

A Framework for Helping Private Investors

Jarrold Wilcox

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Wilcox Investment

“The US client was astonished to see that the investment advisory firm had mistakenly rebalanced his family’s stock portfolio in the same way as those of its tax-exempt pension fund accounts.”

Chapter One, Investment
Management for Taxable
Private Investors



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When We Don't Pay Attention to Private Client Needs...

- **Conventional institutional product-oriented specialization causes:**
 - A vacuum, soon filled, for specialization by client
 - Leaving value added on the table.
- **Difficulty in identifying future alpha**
 - Leads to competition on the basis of mere appearances
 - And low barriers to entry.
- **Combined with inherent unreliability, leading to:**
 - High and expensive manager turnover.
- **Private client loyalty requires something more.**



Managing Institutional Funds...

- **Gets one used to**
 - Standardized approaches
 - Narrow product focus rather than a total financial picture.
- **Applying that experience to private investors doesn't prepare one for:**
 - Client-by-client customization
 - Complexity generated by tax rules
 - Need for pro-active fiduciary responsibility.



Good Ethics Help Build Long-Term Relationships

- **Suitability**
 - After-tax, not pre-tax
 - Total risk contribution, not tracking error
 - Ability to tolerate small chance of a large loss.
- **Honest Advertising**
 - Not just “past performance is no guarantee of future results,” but...
 - Past performance has very little predictive value, and that only in the short run.



Relevant Theoretical Models -- I

- **Quasi-efficient markets (yes)**
 - For client grasp of near unpredictability of returns.
 - Builds case for risk and tax management.
- **Expected utility (no)**
 - Single-period model.
 - Offers no added value for long-term return compounding avoiding intermediate shortfalls.
 - Offers no normative guidance.



Relevant Theoretical Models -- II

- **Markowitz mean-variance optimization (with care)**
 - Potentially excellent tool for single-period diversification
 - Many pitfalls for the unwary when used for security selection
 - Input estimation errors
 - Multi-period linkages: trading costs and taxes
 - Downside risk not fully captured by variance
 - More safely used for broad asset-liability allocations
 - But offers no advice on where on efficient risk-return frontier to invest.
 - Consequently not useful for financing decisions.



Relevant Theoretical Models -- III

- **Sharpe-Lintner Capital Asset Pricing Model (no)**
 - Excessively idealized in its assumptions.
 - Strong descriptive predictions, other than the usefulness of index funds, are not supported by evidence.
 - Has supported performance measures for testing forecasting skill rather than incremental investor welfare:
 - Alpha, Sharpe ratio, “information ratio”.



Relevant Theoretical Models -- IV

- **Black-Scholes option model (yes)**
 - Not just for understanding derivatives and dynamic hedging
 - The choice as to when to realize a taxable event creates option value related to dispersion in price/cost basis.
- **Stochastic growth theory (yes)**
 - Helps set risk tolerance parameters for single periods in pursuit of long-term goals.
 - Can deal with financing decisions.
 - Shows why strategies that lead to negative return skew or fat tails (kurtosis) require extra return to compensate.

