exchange-traded funds (ETFs). Players must choose their own portfolios and cannot adopt actively managed mutual funds. In addition, portfolio rebalancing is required each month. To create a dynamic competition, the portfolios must change by at least 10 per cent as part of this monthly rebalancing exercise. Moreover, the competition does not allow borrowing funds against assets. The group serves as its own watchdog and monitors compliance.

Performance

Observing how fluctuations in the markets affect each player's portfolio teaches a great lesson about investing. The year 2016 had a horrific start. The broad MSCI All Country World Index was down more than 10 per cent through the first six weeks of the year. Markets also exhibited dramatic drawdowns across most asset categories in June, with British voters' unanticipated decision to leave the European Union. In addition, there was volatility on either side of the US presidential election. Due in part to these and other market gyrations during 2016, the investment challenge highlighted the benefits of broad asset category diversification.

Recalling the guidelines, portfolios could have no position greater than 20 per cent (including cash) and had to maintain diversification across asset categories and geographies. As a result of these guidelines, the virtual portfolios weathered the difficult environment. The philosophy behind the guidelines is consistent with that of the real-world PERA fund. PERA diversifies its investments across asset categories and geographies. The fund does not try to time markets; asset category diversification provides risk mitigation across cycles.

The rebalancing the game requires is another critical element to success in uncertain markets. It is the process of realigning the weightings of a portfolio of assets. This involves periodically buying or selling assets in a portfolio to maintain a desired asset allocation and risk tolerance. Specifically, an investor would sell above-weight investment strategies in order to buy those that are below the target amount. This is another key investment tenet of the PERA fund. As the virtual portfolios generated gains following market downturns, so too does the PERA fund benefit from rebalancing over the course of a full cycle.

Investment operations emerged as another key element in the competition. For example, the virtual exchange we used to manage our friendly competition failed to account for stock splits. It also did not properly return cash for an ETF that was delisted. These operational flaws affected the reported values of several portfolios in the simulation. As our team is quick to note, investment operations should be front and centre. It is naïve to refer to these important functions as back-office; they are critical to the proper function of a complex institutional investment program. Good investment performance is dependent upon the right operational infrastructure.

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Observations and lessons

Many patterns emerged from the 2016 investment competition. These items stimulated much debate among the group. Here are some of the issues we discussed, our observations on them, and lessons they taught us.

Active v passive strategies

Observation: The principal difference in the portfolio models employed by the group was the use of active versus passive investment strategies. Active strategies try to beat a market benchmark through skilful security selection. Passive or indexed strategies embrace a benchmark predicated upon the belief that markets are efficient over time, especially when adjusted for risk and fees. Many people invested in a collection of passive indices. Others created concentrated portfolios of individual securities. The latter group embraced volatility and the former shied from it. There were nuances across implementations. Some of the participants were active within their asset category specialty and passive across other strategies. Others took the opposite approach and embraced risk in the areas outside their subject matter expertise.

Lesson: We believe asset allocation is the principal driver of the variance in performance for diversified portfolios. While picking an individual security may be more exciting, it is not the winning solution over an extended period for a public pension plan. Absent proprietary research, broad exposure to multiple asset categories is a better long-term investment approach for an institution such as PERA. Our mandate is to distribute benefit payments today and into the future. Accordingly, spreading capital across various asset category indices or betas provides better downside protection. The decision to invest in an index versus picking individual securities provides valuable insight into the actual marketplace. For efficient asset categories, such as large-capitalisation US public equities, active managers have trouble beating the comparable passive strategy. Moreover, those managers who beat the index in a given period often trail it in subsequent ones. Yet, active managers have an allure that is akin to a good story. From a marketing perspective, these story-based strategies attract much attention because they are fun and appeal to the adventurer in all of us. We all want to win and active strategies give us a chance to beat the odds. At the same time, many of these stories belittle passive strategies as boring and pedestrian. The manager's challenge is to rise above the noise by optimising the expected return per measure of expected risk. Adventures are fun, but for the most efficient asset categories over extended periods, indexing may be the optimal strategy.

Crowding

Observation: Another behavioural theme relates to crowding. Each portfolio in the competition is transparent and visible to every participant. Crowding exists when many people invest in similar securities and strategies. With similar trades come like outcomes. Like outcomes yield blurry information and a lack of differentiation. Said differently, there is safety in numbers.

Lesson: As we see with commonplace trades in the money-management space, crowding benefits money managers through consistent peer performance. As a positive, this may allow someone to win by not losing. Alternatively, this is akin to benchmark hugging (when an active manager closely mimics its underlying index) or survival through conformity. One motivation for such risk-averse professional portfolios is asset and fee maximisation. Specifically, managers that move with the herd may have a better survival rate. Clients may not fire them based on undifferentiated peer comparisons.

