THE IMPACT OF THE FAMILY BUSINESS FOR THE HIGH NET WORTH CLIENT PORTFOLIO

CFA Society Houston

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Managing Director, Credentialing
THE IMPACT OF THE FAMILY BUSINESS FOR THE HIGH NET WORTH CLIENT PORTFOLIO

1. Fundamental Pension Fund Management
2. The Family Balance Sheet
3. Implications for Asset Allocation
4. Case Study

1. Asset allocation and financial asset allocation vary dramatically.
2. Important financial goals are often exposed to concentrated risk
3. Family businesses restrict rebalancing efforts
4. Rebalancing becomes more important as wealth increases
The Influence of a Family Business on Portfolio Management: An Asset-Liability Management Approach

Stephen M. Horan and Robert R. Johnson

Wealth management is inherently a more comprehensive endeavor than traditional asset management. The scope of advice extends beyond the fixed sum of financial assets. In addition to traditional financial assets, the wealth manager needs to incorporate other implied assets, such as the value of a family business. The wealth manager must also understand, evaluate, and incorporate the nature of financial goals, which are, effectively, liabilities on a family balance sheet, whether in a goal-based framework (see Brunel [2012]) or an asset-liability management type framework (e.g., Wilcox [2000, 2003, and 2008]).

Using an asset-liability management (ALM) framework adapted from pension fund management, this article illustrates the critical importance of a family business in portfolio construction. Specifically, we show how its impact fundamentally differs from the impact of other types of nonentrepreneurial human capital. Moreover, the large, illiquid, and fixed nature of a family business creates significant portfolio constraints that draw analogies to managing private client assets, and illustrates by way of case study some of the unique dynamics associated with applying an asset-liability framework to an ultra-high-net-worth investor with a family business.

An operating business that represents a large illiquid proportion of a family’s balance sheet can imply a portfolio allocation of liquid assets that, when viewed in isolation, looks highly nontraditional. It can also create a leverage-like effect that concentrates all of a wealth manager’s hedging efforts into the relatively small and liquid portion of the family portfolio. Beyond asset allocation, the ALM framework suggests that hedging efforts ought to be related to the size of the family’s investment goals, the leverage on their life balance sheet, and the volatility and correlation of returns to the business relative to a potential hedging instrument.

TRADITIONAL ASSET ALLOCATION FRAMEWORKS

Traditional Markowitz mean–variance optimization (MVO) is an asset-only approach that does not incorporate the balance sheet or the nontraditional assets of a family business. This approach assumes that the primary objective of wealth management is to maximize the expected return of the investment portfolio while minimizing the risk (usually measured as the portfolio variance) of the investment portfolio. However, this approach does not consider the nonfinancial assets of the family business and the potential impact of these assets on the investment portfolio.
TRADITIONAL MARKOWITZ
MEAN-VARIANCE OPTIMIZATION (MVO)
ASSET-ONLY APPROACH

\[
\text{Max} \quad U = \bar{r}_p - \frac{1}{2} A \sigma_p^2
\]

\[
\bar{r}_p = w_1 \bar{r}_1 + w_2 \bar{r}_2
\]

\[
\sigma_p^2 = w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2w_1 w_2 \rho_{12} \sigma_1 \sigma_2
\]
SOME CRITIQUES OF TRADITIONAL MEAN-VARIANCE OPTIMIZATION (MVO)

Investor Attributes
- Asset-only approach
- Risk tolerance parameter
- Quadratic utility

Ignores higher moments
- Skewness (asymmetry)
- Kurtosis (fat tails)

Ignores taxes
- Taxes affect return AND risk

Single-period framework
- Ignores low probability catastrophes (shortfall risk)
- Within horizon risk

Other Assumptions
- Market efficiency
- Known and stable parameters
PENSION FUND BALANCE SHEET:
PENSION FUNDS MANAGE SURPLUS, NOT ASSETS

**Assets**
- Traditional Assets
- Alternative Assets
- Expected Employer Contributions
- Expected Employee Contributions

**Liabilities & Surplus**
- Accrued Pension Obligation (APO)
- Projected Pension Obligation (PBO)
- Surplus

**PENSION FUND BALANCE SHEET:**

PENSION FUNDS MANAGE SURPLUS, NOT ASSETS
FAMILY LIFE BALANCE SHEET: A COMPREHENSIVE ACCOUNTING

**Assets**
- Financial Assets
- Tangible Personal Assets (e.g., real estate)
- Human Capital
- Family Business/Stock Options
- Deferred Compensation
- Expected Inheritances