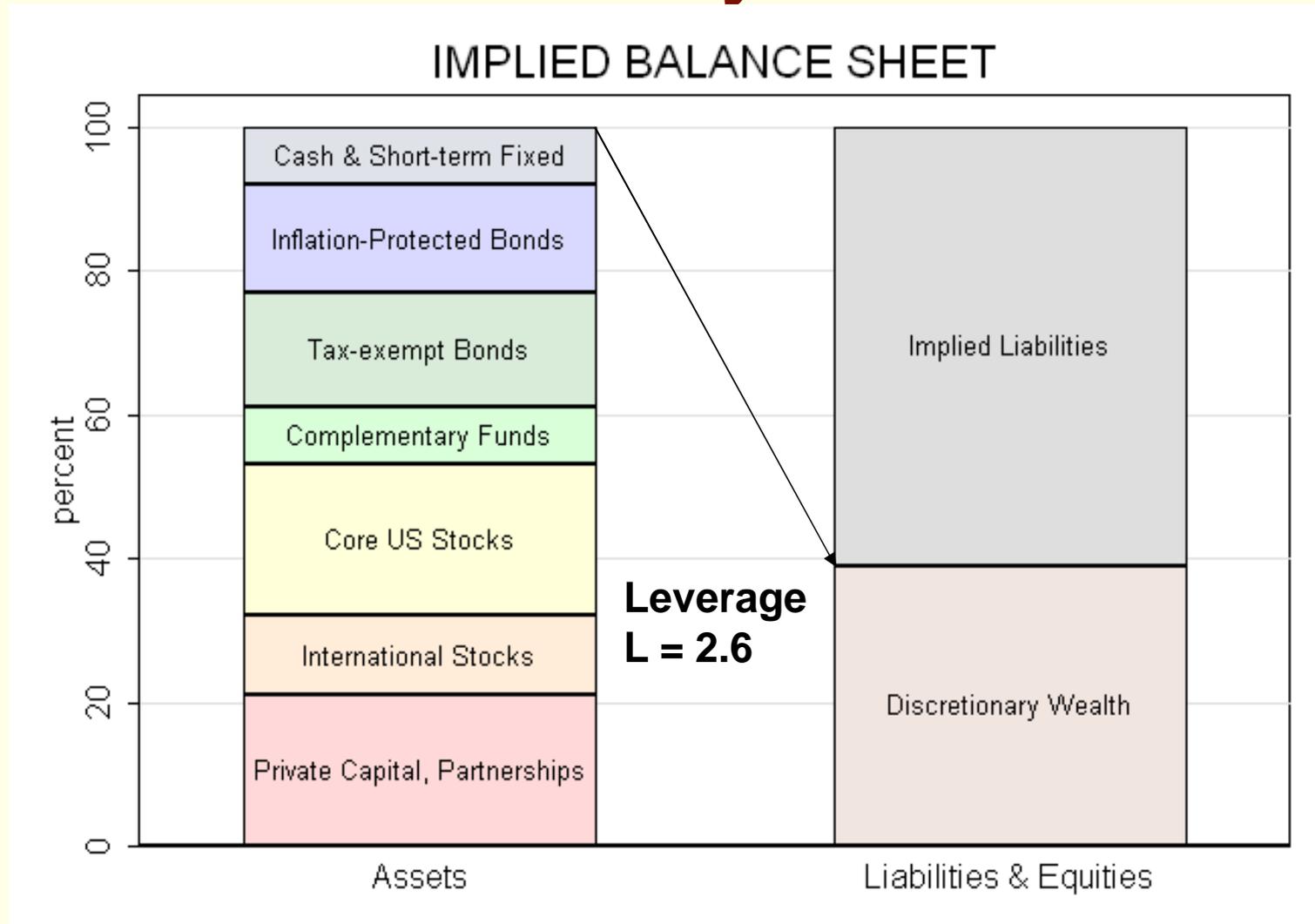


An Approach to Life Cycle Investing

- **Implicit balance sheets.**
- **Applying the stochastic growth model to discretionary wealth.**
- **Contingent mean-variance optimization over a life-cycle.**
- **Brief Introduction to details (much more tomorrow).**