From the perspective of the PERA portfolio, our most significant form of risk management is diversification. In addition to diversifying our investment strategies, we also employ multiple money managers to avoid organisational risk within a single investment firm. Our money managers' peer rankings are not particularly relevant. We do not benefit from overlap or crowding within like mandates. Crowding helps only our money managers. It shifts the focus from what is an optimal investment structure to what is safe in the context of peers and universe rankings. Where we employ active money management, we expect our managers to express an educated point of view and develop the best collection of securities in a category. We encourage our managers to think and execute, as opposed to just surviving against their peers. We want our managers to be hungry and motivated to generate appropriate risk-adjusted returns for PERA. We are vigilant towards this end. We structure tight investment guidelines with each money manager. Investment guidelines are a list of do's and don'ts for them. We also hold the vast majority of our investment securities at PERA's custody bank. This account structure gives us greater visibility throughout the whole PERA fund and helps us avoid unintentional positional biases such as crowded trades.

Quartile rankings

Observation: In contrast to the crowded portfolios, some within the investment challenge went their own way and tended to perform at either the high or the low end of the spectrum. People in this group changed in the standings throughout the year and readily moved from top 25 per cent to bottom 25 per cent and vice versa. It is noteworthy that some within the go-it-alone cohort tended to reduce risk and join the benchmark huggers after periods of success.

Lesson: Once again, this is a common observation in money management. Managers often gain attention subsequent to a period of outperformance. Asset owners and their advisers flock to investment managers based on historical performance. However, mediocre performance often follows success, as a manager may have incentives to play it safe. We see this in sport when a team with a large lead starts playing less aggressively and taking fewer risks. In investing, like sport, there may be a victory despite a change from successful tactics. Specifically, the money manager may gain additional investors. With additional clients come additional wealth and fame. Losing this source of income would not be a rational action by a money manager. Unfortunately for incremental investors, the desired outcome may be disappointing, as the previous success often yields mean reversion. S&P Global publishes data on this in its persistence scorecard. This report details the lack of consistent placement in the top quartile by money managers. In many cases, the passive strategy produces the most reliable performance.

Distribution

Observation: The dispersion of portfolio returns over the course of the year is somewhat related to the preceding theme, yet this observation is different. Typically, the majority of balances resided in a tight band throughout the year. The median portfolio (the middle one) moved up and down based on overall market conditions and at of the year it generated a positive return. The concentrated nature of the set of portfolios is representative of a distribution curve taught in an introductory statistics class. The shape, however, was not normally distributed. There was a significant difference between the median and the mean (average). In our case, more people performed above the average. The underperformance was greater than the outperformance, indicating the risk-taking incentives for those in the bottom quartile.

Lesson: Our virtual world is instructive as an analogue for the real one. The existence of a distribution curve is also highly relevant for institutional investors. Too many mangers and institutions refer to their portfolios as being in the top quartile. Mathematically, not everyone can even be above the median, let alone in the top quartile. There is excessive marketing accompanying peer standings. Institutional investment mandates are too important to award participation trophies to all managers. Balancing qualitative and quantitative factors in an unemotional manner enables investors to better position a portfolio.

Risk-taking incentives

Observation – As illustrated above and much like the ending scene in *Thelma & Louise*, team members with diminishing chances of winning the competition took uncompensated risks as we neared the end of the year. Whether it was panic or a refusal to accept defeat, this group dramatically increased risk. By investing in higher beta strategies such as IPOs, companies in crisis and countries with geopolitical turmoil, these participants hoped for a big pay-off. These last-chance strategies had mixed success, but were arguably rational decisions from the point of view of game theory.

Lesson – In a simulation, it is easy to adopt the mantra "go big or go home". The PERA investment team realises that we cannot take this type of cavalier approach to managing a portfolio as important as the PERA fund. The lessons from the investment competition are vital to remaining humble, focused and disciplined. As for the takeaway, it is imperative to understand manager or strategy underperformance and evaluate it in the context of a larger portfolio. Underperformance can be a result of an out-of-favour strategy detracting from returns, such as energy in 2015. Alternatively, poor performance can be an indicator of excessive risk within a strategy. Judgement based on experience and collaboration is necessary to recognise that out-of-favour strategies may be attractive in the future. This is the premise behind rebalancing programs that foster a buy-low/sell-high philosophy. In contrast, it is prudent to avoid managers that incur excessive risk, like Thelma and Louise, in trying to elude a bad outcome. Hope is not an investment strategy and may lead to unintended consequences. At PERA, our systems and processes help determine the positive and negative contributors to performance. We recognise that positive returns require the same level of review as negative ones. Specifically, a true performance evaluation requires a comprehensive analysis that evaluates both risks and returns. This multi-dimensional framework helps us flag and eliminate excessive risk-taking motivations among our managers.

Conclusion

We are nearing the end of our second annual investment competition. With a minimal commitment of time, the exercise yields impressive results. The challenge helps us better interact as a group. We find common ground around our core function as stewards for PERA members. Investments should occupy the majority of our discourse and the challenge enhances that commonality of purpose. It also creates a healthy desire and discipline to be the best at what we do by enabling us to identify behavioural biases that exist in the broader investment world. The resulting awareness improves our overall skill and judgement as a team. We look forward to continuing this competition in 2017 and beyond.

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Tags: game playing, internal investment team, investment competition, Jon Grabel, Public Employees Retirement Association of New Mexico, team work