

Advanced Techniques for Wealth Managers and Family Offices



Dan diBartolomeo

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Outline for Today

- We will address four techniques which should be part of the practice of all wealth management organizations. Each is meant to address a practical problem that arise frequently in the operation of a family office.
 - Dealing with large, concentrated positions of low cost basis stock
 - How to provide proper coordination between the level of risk aversion implicit in an investment portfolio, and the spending policies of the beneficiaries.
 - Reconciliation of the fact that most wealthy investors want to simultaneously want to take on more risk to improve investment returns, while espousing a preference for “capital preservation”
 - How to do “householding” wherein the portfolios of multiple persons are coordinated as a joint optimal portfolio. A lot of methods proposed to do this omit many relevant issues.
 - Background material can be found in [Investment Management for Private, Taxable Wealth](#), by diBartolomeo, Horvitz and Wilcox, CFA Research Foundation, 2006.

Dealing with Low Basis Concentrated Positions

- Consider the plight of this actual investor in 2003
 - They merge a family company into an NYSE public company. They receive \$600 million stock with essentially zero cost basis.
 - The investor has great risk arising from holding this tremendously concentrated position.
 - Sale of the position to start over with a diverse portfolio would cost over \$120 million in taxes.
 - This is a common situation with family offices where the family wealth is derived from founding a company that prospers and is eventually acquired.

Past Dealings with Concentrated Positions

- There have been two common approaches to dealing with concentrated positions. The first is to use a “costless collar”
 - Write call options on the big position and use the proceeds to buy put options on the big position.
 - This protects the downside of holding the big position.
 - Accumulation of option trading costs become a expense in the long run and *the big position never goes away*.
- In some cases, you could contribute the big position to an “exchange fund”.
 - Allows for a diversified portfolio with deferral of the tax consequences, but coherent portfolio strategy is difficult.
 - There is no guarantee that a fund will accept the large position.

The Complementarity Portfolio

- This is what was done with our \$600 million investor
 - Margin the large position to create \$600 million in cash. The interest rate cost after tax is very low.
 - Invest the new money in a *complementarity portfolio*.
 - Short \$600 million in stock index futures to bring the net market exposure back down to \$600 million
- The complementarity portfolio is formed with two properties in mind:
 - The composition of the portfolio should hedge the factor risks of the big position. If the big position were an oil stock, we would want airlines, chemical companies and other oil consumers.
 - Give preference in the side portfolio to stocks that have high idiosyncratic volatility. *We like things that go up or down, but don't like stocks that sit still.*

Operating the Complementarity Portfolio

- Each month, we sell the securities in the complementarity portfolio that have declined substantially in value, creating a tax loss.
- We then use those tax losses by selling a small piece of the big concentrated position, thereby incurring an a capital gain which has been offset by the losses.
- Depending on market direction we can also incur gain/losses through the futures position which are then included in the process.
- We then take the proceeds of all sales and reinvest that cash back into the side portfolio.
- From the start, the investor is in a less risky position. Over time, the big position is reduced further reducing risk.
- *In our live case, the big position went from 100% of the portfolio to 20% of the portfolio in 18 months with zero net capital gain recognition.*

Risk Aversion and Spending Policies

- The most basic function of family offices is to invest a portfolio to provide income to support consumption by beneficiaries.
- Numerous “spending rules” have been proposed in the finance literature. Siegel and Waring (2015), Satchell and Thorp (2007), Satchell, Thorp and Williams (2012).
- The basic concept is simple common sense: If your investments have lost value, you should reduce spending. Eating into principal when market values are low should be avoided.
- We propose a simple approach to calibrating investment policy with spending rates, based on the Discretionary Wealth Hypothesis from Wilcox (2003).
 - We can adjust spending policies to fit investment market conditions or adjust investment risk aversion to support spending, or any compromise of the two.

A Simple Approach to Defining Risk Tolerance

- Let's assume a traditional portfolio with an expected return of 7% and a volatility of 10%. To keep the arithmetic simple we will use 1% as the risk free rate for both lending and borrowing.
- We want to estimate the tangency slope to the mean-variance efficient frontier.
- We could have chosen to hold 1% cash and 99% our portfolio, or 101% our portfolio and -1% cash.
- The first portfolio has a return of 6.94% and a risk of 98 units of variance. The second portfolio has a return of 7.06% and variance of 102 units of variance.
- *The slope of the finite difference is just $.12/4$ or $.03$ for risk aversion. The reciprocal is 33 for risk tolerance.*

Calibration with Spending Rates

- The risk tolerance for a “growth optimal” investor (no liabilities, infinite time horizon) is 200.
- Given our risk tolerance of 33, we can have a spending policy such that the present value of the future stream of spending is $(200-33)/200 = 83.5\%$ of the principal.
- Let’s assume \$100 million in principal, so the present value of future spending can be \$83.5 million.
- If the spending stream is a perpetuity the present value is just the annual spend divided by the discount rate.
- If we have a discount rate of say 4% (long term investment grade bond yield), we can spend $4\% * \$83.5$ million per annum or about \$3.4 million.
- If our current spend rate is greater than 3.4%, we need to either spend less, invest more aggressively (with more risk of failure), increase the discount rate (more risk of failure) or not plan on perpetual income.
- We can reset this calibration to address changes in spending rate, portfolio value, interest (discount) rates or capital market expectations.