**Liabilities & Surplus**
- Mortgages
- Lifestyle Maintenance
- Dynastic Goals
- Other high-priority goals (e.g., Philanthropy)
- Discretionary Wealth (Surplus)
WHY INCORPORATE THE FAMILY BUSINESS?
SINGLE MOST IMPORTANT FACTOR FOR CUSTOMIZATION

Magnitude
- Single largest asset for most families
- Can dramatically affect optimal asset allocation

Asset-Liability Management
- Creates a structure to identify, measure, and evaluate risks
- Provides basis for hedging and insurance strategies
MAGNITUDE OF HUMAN CAPITAL AND FAMILY BUSINESSES

MOST UHNWI GLOBALLY DERIVE THEIR WEALTH FROM A PRIVATE BUSINESS

THE ULTRA WEALTHY IN U.S. ARE MORE LIKELY TO OWN A PRIVATE BUSINESS

- Own a Business
- Don’t Own a Business

Source: Corporate Executive Board, VIP Forum
THREE FUNDAMENTAL GOALS…

HNW investors usually have three distinct generic goals that compete for their attention…

- **Philanthropic**
  - Active or passive philanthropy
  - Philanthropy as a family value

- **Dynastic**
  - How much should my children get?
  - What about generations beyond them?

- **Personal**
  - Meet current and unanticipated needs
  - Maintain future flexibility

PROCESS FOR INCORPORATING GOALS INTO LIFE BALANCE SHEET

Allocating Risk Across Goals
- A behavioral finance approach
- High Priority → low risk profile
- Loss Aversion
- Asset Segregation
- Interaction of Volatility and Withdrawals
# THE FORSYTHE FAMILY: SOME KEY ASSUMPTIONS

## Family
- First Generation – near 60 years old
- Second Generation – Two children
- Third Generation – Three young grandchildren

## Family Business
- Oil sands extraction technology in Alberta, CA
- Valued at $300 million
- $100 million basis

## Investments
- $20 million cash & treasurys
- $35 million liquid diversified equity
- $45 million in hedge funds, private equity, and real estate in Alberta, CA

## Lifestyle Preservation and Flexibility
- $1 million per year
- $25 million capitalized value
- Extremely important

## Dynastic Goals
- Planning for five generations plus
- $100 million capitalized value
- Highly important

## Philanthropy Aspirations
- Medical research for rare disease in family
- $50 million
- Moderately important
FORSYTHE FAMILY LIFE BALANCE SHEET

Assets

- Family Business (After-tax) 250
- PE & RE 20
- Hedge Funds 25
- Divers Equity 35

Liabilities and Surplus

- Discretionary Wealth 175
- Philanthropic 50
- Dynastic 100
- Lifestyle 25

Leverage = 2
FORSYTHE FAMILY LIFE BALANCE SHEET

Assets

- 20 Cash/Treas
- 35 Divers Equity
- 25 Hedge Funds
- 20 PE & RE
- 250 Family Business (After-tax)

Liabilities and Surplus

- 25 Lifestyle
- 100 Dynastic
- 50 Philanthropic
- 175 Discretionary Wealth

Leverage = 1.56

Leverage = 2
THE “RISK-FREE” ASSET AND RISK TOLERANCE

Risk Tolerance

- Driven by leverage on the life balance sheet
- Determined by goal prioritization
- Greater leverage \( \rightarrow \) lower risk tolerance

“Risk-Free” Asset

- Defined in relation to character of the liabilities
- …and the character of the assets
- It is client-dependent
The Right Risk-Taking To Maximize Growth
(Heads +100%, Tails -50%, Median Outcomes)

Source: Presentation by Jarrod Wilcox at CFA Institute Wealth Management Workshop, 2007
MAXIMIZING MEDIAN DISCRETIONARY WEALTH

Incorporate Investor’s Leverage

▪ Return and risk are “geared” up by L on the life balance sheet

\[ \text{Max } \bar{r}_p - \frac{1}{2} L\sigma_p^2 \]

▪ where L = leverage on the life balance sheet

Ignoring Higher Moments….

▪ Computationally identical to the Markowitz MVO framework
▪ But we started from a very different place

We now have an objective measure of investor risk tolerance!

