SS1&2: ETHICS

Review the SchweserNotes™ and work the questions.

SS3: BEHAVIORAL FINANCE

- **Bounded rationality** – Individuals act as rationally as possible, but are constrained by lack of knowledge and cognitive ability.
- **Satisfice** – Making a reasonable but not necessarily optimal decision.

The Traditional Finance Perspective
- **The price is right** – Asset prices reflect and instantly adjust to all available information.
- **No free lunch** – No manager should be able to generate excess returns (alphas) consistently.

Market Efficiency
- **Weak-form efficient** – Prices incorporate all past price and volume data.
- **Semi-strong form efficient** – Prices reflect all public information.
- **Strong-form efficient** – All information reflected in prices. No one can consistently earn excess returns.

THE BEHAVIORAL FINANCE PERSPECTIVE
1. Consumption and savings:
    - **Framing** – The way income is framed affects whether it is saved or consumed.
    - **Self-control bias** – Favor current consumption rather than saving income for future goals.
    - **Mental accounting** – Assigning different portions of wealth to meet different goals.
2. Behavioral asset pricing:
    - **Sentiment premium** – Added to discount rate; causes price deviation from fundamental values.
3. Behavioral portfolio theory (BPT):
    - Investors structure their portfolios in layers according to their goals.
4. Adaptive markets hypothesis (AMH):
    - Apply heuristics until they no longer work, then adjust them. Must adapt to survive.

COGNITIVE ERRORS AND EMOTIONAL BIASES
- **Cognitive errors** – Result from incomplete information or inability to analyze.
- **Emotional biases** – Spontaneous reactions that affect how individuals see information.

Cognitive Errors
- **Conservatism bias** – Emphasizing information used in original forecast over new data.
- **Confirmation bias** – Seeking data to support beliefs; discounting contradictory facts.
- **Representativeness bias** – If-then stereotype heuristic used to classify new information.
    - **Base rate neglect** – Too little weight on the base rate (e.g., probability of A given B).
    - **Sample size neglect** – Inferring too much from a small new sample of information.
- **Control bias** – Individuals feel they have more control over outcomes than they actually have.
- **Hindsight bias** – Perceiving actual outcomes as reasonable and expected.
- **Anchoring and adjustment** – Fixating on a target number once investor has it in mind.
- **Mental accounting bias** – Each goal, and corresponding wealth, is considered separately.
- **Framing bias** – Viewing information differently depending on how it is received.
- **Availability bias** – Future probabilities are impacted by memorable past events.

Emotional Biases
- **Loss aversion bias** – Placing more "value" on losses than on a gain of the same magnitude.
    - **Myopic loss aversion** – If individuals systematically avoid equity to avoid potential short run declines in value (loss aversion), equity prices will be biased downward (and future returns upward).
- **Overconfidence bias** – Illusion of having superior information or ability to interpret.
    - **Prediction overconfidence** – Leads to setting confidence intervals too narrow.
    - **Certainty overconfidence** – Overstated probabilities of success.
- **Self-attribution bias** – Self-enhancing bias plus self-protecting bias causes overconfidence.
    - **Self-enhancing bias** – Individuals take all the credit for their successes.
    - **Self-protecting bias** – Placing the blame for failure on someone or something else.
- **Self-control bias** – Suboptimal savings due to focus on short-term over long-term goals.
- **Status quo bias** – Individuals' tendency to stay in their current investments.
- **Endowment bias** – Valuing an asset already held higher (than if it were not already held).
- **Regret-aversion bias** – Regret can arise from taking or not taking action.
    - **Error of commission** – From action taken.
    - **Error of omission** – From not taking action.

INVESTMENT POLICY AND ASSET ALLOCATION
- **Goals-based investing** – Building a portfolio in layers, pyramiding up from key base goals.
- **Behaviorally modified asset allocation** – Constructing a portfolio according to investor's behavioral preferences.
    - **Standard of living risk** – If low, greater ability to accommodate behavioral biases.

