DCA Institutional Consulting Services Q&A

What is an institutional investor biggest advantage?

One of the biggest advantages that a pension fund, endowment, foundation, or a family office has is their ability to be patient long-term investors. Their patience allows them to opportunistically increase or decrease risk or allocate capital to newly emerging opportunities while staying invested long enough for their investment thesis to materialize. Unfortunately we find most institutional investors don't exploit their natural advantage and instead stay too close to their policy portfolio.

What's wrong with mainstream asset-allocation frameworks?

Theoretically, asset allocation decisions should be driven by both investors' risk/return profiles and market conditions. In reality, asset allocation decisions are almost exclusively driven by the risk and return profiles of investors with scant consideration for prevailing market conditions such as the current market-cycle, asset valuation levels or various market risk measures.

The current mainstream asset-allocation framework is mostly built upon various forms of Modern Portfolio Theory (MPT) with improved methodologies and some variations of implementation by industry practitioners. In MPT long-term asset risk and return expectations are essential inputs which are typically derived without regard to the current market cycle or current valuations. As a result, age (time-horizon) and wealth become key metrics to determine the policy portfolio.

For most institutional investors the 'need' to satisfy certain liabilities become the key consideration in the development of their policy portfolio(s). At DCA our active asset-allocation framework integrates market-conditions to inform portfolio tilts which allow investors to maintain allocations that are generally in line with their policy portfolio weights while minimizing the magnitude and frequency of undesirable outcomes.

How do you define active asset-allocation?

We believe that active portfolio management is comprised of two parts:

1. Active asset allocation
2. The use of active managers for each asset-class and sub-asset-class

The goal of hiring active managers is for them to outperform their respective asset class benchmarks, while the objective of asset allocation is to capitalize on investment opportunities/trends and to mitigate severe market risk. In reality, most institutions are active in the implementation of their asset class exposures by hiring active managers while taking a passive approach to their asset-class weights by staying closely to their policy portfolio.

What are your investment objectives?

We have two primary investment objectives as consultant to our clients:

1. To capitalize on value opportunities, emerging trends, and market dislocations in a risk-controlled manner
2. To provide cost-effective hedging strategies against major market risks and market drawdowns

What is "pre-emptive risk management"?

Knowing our client's investment risks is the first step to effective risk management. DCA believes that risk assessment cannot be done in a vacuum but rather must be assessed in the context of current market conditions. In working with a new client, we will develop a 360-degree view of their current risk exposures either using their existing risk reporting system or via the risk management system that we set up for them. As necessary we will augment their existing risk management tools with additional analytical systems and approaches to ensure we have a comprehensive risk profile.

With our 360-degree risk view we will then work with our client to discern between intended risks vs. unintended risks and then design a customized risk-management and hedging strategy to refine the overall risk profile and ensure the portfolio is suitable and accurately reflects their market views.

What are the key components of your active asset-allocation framework?

Our active allocation framework is composed of three core strategies:

1. Active Allocation
   The purpose of active allocation is to:
   a. Pro-actively manage portfolio risk including both benchmark risk and absolute risk
   b. Add alpha via underweight/overweight decisions across major asset-classes and sub-asset-classes including: equity vs. rates; inflationary assets vs. disinflationary assets; US vs. non-US; developed markets vs. emerging markets; growth vs. value etc.

Active allocation decisions can be strategic with time-horizons exceeding one year or tactical with time horizons less than one year. Contrary to a passive allocation process which follows an automatic portfolio rebalancing method (for example by calendar or by deviation magnitude from policy weights), the active allocation process is driven by economic and market factors.