Manage The Full Implied Asset-Liability Problem

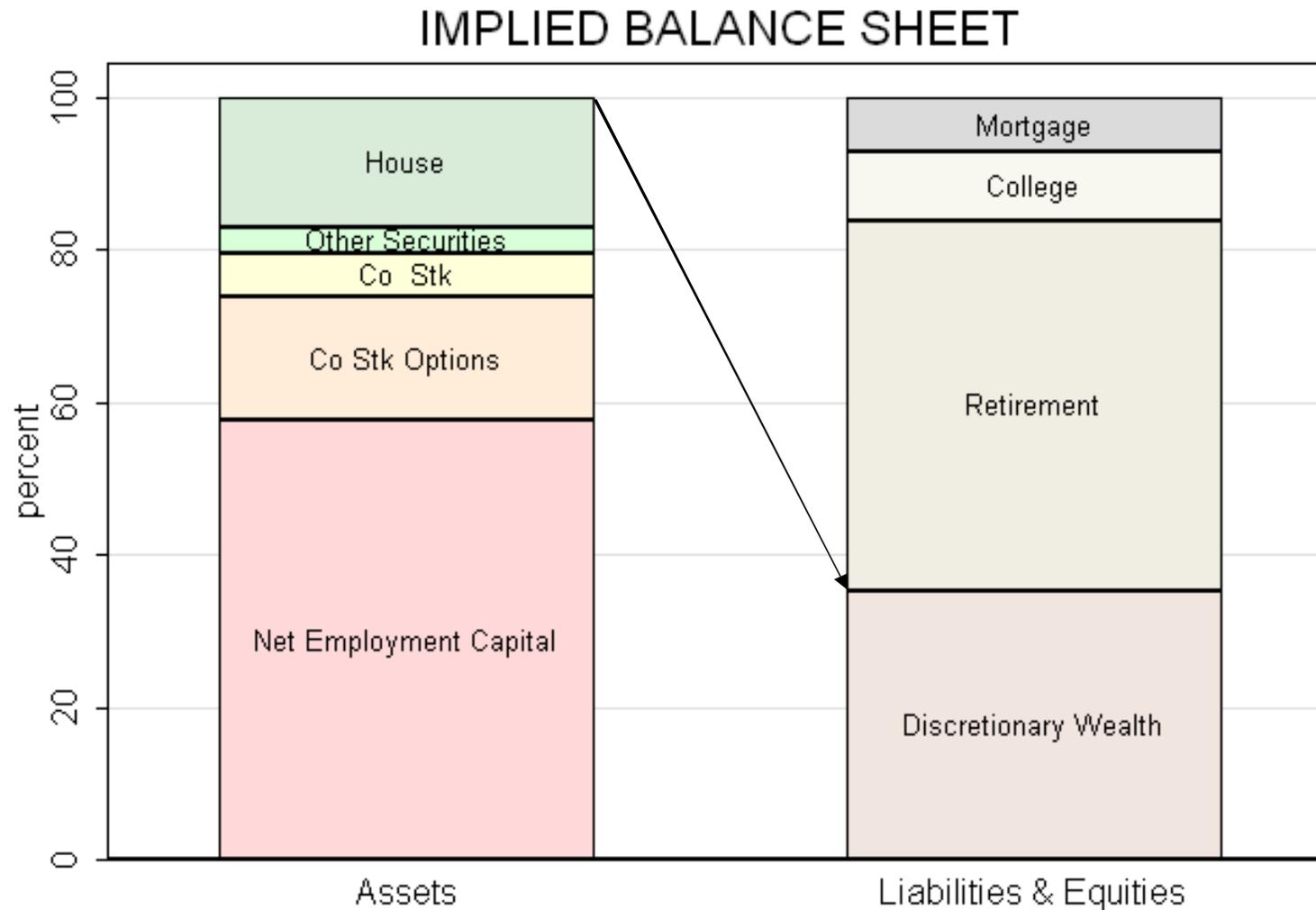


Constructing Implied Balance Sheets

- **Streams of net withdrawal needs should be capitalized as liabilities.**
- **Expected streams of net outside contributions to the financial portfolio should be capitalized as assets.**
- **How would you treat:**
 - Stock options?
 - Life span?
 - Probability of capturing unvested benefits?
 - A divorce settlement?
 - Tax rates? Nominal or effective?
 - Inflation?
 - Flexibility to cut spending rates?
- **What time discounting rate would you use?**



Include Both Implied Assets And Implied Liabilities



Discretionary Wealth Approach to Managing Risk

- In a risky world, seek better median, not average, compounded outcomes.
 - Maximize single-period expected log return, truncated for finite lifetimes.
 - To prevent shortfalls, apply it to discretionary wealth, not to assets.