▪ It comes from the life balance sheet

How Do We Use It?
STANDARD MVO PROVIDES AN EFFICIENT FRONTIER...BUT LITTLE PRACTICAL GUIDANCE ON WHERE TO BE ON THAT FRONTIER
L = Assets/Discretionary Wealth

- \( \frac{350}{175} = 2 \)
- Multiply std. dev. by \( \sqrt{2} \)

\[
\text{Max} \quad \bar{r}_p - \frac{1}{2} 2\sigma^2_p
\]

<table>
<thead>
<tr>
<th>Equity</th>
<th>Bond</th>
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<tr>
<td>Return</td>
<td>8%</td>
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<tr>
<td>Std. Dev.</td>
<td>20%</td>
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<tr>
<td>Leverage Adj. Std Dev</td>
<td>28%</td>
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<tr>
<td>Weight</td>
<td>75%</td>
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## ASSET ALLOCATION ACROSS GOALS

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<th>Dynastic</th>
<th>Philanthropy</th>
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<table>
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<tr>
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<td>55%</td>
<td>25%</td>
<td>0%</td>
<td>25%</td>
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<tr>
<td>Stock</td>
<td>20%</td>
<td>45%</td>
<td>75%</td>
<td>100%</td>
<td>75%</td>
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</table>

*Dollar figures in thousands*
### INCORPORATING THE FAMILY BUSINESS

<table>
<thead>
<tr>
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<th>Lifestyle</th>
<th>Dynastic</th>
<th>Philanthropy</th>
<th>Discretionary Wealth</th>
<th>Total</th>
<th>Financial Capital</th>
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<td>$20,000</td>
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<td>$87,500</td>
<td>$87,500</td>
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<td>7,500</td>
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<td>0</td>
<td>12,500</td>
<td>12,500</td>
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<tr>
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<td>0</td>
<td>37,500</td>
<td>37,500</td>
<td>175,000</td>
<td>250,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$25,000</td>
<td>$100,000</td>
<td>$50,000</td>
<td>$175,000</td>
<td>$350,000</td>
<td>$100,000</td>
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<table>
<thead>
<tr>
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<th>Financial Capital %</th>
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<tr>
<td><strong>Bonds</strong></td>
<td>80%</td>
<td>55%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Stock</strong></td>
<td>20%</td>
<td>8%</td>
<td>0%</td>
<td>4%</td>
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<tr>
<td><strong>Business</strong></td>
<td>0%</td>
<td>38%</td>
<td>75%</td>
<td>71%</td>
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</table>

*Dollar figures in thousands*
Suppose the Forsythe’s assets drop by 25%

- Leverage = 2 → 75% equity overall
- Leverage = 3 → 50% equity overall (unachievable)
INCORPORATING THE FAMILY BUSINESS…
WITH FEWER HIGH PRIORITIES

<table>
<thead>
<tr>
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<th>Lifestyle</th>
<th>Dynastic</th>
<th>Philanthropy</th>
<th>Discretionary Wealth</th>
<th>Total</th>
<th>Family Business</th>
<th>Financial Assets</th>
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<td>$10,000</td>
<td>$0</td>
<td>$0</td>
<td>$15,000</td>
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<td>85,000</td>
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<tr>
<td></td>
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<td>$100,000</td>
<td>0</td>
<td>$225,000</td>
<td>$350,000</td>
<td>$100,000</td>
<td>$100,000</td>
</tr>
<tr>
<td>Bonds</td>
<td>20%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
<td>0%</td>
<td>15%</td>
</tr>
<tr>
<td>Stock</td>
<td>80%</td>
<td>90%</td>
<td>0%</td>
<td>100%</td>
<td>96%</td>
<td>100%</td>
<td>85%</td>
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</table>

Dollar figures in thousands
A MORE GENERAL AND Refined APPROACH

\[
W_{FC} = W_0 + \frac{HC}{FC} (W_0 - \beta_{HC})
\]

\[
W_{FC} = 0.96 + \frac{250}{100} (0.96 - 1.00) = 86.0\%
\]

where

- \(W_{FC}\) = weight of risky assets in the portfolio of financial capital
- \(W_0\) = weight of risky assets in the aggregate portfolio (i.e., explicit and implicit)
- \(HC\) = value of human capital (e.g., family business)
- \(FC\) = value of financial capital
- \(\beta_{HC}\) = beta of human capital (e.g., family business)

Implications

- Risky assets become less attractive as the beta of the family business increases
- If the investor is risk-tolerant and/or family business is low-risk (i.e., \(W_0 > \beta_{HC}\))
  \(\rightarrow\) Human capital increases the allocation to risky assets
- If the investor is risk-averse and/or family business is risky (i.e., \(W_0 < \beta_{HC}\))
  \(\rightarrow\) Human capital decreases the allocation to risk assets
OR...SPECIFY THE FAMILY BUSINESS AS A UNIQUE ASSET CLASS

Now, a three-asset class example

- **Expected return**
  - Discount rate for valuation

- **Volatility**
  - For example, $\sigma_{HC} = 30\%$
  - Market vs. idiosyncratic

- **Correlations**
  - Derived from market or other firms in the same industry/sector
  - Near zero with risk-free asset

- **Add a portfolio constraint based on life balance sheet**
  - For example, $w_{HC} = 71.4\%$
Assessing Risk

- Systematic versus unsystematic risk
  - Is it related to market risk?
  - Is it industry-specific?
  - Is it diversifiable?