2. Effective Hedging and *Tail-Alpha*
   Portfolio hedging strategies are implemented using option-based strategies across all asset-classes. In order to implement effective hedging programs we believe:
   a. Hedging strategies <u>must</u> make economic sense by themselves as independent trades as determined by both fundamental and quantitative factors
   b. Hedging strategies <u>must</u> be driven by market opportunities with highly skewed risk/reward return profiles rather than the “need” to hedge.
   c. The implementation of a hedge <u>must</u> be done on a highly-selective basis when conditions merit both the cost of the hedge and are justified by the expected risk/return benefit.
   d. Indirect hedging strategies should be used when they offer attractive risk/reward opportunities- especially during risk-off scenarios. *(For example: Credit Default Swaps were the most attractive hedge during the 2007 – 2008 market downturn as opposed to buying put options on equity indices.)*
   e. Tail risk-management strategies can be implemented when the hedging instrument is priced as a tail-event while the probability of a risk-occurrence is asymmetrically higher due to fundamental drivers. We call our approach to tail risk-management in which we require a positive expected return *Tail-Alpha*.

3. Dislocation Exploitation
   We believe one of the primary requirements to exploiting a market dislocation event is to avoid getting hurt during the dislocation event in the first place. One of our investment framework is designed with the goal of being able to provide capital to acquire attractively priced assets when markets are experiencing liquidity pressures. To achieve this goal we must monitor global capital market risks and imbalances with vigilance, and refrain from making active macro bets in the absence of highly skewed risk/reward profiles. We must not try to generate excess returns by chasing trendy, crowded and overvalued market thesis.
   Past market dislocation events include:
   a. The energy sector in the spring of 2016 – We expect this opportunity to re-emerge in the next 1-3 years especially if there is a major capital market drawdown
   b. Long-duration investment grade bonds in 2008 when they were priced for a Great Depression scenario
   c. Inflation linked bonds in 2008 when they were priced to reflect a zero inflation expectation for the following ten years.

Why do you believe in active-asset-allocation?

First: We believe in the semi-efficient nature of capital markets and consequently the value of active management. Most institutions hire active managers with mixed results. We believe the combination of active managers and active-asset-allocation can deliver better short and long-term results.

Second: Academic research and empirical results have shown that asset allocation drives the majority of portfolio risk and return rather than manager selection. If one foregoes active-asset-allocation, then one would not be using the most important tool that an investment team can employ to deliver better risk-adjusted returns.

Third: While strict adherence to a strategic asset allocation approach may reduce policy benchmark deviation risk, it does not release the investment team from their ultimate fiduciary responsibility in the event the portfolio suffers a catastrophic loss. The question of whether it is appropriate to allocate most of a portfolio's risk to equity and equity-like risks may not be raised in a bull market but would almost certainly be raised during a bear-market. Given that most strategic asset allocation portfolios weights have been derived using capital market assumptions skewed by a thirty-year bull market in rates, the future is unlikely to look like the past. What if the disinflation trend that began in the 1980's reverses itself over the next ten or twenty years?

Fourth: While one might think that strategic asset-allocation is for the long-term (ten years or more) the empirical evidence shows that strategic asset-allocation changes more frequently than expected – often in reaction to dramatic portfolio losses during a market downturn or an extended period of under-performance relative to peers due to the failures of chasing 'winning' asset-classes.

As an example, due to the outperformance of hedge funds during the Great Recession and during the Tech-Bubble, institutional investors modified their capital market assumptions about the risk and return benefits of hedge-funds, leading to an increased allocation within their strategic asset allocation framework. However, in retrospect it is clear that they should have been increasing their beta exposure during these post-crisis periods.

Currently, beta strategies have been outperforming alpha strategies for an extended period. Today many institutions are now considering reducing or eliminating their hedge fund exposures while increasing their exposure to public and private equity. Given the high current valuations across equity asset-classes and given the probability that we are closer to the end of this current bull market expansion, this strategic allocation change is likely ill-timed.

Why shouldn’t we delegate active asset allocation decisions to the underlying managers?