Mathematics of Risky Growth -- I

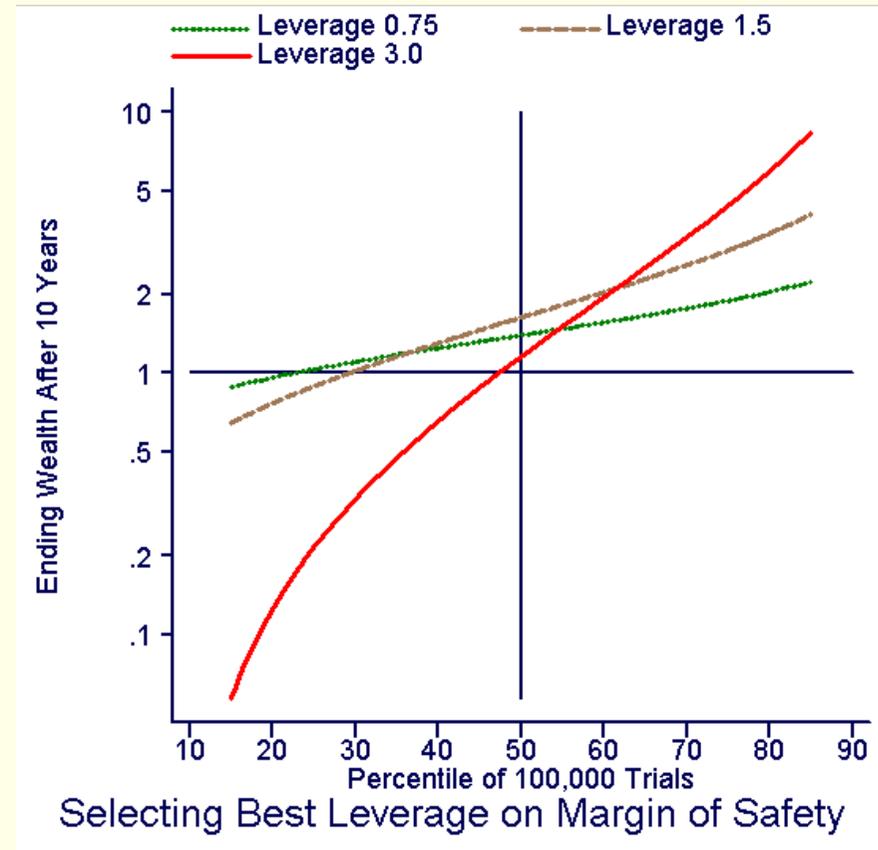
- **For diversified, unlevered portfolios, expected log return is about $E - V/2$.**
 - E: expected single-period return
 - V: single-period return variance.
- **For discretionary wealth, use $LE - L^2V/2$.**
 - L: leverage, the ratio of assets to discretionary wealth.



Leveraging Discretionary Wealth (Introduction to Financing Decisions)

- **You can do Monte Carlo simulation:**
 - Log-normal returns
 - Mean excess stock return vs cash E: .06
 - Return variance V: $.20^2$
 - Leverages L on Discretionary Wealth = 0.75, 1.5, 3.0
- ***Or, just choose L to maximize $LE - L^2V/2$:***

$$L = E/V = .06/.04 = 1.5$$



Mathematics of Risky Growth -- II

- Expected log return on discretionary wealth as a Taylor series:
- The first four terms are enough, given limited investor lifetimes:
 - $\ln(1+LE) - L^2V/(2(1+LE)^2) \dots$
 $+ L^3SV^{3/2}/(3(1+LE)^3) - L^4KV^2/(4(1+LE)^4) + \dots$
 - S is skewness and K is kurtosis, 3 for a normal distribution.
- Useful approximation, $s = V^{1/2}$:
 $LE - (Ls)^2/2 + S(Ls)^3/3 - K(Ls)^4/4$



Markowitz Mean-Variance Optimization Makes Most Sense When...

- The impact of return moments higher than variance is small.
- No change in leverage (financing change) is contemplated:
 - Then we can maximize $LE - L^2V/2$
 - By maximizing $E - LV/2$.
- And then the appropriate Markowitz aversion to single-period risk is $L/2$.



Contingent Asset Allocation

- **Allocations may vary as expected E and V change.**
- **But they also should vary with L.**
 - What happens to L when losses occur?
 - What should the investor do
 - If one's change in L is similar to that of the market as a whole.
 - If less?
 - If more?



When Do Higher Moments Matter?

- **Not just when skewness or kurtosis is large...**
- **But when return variance is high, and when ...**
- **Leverage on discretionary wealth is high.**
 - *Includes both hedge funds and many pensioners.*
- **And when time periods between investment decisions are long:**
 - Since successive returns are nearly independent:
 - Mean and variance increase linearly with time.
 - The 3rd moment increases with variance to the 3/2 power.
 - The 4th moment increases with variance *squared*.