- The more narrow and undiversifiable the risk, the higher the discount rate.

- Lack of liquidity
  - Increase the discount rate, or
  - Apply a 20% to 35% discount to normal valuation
INCORPORATING THE FAMILY BUSINESS: A SEPARATE ASSET CLASS

Key Assumptions

- Family Life Balance Sheet Leverage = 2 (Everything is high priority)
- Family Business volatility = 30%
- Family Business Correlation with Market = 80%

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<th>Correlation Coefficients</th>
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<tr>
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</tr>
<tr>
<td>Stock</td>
</tr>
<tr>
<td>Bond</td>
</tr>
<tr>
<td>Cash</td>
</tr>
<tr>
<td>Family Biz</td>
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<table>
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<tr>
<th>% Total Assets</th>
<th>Constraints</th>
<th>% Financial Assets</th>
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<tbody>
<tr>
<td>0.0% Greater Than</td>
<td>0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>26.6% Greater Than</td>
<td>0%</td>
<td>93.0%</td>
</tr>
<tr>
<td>2.0% Greater Than</td>
<td>2%</td>
<td>7.0%</td>
</tr>
<tr>
<td>71.4% Equal To</td>
<td>71%</td>
<td></td>
</tr>
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</table>

Portfolio 7.9% 21.8% 0.0% 26.6% 2.0% 71.4% 100%
INCORPORATING THE FAMILY BUSINESS: A SEPARATE ASSET CLASS

Key Assumptions

- Family Life Balance Sheet Leverage = 1.56 (Philanthropy is not high priority)
- Family Business volatility = 30%
- Family Business Correlation with Market = 60%

<table>
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<th>E($r_i$)</th>
<th>Std Dev$_i$</th>
<th>Stock</th>
<th>Bonds</th>
<th>Cash</th>
<th>Family Business</th>
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<td>0.60</td>
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<td>0.12</td>
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<tr>
<td>Cash</td>
<td>0.5%</td>
<td>3.1%</td>
<td>1.00</td>
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<td>-0.02</td>
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<tr>
<td>Family Biz</td>
<td>10.0%</td>
<td>30.0%</td>
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<td></td>
<td>1.00</td>
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<table>
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<th></th>
<th>% Total Assets</th>
<th>Constraints</th>
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<td>Stock</td>
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<tr>
<td>Bond</td>
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<td>10.5%</td>
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<td>Cash</td>
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<td>2%</td>
<td>7.0%</td>
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<tr>
<td>Family Biz</td>
<td>71.4%</td>
<td>Equal To 71%</td>
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<tr>
<td>Portfolio</td>
<td>9.1%</td>
<td>24.6%</td>
<td>23.6%</td>
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RISK MANAGEMENT AND THE FAMILY BUSINESS: FALLACY OF THE MAXIMALLY DIVERSIFIED PORTFOLIO

Risks to Family Business

- Nontradable and illiquid (difficult to monetize)
- Concentrated position
- Macroeconomic
- Sector/industry
- Company-specific
- Uncertainty of future re-investment rates

Risks to Family Goals

- Inflation
- Longevity
- Idiosyncratic life events

Three Approaches to Risk Management

- Investing in “risk-free” asset
- Diversification
- Hedging (e.g., insuring)
Hedging Idiosyncratic or Industry Risk

- How to hedge?
  - More tools and possibilities today than ever before (e.g., sector ETFs)
  - Regression technique:
    \[
    R_{HC,t} = b_0 + b_1 R_{M,t} + \epsilon_t
    \]
    \[
    b_1 = \rho \frac{\sigma_{HC}}{\sigma_M}
    \]
  - \(b_1\) is the “hedge ratio” for the family business relative to the market

- When to hedge?
  - High volatility
  - High correlation between labor and market
  - Low idiosyncratic risk
  - Good hedging tool available (high liquidity, low basis risk)
  - Higher risk aversion
  - Long time horizon
  - High consumption elasticity to income (poor savers)
HOW DOES THIS WORK IN A TAXABLE ENVIRONMENT?