Active asset allocation is a process managed at the overall portfolio level and cannot be delegated to the underlying active managers: 1. most active managers are given a specific mandate within particular asset classes or subclasses. As a result, their performance is mostly determined by the beta exposure to the asset classes. 2. Even though some managers (like macro hedge funds) have more flexibility and a wider mandate, they are not likely to have a material impact on the overall portfolio given the limited size of the allocation. For example, many of the institutions that were “lucky” enough to invest in hedge funds that successfully bet against subprime during the Great Recession still suffered significant losses at the portfolio level.

Why do most institutional managers focus on manager selection instead of active-asset-allocation?

Given the arguments above, one has to wonder why most institutional investors focus on manager selection rather than asset allocation? A combination of the following reasons may explain:

A. Skewed incentives: the rewards of “right” decisions pale in comparison to the penalty of the “wrong” decision, leading to mostly inaction.

B. The mismatch of time horizons: Some active asset allocation decisions may need a long time to pay off, yet the investment management team’s performance is measured quarterly and annually. In addition, the compelling situation for active asset allocation or risk hedging don’t occur often, yet allocators may not be patient enough to wait until such situations emerge. As a result, organizations engaging in active asset allocation may not have had good outcomes.

C. It is not an easy task. It requires the right organizational setup and compatible team members.

D. Institutional constraints on what can be done and what cannot be done. For example, an ISDA is required for the usage of derivatives and OTC products.

E. It is easier for certain allocators to point fingers at managers than blame themselves for underperformance.

A lack of active asset allocation and risk hedging may result in the mediocre performance of most institutions as their performances are effectively driven by pre-set strategic asset allocation regardless of market conditions with little influence from the investment management team. The cliché of “being a long-term investor” has often become an excuse for inaction and portfolio losses. This explains why most investment organizations’ investment performance are at the mercy of the capital markets and few will avoid the next downturn. Few institutions take actions to de-risk around the peak of the market cycle and few take actions to re-risks around the bottom of the market cycle. The fear of under- performance drives herd mentality and ultimately the boom-and-bust cycle.

Some investors do engage in active-asset-allocation portfolio strategies, but fail to deliver desirable outcomes. What are some of the key reasons for their failure?

Most institutions chose not to make active portfolio decisions, but those choosing to do so often make frequent allocation decisions. We believe that frequent allocation decisions to beat the capital markets rarely work in the absence of highly skewed risks/reward asymmetry, which don't occur frequently as capital markets are largely efficient. As a result, many investors have mixed or disappointing outcomes by constantly adjusting asset allocations in order to "beat the market".

Even more damagingly, due to institutional pressures, some investors become forced to chase the winning asset classes or sub-asset classes at a time when valuations are stretched.

Finally some institutions lack a systematic approach, as a result, the success of active decision is hit-or-miss, depending more on luck.

Contrary to the "active" name would imply, our default option is to manage the asset allocation according to a policy portfolio, in the absence of highly skewed risk/reward asymmetry. We wait patiently for investment opportunities and hedging situations to emerge, while actively monitoring the capital markets and portfolio risks by incorporating both fundamental and quantitative analysis in a systematic manner.

Why do most hedging strategies fail?

We believe that it generally does not pay off to frequently hedge portfolios or to invest in tail hedging funds. We are acutely aware of the reasons why there are few successful hedging programs implemented by institutional investors. This is due to the fact that in most cases, portfolio hedging costs well exceed the rewards they deliver, detracting from portfolio performance in the long run. In addition, many institutions' hedging programs are driven by the "need" to protect the portfolio rather than by the economic merits of the hedging strategies themselves. Even worse, many hedging programs are implemented after portfolios have already incurred significant losses, as described by the cliché "buying insurance after the hurricane hits".