Behavioral biases in DC plan participants:
- **Status quo bias** – Investors make no changes to their initial asset allocation.
- **Naïve diversification** – 1/n allocation.
- **Disposition effect** – Sell winners; hold losers.
- **Home bias** – Placing a high proportion of assets in stocks of firms in their own country.
- **Mental accounting** – See mental accounting bias.
- **Gambler's Fallacy** – Wrongly predicting reversal to the mean.
- **Social proof bias** – Following the beliefs of a group (i.e., "groupthink").

Market anomalies:
- **Momentum effect** – Return pattern caused by investors following others' lead ("herding").
- **Financial bubbles and crashes** – Unusual returns caused by irrational buying or selling.
- **Value vs. growth stocks** – Value tends to outperform growth and the market in general.

SS4: PRIVATE WEALTH (1)

IPS Objectives and Constraints: Individuals
The **individual IPS** has been heavily tested on the exam. **Questions are typically case fact specific. You must apply taught concepts to the unique case facts to answer the specific questions asked.** The solution process involves working through the constraints [taxes, time horizon, legal/regulatory, liquidity, and unique circumstances (other relevant issues presented in the case)] to determine and quantify the objectives (return and risk). This does not mean every step will be asked every time; answer what is asked. **It is very important you review the class slides (or SchweserNotes if you do not have the slides) to understand how to solve these questions.** Answers are highly consistent once you understand how to reach a solution.

Taxes and Private Wealth Management
Future Accumulation Formulas (selected)

annual accrual taxation: $FVIF_{AT} = [1 + r(1 - t_i)]^n$

deferred capital gains taxation:
$$FVIF_{AT} = (1 + r)^n (1 - t_{cg}) + t_{cg}B$$
B = cost basis / asset value at start of period n

annual wealth taxation: $FVIF_{AT} = [(1 + r)(1 - t_w)]^n$

Annual return after taxes on interest, dividends, and realized capital gains:
$$r^* = r[1 - (p_i t_i + p_d t_d + p_{cg} t_{cg})] = r(1 - wartr)$$

effective capital gains tax rate:
$$T^* = t_{cg}[p_{deferred\ cg} / (1 - wartr)]$$
$$FVIF_{AT} = (1 + r^*)^n(1 - T^*) + T^* - (1 - B)t_{cg}$$

Accrual Equivalent After-Tax Return (Return that produces the same terminal value as the taxable portfolio)
$$R_{AE} = (FV_{AT} / initial\ investment)^{1/n} - 1 = r(1 - T_{AE})$$

Accrual Equivalent Tax Rate
$$T_{AE} = 1 - \frac{R_{AE}}{r} \quad \text{(An overall effective tax)}$$

Taxable Accounts: usually taxed annually called accrual taxes
- As the holding period ↑, T_{AE} ↓.
- Tax drag % > tax rate
- Investment horizon ↑, tax drag ↑
- Investment return ↑, tax drag ↑

Tax-deferred Accounts: Front-end benefits: contrib. decr. current taxes, accrue tax free, taxed in future.
$$\text{(TDA): } FVIF_{AT} = (1 + r)^n(1 - t_n)$$

Tax-exempt Accounts: Back-end benefits. Contrib. made after-tax, accrue tax free, tax-free in future.
$$FVIF_{AT} = (1 + r)^n$$

If $T_0 > T_N \Rightarrow FV_{TDA} > FV_{TEA}$

Investor's After-tax Std. Dev of Returns: $\sigma(1 - t_i)$.

Estate Planning
Calculating core capital
$$\text{Prob}(\text{joint survival}) = \text{Prob}(\text{husband survives}) + \text{Prob}(\text{wife survives}) - \text{Prob}(\text{husband survives}) \times \text{Prob}(\text{wife survives})$$

$$\text{CoreCapital}_{Nyears} = \sum_{t=1}^{N} \frac{P(\text{surv}_t)(\text{spending})}{(1 + r)^t}$$
$$r = \text{real risk-free rate}$$

Relative After-Tax Values
Tax-Free Gift:

$$FV_{\text{tax-free gift}} = PV[1 + r_g(1 - t_{ig})]^n$$
where:
PV = value of the gift (stock) today
r_g = pre-tax return if held by recipient
t_{ig} = tax rate if gifted (recipient's tax rate)