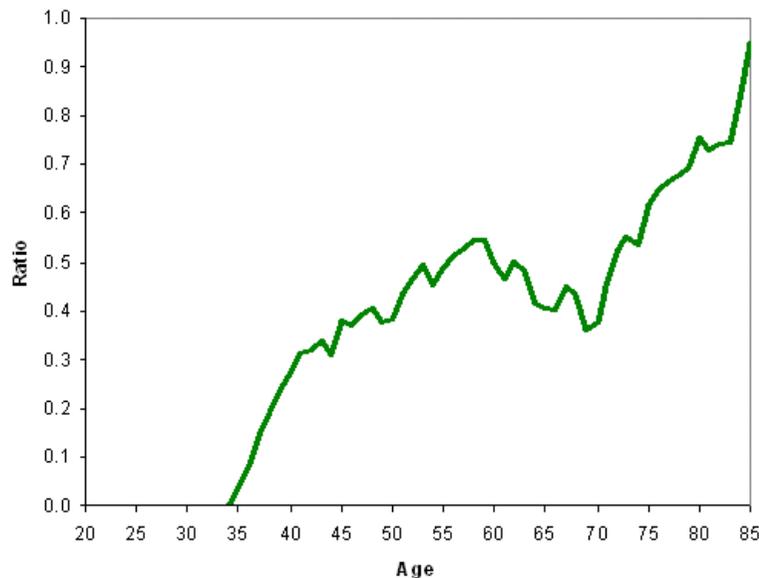
A Hypothetical Case Study

- **Early conservative savings to provide for minimum future needs in retirement.**
- **Implied assets related to employment build up, permitting more risk-taking**
- **Retirement, maintain balanced fund to safeguard future.**
- **Old age – good results and shortening time horizon again permit risk taking.**



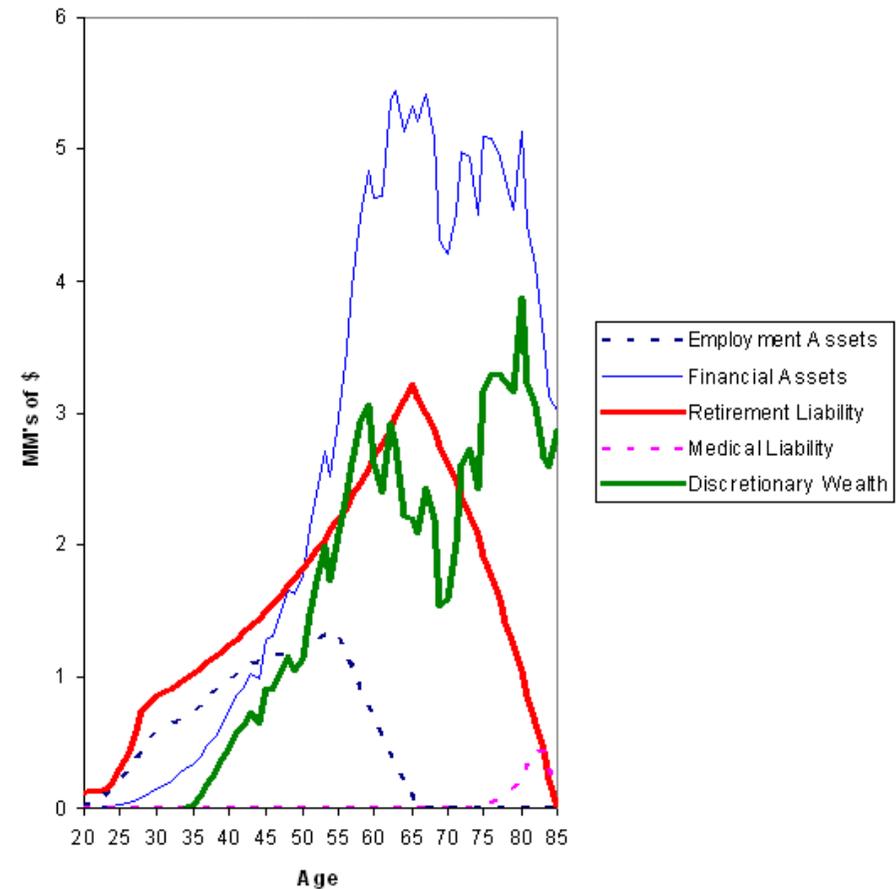
Life-Cycle Customization

Ratio of Discretionary Wealth to Total Assets



- Risk aversion should be customized to reflect leverage based on discretionary wealth after implied assets and implied liabilities.