Investing in tail hedge funds is not likely to work either. There is a structural reason for that. First, tail hedge fund managers are forced to deploy tail hedging strategies even when the risk/reward don't justify such actions, because their business model is to constantly provide downside protection. Second, the incentives of tail hedge funds managers are not aligned with investors, since the tail hedge funds have to be concerned about the business sustainability i.e. protection of AUM. Thirdly, even for investors who have perfect timing investing in tail hedge funds, the lead time to invest in a fund and to redeem capital could lead to disappointing results. Finally, the typical size allocated to tail hedge funds is typically too small to matter. Consequently, most institutions experienced long-lasting cumulative losses in tail hedging funds in normal periods, without material benefits even when risks events materialize.

We believe that hedging strategies have to be implemented occasionally and opportunistically, with a direct overlay of the entire portfolio. Each hedging strategy has to make economic sense by itself as independent trade, supported by both fundamental and quantitative factors, and demonstrates significant skewed risk/reward profiles.

Why do most investors fail to capitalize on market dislocations?

In theory, institutional investors should be best equipped to capitalize on market dislocations given the patient capital base. There are many reasons why most fail to capitalize on them:

1. Lack of dry powder or already been hurt badly by the market dislocation. By definition, market dislocations incur losses to a large percentage of investors. As a result, they are unable to capitalize on the dislocations.
2. Market dislocation in localized regions and asset classes can escalate into broad market dislocations. Failure to understand this leads investors to inappropriately allocate large percentages of capital to the market dislocation which can be potentially closely correlated to existing portfolio's risk exposures.
3. Lack of proper risk management. Typically the mistake is too early of an entry into market dislocations with excessive position size. The notorious example is MF Global's bet on European Sovereign Bonds during European credit crisis

We believe that the most critical step is to avoid being hurt by potential market dislocations. This requires us to monitor global capital market risks and imbalances with vigilance, and do not try to generate excess return by chasing trendy, crowded and over-valued market thesis either directly or indirectly via managers.

Since market dislocations happen very infrequently, we don't expect to actively search for market dislocation opportunities, but rather be ready to deploy capital in a risk-managed manner when market dislocation signals surface.

What can we do to make active-asset-allocation work for us?

- Design and implement a systematic and repeatable process.

Active asset allocation decisions cannot be random, and cannot rely on the insights and views of one person. Rather, it has to be a systematic process and should be repeatable. Our framework is currently comprised of three components: market cycles, valuations and quantitative indicators. This framework is not static and is constantly being improved.

- Our philosophy of active asset allocation

The key to the success of our active asset allocation is risk/reward asymmetry. No one can predict and capture market movements correctly all the time. Allocators should wait to take action until situations of extreme risk-reward emerge. It is critical to recognize that our successes don't depend on our views, but rather on the assessment of the probability of being right, the magnitude of the reward and the downsides of certain strategies. In reality, the situations of very skewed risk/reward asymmetry don't happen frequently. As a result, one has to be patient to wait for highly attractive investment opportunities to emerge. The same is true for portfolio hedging. Simply buying direct protection on certain asset class indices will likely be very costly and may not work depending on the timing and market condition, as a result, indirect hedges may work better. For example, buying CDS on subprime ahead of 2008's financial crisis was not only an opportunity of extreme risk/reward (recognizing this may be an extreme situation, but there are many others), but also the best hedge for the credit crisis.

Being patient is only one side of the coin. One has to be decisive. When compelling situations present themselves, one should be able to quickly process the risk/reward and be ready to design a plan and execute it. To be decisive, one needs to constantly monitor the capital markets to be cognizant of potential market dislocations or macro imbalances.

The implications of the philosophy described above are the following: 1). Active asset allocation is not about "right views" nor about market timing, but rather an assessment of the probability and the risk/reward of the investment decisions. 2). Active asset allocation should avoid constant tactical adjustments of portfolio. Taking no active decision can be the intentional decision. 3). Hedging portfolio risks requires the hedging costs to be cheap relative to the downside risks, as a result, sometimes it may be better to use indirect hedges (like currency, credit or interest rates) to capitalize on world macro imbalances. 4). To be successful, one has to be patient yet decisive, following a systematic approach.