Taxes Affect

- Return
- Risk!!!
- Asset Allocation

Tax Entities

- Asset location
- Each possible entity-asset class combination is a unique after-tax asset class
WHAT IS YOUR TAX RATE?
THE TRADITIONAL IRA EXAMPLE

Value of a tax-deferred account over time assuming an 8% pretax return and a 30% terminal tax rate.

\[ r_{TE} = \left(1+r\right)^n(1-t_n)^{\frac{1}{n}}-1 = 6.1\% \]

\[ t_{\text{Effective}} = 1 - \frac{6.1\%}{8.0\%} = 23.75\% \]
### WHAT IS YOUR TAX RATE?
#### TAXABLE ACCOUNT EXAMPLES

<table>
<thead>
<tr>
<th>Investor Type</th>
<th>Future Accumulation</th>
<th>Expression</th>
<th>Accrual Equivalent Return</th>
<th>Accrual Equivalent Tax Rate</th>
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<tbody>
<tr>
<td>Trader</td>
<td>$2,554</td>
<td>$1,000\left[1 + 0.08(1 - 0.4)\right]^{20}</td>
<td>4.8%</td>
<td>40.0%</td>
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<tr>
<td>Active Investor</td>
<td>$3,458</td>
<td>$1,000\left[1 + 0.08(1 - 0.2)\right]^{20}</td>
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<td>Passive Investor</td>
<td>$3,929</td>
<td>$1,000\left[(1.08)^{20} \cdot (1 - 0.2) + 0.2\right]</td>
<td>7.1%</td>
<td>11.5%</td>
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<td>Exempt Investor</td>
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<td>$1,000(1.08)^{20}</td>
<td>8.0%</td>
<td>0.0%</td>
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<td>Outcome</td>
<td>Prob.</td>
<td>Pretax Accumulation</td>
<td>Pretax Return</td>
<td>After-Tax Market Value</td>
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<tr>
<td>---------</td>
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<td>---------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Good</td>
<td>1/3</td>
<td>$125,000</td>
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<td>106,000</td>
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<tr>
<td>Bad</td>
<td>1/3</td>
<td>95,000</td>
<td>-5%</td>
<td>97,000</td>
</tr>
</tbody>
</table>

Exp. Value: $110,000 10% $106,000 6%
Std. Dev. (σ): 15% 9%

Note: Investment returns are assumed to be taxed at a rate of 40 percent in the year they are earned.
AFTER-TAX PORTFOLIO OPTIMIZATION

After-Tax Returns

- Different assets
- Different accounts/entities
  - Trusts
  - Tax-deferred accounts (e.g., RRSP, Traditional IRA, 401(k))
  - Tax-exempt accounts (e.g., TFSA, Roth IRA, Roth 401(k), 529 plans)
  - Taxable accounts
- Each asset-account combination is a unique after-tax asset

After-Tax Volatility

After-Tax Covariance Matrix

Portfolio Constraints

- Funds available in a particular taxable entity
### SIMPLIFIED AFTER-TAX MVO EXAMPLE

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<tr>
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<th>TDA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Equity</td>
<td>Bonds</td>
</tr>
<tr>
<td>Pretax Return</td>
<td>8%</td>
<td>2%</td>
</tr>
<tr>
<td>Effective Ann. Tax Rate</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>Effective After-Tax Return</td>
<td>6.4%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Pretax Std. Dev.</td>
<td>20.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>After-tax Std. Dev.</td>
<td>16.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Weight</td>
<td>40.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Account Constraints: 40.0% 60.0%

Recall, our initial pretax optimization for the Forsythe family:

- Total Assets: 75% equity; 25% bonds
- Financial Assets: 13% equity; 88% bonds

With 2 tax entities:

- Total Assets: 91% equity; 9% bonds
- Financial Assets: 67% equity; 33% bonds
CONCLUSIONS

Assets must be managed in the context of investor goals...even for UHNWI

- Prioritization determines risk tolerance and dramatically affects asset allocation, particularly in the context of a family business
- “Risk-free” asset is client specific
- Goals are the foundation and overlay of the portfolio management process

Risk management is easier in the context of the family life balance sheet

- Concentrated risk of the family business is key
- Manage around the concentration if it cannot be reduced (e.g., hedging)

Tax efficiency

- Taxes reduce risk as well as return
- After-tax portfolio optimization is computationally intensive, but potentially re
REFERENCES

- Brunel, 2011, “Goals-Based Wealth Management in Practice”, *Journal of Wealth Management*
- Wilcox, Jarrod, Jeffrey Horvitz, Dan DiBartelomeo, 2006, *Investment Management for Taxable Private Investors*, Research Foundation of CFA Institute, Charlottesville, VA.

QUESTIONS?