Assets & Liabilities



Typical Patterns

EXHIBIT 3-1. LIFE-CYCLES AND WEALTH

TYPICAL BEST POLICY

	YOUNG	MIDDLE-AGED	OLD
VERY WEALTHY	AGGRESSIVE	AGGRESSIVE	AGGRESSIVE
HIGH NET WORTH	BALANCED	AGGRESSIVE	BALANCED/AGGRESSIVE
PROSPEROUS	CONSERVATIVE	BALANCED	CONSERVATIVE
THE REST OF US	CONSERVATIVE	CONSERVATIVE	VERY CONSERVATIVE

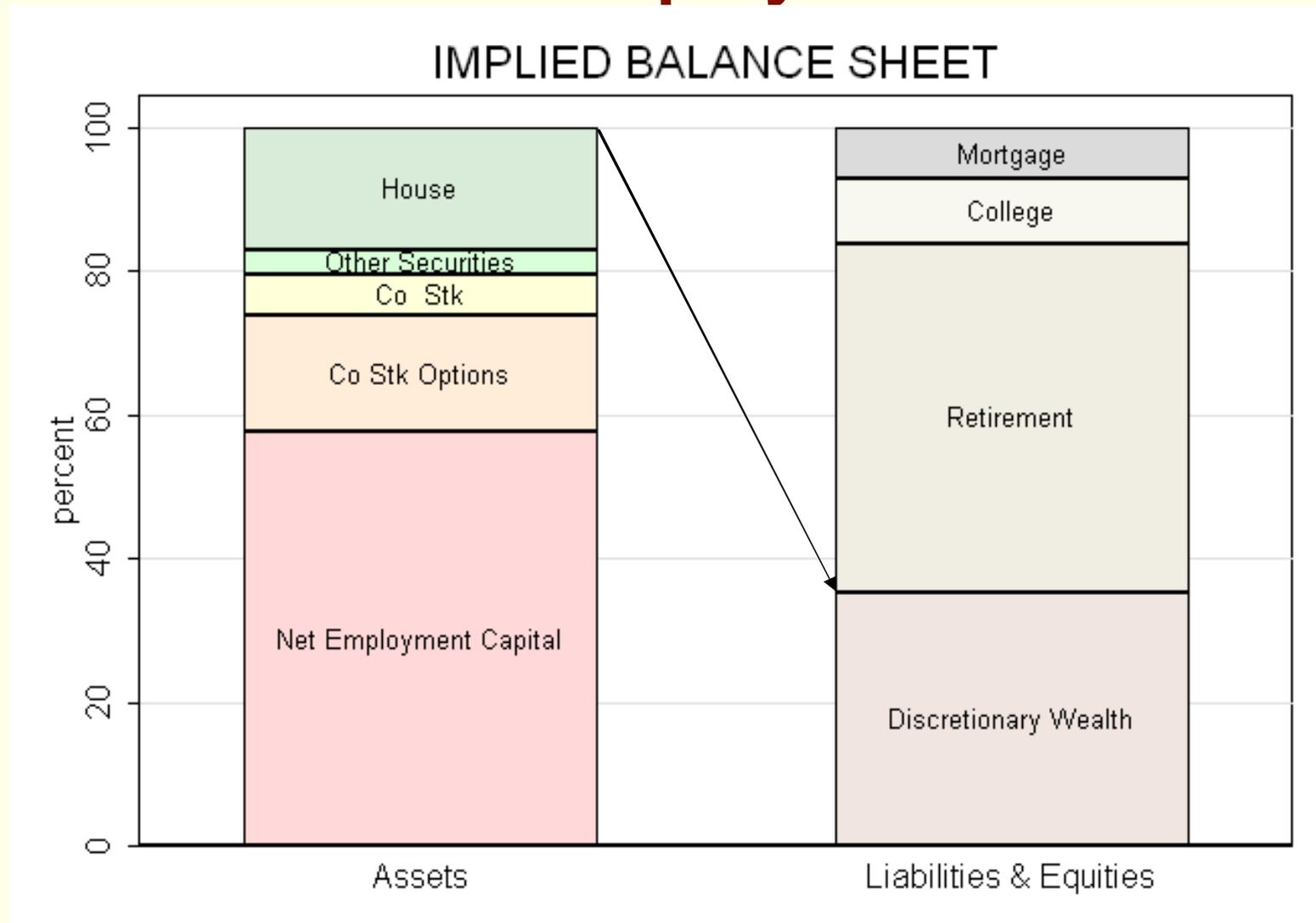


Brief introduction to details: Directions for Further Customization

- **Complementary Funds**
 - Recognize what else is on the balance sheet
- **Tax-Sensitivity**
 - Asset allocation based on after-tax returns and after-tax risks
 - Full court press on tax alpha
 - Solving special problems of location and concentrated risk.
- **For extremes of client sensitivity, buy or sell higher moment risk protection.**



Strong Need for Assets Complementary to Employer



Taxable Risk Management

- **The effective tax rate can act as an offset to leverage in determining expected log return:**
 - $L(1-T^*)E$
 - $- L^2(1-T^*)^2V/2$
 - $+ L^3(1-T^*)^3SV^{3/2}/3$
 - $- L^4(1-T^*)^4KV^2/4$
 - T^* is the effective tax rate.
- **Take enough risk.**
 - If taxable investors have offsetting gains available...
 - They can take more pre-tax variance risk and much more higher moment risk.



Integrating Tax Considerations

(Some automation required...)

- **Example: what is the effective annual tax rate for a property/casualty insurance company?**
 - On municipal bond interest 5.1%
 - On Treasury bonds 34%
 - On zero dividend stocks with pretax annual gains of 10% held for:
 - 1yr 34.0%
 - 2yr 32.9%
 - 5yr 29.9%
 - 10yr 25.5%
 - 20yr 18.6%
- **If there is an unrealized gain of 25% in a stock, should we sell for the tax benefit?**
- **Should we over-diversify stocks and tax lots to get more tax loss harvesting opportunities?**



Better Client Matching for Existing Products

- **Go beyond the obvious:**
 - Municipal bonds for wealthy retirees, etc.
- **We have already discussed making conventional securities more suitable for taxable clients.**