How do you manage risk?

At the aggregate level, at the beginning of each year, the risk budget will be set up by the investment team in consultation with Dao Capital Advisors. For example:

- Total losses due to hedging programs can not exceed xyz bps
- Total detraction from the excess return can not exceed xyz bps if the overall portfolio experiences a loss.
- Total detraction from the excess return can not exceed xyz bps if the overall portfolio experiences a gain.

The risk management process for the strategy section (active allocation, effective hedging strategies and market dislocation) is defined as below:

1). Active asset allocation

First the active asset allocation decisions must be within the policy allocation range.

Second, we will define in advance the maximum permitted detraction of the excess return due to active portfolio risks.

We expect to have much tighter risk management processes for tactical allocation shifts. Sometimes, we may take a more strategic approach to deliberately underweight or overweight certain asset classes for an extended period of time (more than 1 year) relative to the policy benchmark. In this case, we may be more willing to tolerate some volatilities of excess returns vs. benchmark for more strategic reasons.

2). Effective hedging and tail alpha

We only deploy premium based strategies across asset classes (equity, rates, currency or commodities), so that the maximum loss is the loss of the premium. Generally speaking, we require potential reward to be more than 15x the original cost for hedging instruments to be considered. To manage theta decay, we typically require clear catalysts for the thesis to potentially work out within a well-defined time horizon.

For any given year, client will set aside a budget a maximum amount of the premium to be potentially deployed at the beginning of the fiscal year with our assessment of the market cycle and general risks of the overall capital market. We may not deploy the budgeted capital, or may only partially deploy the budgeted capital for any given year, driven by the market opportunities, not by the “need” to put capital to work. Our current assessment is that market risks are elevated for equity-sensitive investors due to 1). Late innings of market cycle. 2). High asset valuations. 3). Elevated leverage. As a result, we think it would require a bigger budget than usual to mitigate the down turn.

3). Market dislocation.

First we need to determine a cap of maximum allocation (at cost) to any given market dislocation opportunities. We may or may not use the maximum allocation amount. It is essential to recognize that we may get the timing wrong, and therefore, we need a plan to preserve the “dry powder” and have a plan on how to deploy the capital into further escalation of the dislocation.

Second, we need to have a holistic total portfolio approach to make sure that we are not adding significant risk exposures relative to the policy portfolio. Generally speaking, the funding for market dislocations will come from sources with similar risks, resulting in little change to the portfolio’s overall risk exposures at major asset class levels.

How do you determine your risk budget for each investment decision?

Each individual investment action's sizing and risk budget will be evaluated on a case by case basis prior to the execution depending on the conviction level, risk asymmetry and the nature of the investment, as to whether it is to hedge the portfolio or to add alpha. It also depends on the total utilization of the annual risk budget.

What are your time horizons?

For active asset allocation, generally it takes less than 1 year for a tactical move, and more than 1 year (1-3 years) for strategic move.
For effective hedging and tail alpha, it may take 3 to 6 months to deploy capital of a specific hedging strategy and generally with an expectation of the thesis to materialize within a year.
For market dislocations, it may take 3 months to 1 year to fully deploy the intended capital, and 1-3 years for the thesis to materialize

How do you measure success?

Generally speaking, the overall program is measured by the excess PNL of the investment action vs. inaction. It is important to note the following: 1).The downside risks caused by the recommendations to match policy benchmarks shall not be penalized. 2). Hedging costs are designed to allow us to follow the long-term strategic asset allocation and shall not be considered negative or a failure of the program as long as they are deployed in a cost effective and prudent manner and within the risk budget 3). Though the overall objective is to achieve excess returns over benchmark over an extended period of time, we recognize outperformance in a risk-off environment provides more value than outperformance in risk-on environment. 4). As a long-term investor, the success of the program shall be measured with a long-term horizon preferably over a market cycle.