Risk Attitudes of the Very Wealthy

- Very wealthy households often exhibit a sort of bizarre behavior wherein they push asset managers for higher returns, while at the same time purporting to have a goal of capital preservation
 - We attribute this apparent inconsistency to three issues that are often left ambiguous in formulating the relationship between the investor and asset managers.
 - What is the investor's preference for absolute gain or loss as compared to market relative gain or loss.
 - Many investment managers describe risk in terms of terminal wealth, rather than minimum intra-period wealth
 - Failure to account for investor expectations for providing bequests at death to children and supported charities.

Absolute Versus Relative Returns

- Chow (1995) Formulates the active management problem as a three term objective: return, risk and relative performance
 - The efficient frontier becomes an efficient three dimensional surface.
 - Since return is linear, maximizing return also maximizes benchmark relative return (alpha)
 - The efficient frontier becomes a three dimensional “efficient surface” with return, absolute variance, and tracking variance
 - As cash and any benchmark index have no covariance, mixing cash into the benchmark is mathematically equivalent to passing a plane through the efficient surface. The intersection of the plane and the efficient surface is the efficient frontier to the “cash included’ joint benchmark

Asking the Right Question About Risk

- Investors typically get reports on the probable distribution of terminal wealth at the end of some investment horizon. For example “If I have \$100 million today, what is the probability that I will have less than \$80 million five years from now”
- A more realistic measure of investor risk might be to ask “If I have \$100 million today, what is the probability that I will have less than \$80 million *at any one moment in the next five years?*”
- The “intra-horizon” risk calculation is a formalization of the practitioner concept of “drawdowns” and other risk measures that purportedly include potential higher moments (VaR and CVaR)
- The probability of an intra-horizon value below the floor is always greater than probability at the investment horizon since there is a non-zero probability of going below the floor and coming back above before the horizon date.
- Kritzman and Rich (2002) provides the math

Legacies and Capital Preservation

- Most wealthy people can afford to be aggressive investors which would be expected to boost returns. They are often perceived as close to a “growth optimal” investor who has no liabilities (or very small relative to their wealth) and an infinite time horizon.
- However, people don’t have infinite life spans like a university endowment. In general, the expectation of mortality causes the household to formulate plans to pass down wealth to future generations or to make charitable bequests.
- The expectations of bequests form an implicit liability which can substantially change the perceived “balance sheet” of the household under the Discretionary Wealth Hypothesis.
- Just as in the preceding discussion of spending rates, an increase in perceived present value of liabilities will dictate more risk averse policies. *This puts the household in a “capital preservation” mode.*

Householding (circa 2004-2008)

- Multiple accounts held by various members of the same family represent a very special challenge to wealth management organizations.
 - A single family could have accounts that are held in the name of the father, mother, various children, plus trust funds
 - Some of these accounts will be taxable, with a variety of tax circumstances and legacy holdings. Other accounts within the set are likely to be tax-deferred retirement accounts.
 - Even a single individual with a tax deferred account must make the interconnected choice of asset allocation and asset location.
 - In addition, each of the accounts may have a different level of risk tolerance.
 - *Unless one of the accounts is just cash, the sum of two optimal portfolios is not an optimal portfolio.* You can't optimize separately, then just add up the sleeves.

MRA Structure

- Within a set of multiple related accounts (MRA), there are separate pools of money in various sub-accounts
 - Funds cannot be moved from one to another
 - In some cases, the client has multiple managers each actually managing a "sleeve" or distinct sub-account.
 - In other cases, there are sub-accounts for legal reasons (e.g. husband and wife, 401K, trust fund, etc.)
 - There is no central actual account. Each sub-account may have its own benchmark, tax circumstances and risk tolerance.
- Our goal in this case is to do a "global" optimization of the client's MRA portfolio across all sub-accounts:
 - Caveat: What is optimal for a family group as a whole is not likely to be optimal for any one member of the group. This can lead to some rather nasty issues in divorces and across generations.
 - Decisions about "fairness" have to be made in advance.

MRA Optimization Goals

- Our goals in this case are to do a "global" joint optimization of the client's MRA portfolio across all subaccounts:
 - tax efficient across the entire MRA portfolio
 - capture as much of the investment performance as possible as would otherwise have occurred in each sub-account
 - keep each of the sub-accounts meeting any constraints that were originally imposed on that sub-account
 - This would be easy to optimize as one big portfolio if the tax rates and risk tolerance were uniform across the sub-accounts, but they aren't.
 - There are lots of subtleties like the handling of wash sales across legally related accounts

Household Solutions

- Most of the mechanical solution to the householding problem was presented in our client newsletter in May 2005.
- Subsequently an exact solution for the “fairness” issue was developed. You just have to decide on the degree of importance to ascribe to being fair.
 - For 100% fairness, the optimal solution is the sum of the separate optimal portfolios, but you have nullified all benefits of forming the household portfolio in the first place.
 - For 0% fairness, the solution we described in May of 2005 is sufficient.
 - An important conceptual reference is Scherer (2014) which is based on temporal variation in the potential for a couple to divorce.

Conclusions

- For all but the most sophisticated organizations, we believe that common practice among wealth managers and family offices lags far behind the superior outcomes that can be obtained on behalf of high net-worth investors.
- Very effective procedures have been developed to address concentrated legacy positions with low cost basis through the use of the *complementarity portfolio* concept.
- Analytical solutions of an intuitive nature are available to address the calibration of risk tolerance for investment portfolios to expectation of future consumption spending. The same process can be used to adjust spending to fit changes in portfolio value, capital market assumptions and liability discount rates.
- Analytical solutions also exist to address the issues of how “intra-horizon” and terminal wealth risk should be properly managed.
- Although mechanically complex, exact optimization solutions now exist for “householding” inclusive of the fairness problem.