- **Use the higher moment concepts from the discretionary wealth approach:**
 - Downside protection versus option-income funds
 - Momentum and growth styles versus value
 - Venture capital & hedge funds.



Examples Using Higher Moments -- I

- **Product Attributes**

- Negative skew
 - Value strategies

- **Customer Attributes**

- Low leverage
 - Wealthy taxpayers

-
- Option income,
junk bonds

- Low leverage
 - 401(k) for wealthy individual
 - Well-funded insurance company



Examples Using Higher Moments -- II

- **Product Attributes**

- Positive skew
 - Momentum strategies

- **Customer Attributes**

- High leverage
 - Middle class investors in 401(k) funds

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- Structured products with principal protection

- High leverage
 - Corporate treasurers



Examples Using Higher Moments -- III

- **Product Attributes**

- High Kurtosis
 - High volatility concentrated stock strategy

- **Customer Attributes**

- Low leverage
 - Wealthy individuals

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- Venture capital

- Low leverage & able to tolerate long lock-in periods
 - Wealthy individuals



Examples Using Higher Moments -- IV

- **Product Attributes**

- High Kurtosis
 - Single strategy hedge fund with long lock-in period

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- Low Kurtosis
 - Diversified hedge fund with monthly notice

- **Customer Attributes**

- Low leverage
 - Tax-protected vehicle for wealthy individuals

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- Low leverage
 - Untroubled insurance company portfolio



A question for discussion...

Every private client is different. Because of family, business role, taxation or limited lifespan, his or her needs are complex. Each client needs help but doesn't initially know enough to ask for the right kinds. What do you do?



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