

Getting at the Truth: Designing an Effective Risk Assessment and Portfolio- Selection System

Defined Contribution/401(k) Conference

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Brian M. Rom
President
Investment Technologies

The Problem

How to prudently and efficiently provide participants with the information they need to make effective long-term asset-allocation decisions.

The Solution

Use computer technology to integrate investment theory, psychometrics and behavioral finance.

The Process

- 1 Identify the investment horizon.
- 2 Identify the investment goal.
- 3 Use questionnaires to assess risk tolerance.
- 4 Identify portfolio choices.
- 5 Select the portfolio.
- 6 Monitor progress.

1. Identify the Investment Horizon

- The point at which the investment program is “annuitized” for retirement payments.
- A key determinant of investment risk.

2. Identify the Investment Goal

- Project personal cash flows to determine required required rate of return to achieve pre-retirement wealth.
- Bear in Mind:
Aggregate all assets.

3. Use Questionnaires to Assess Risk Tolerance

Questionnaire Design

Do...

Employ psychometrics and behavioral finance:

- Incorporate Prospect Theory.
- Incorporate myopic loss aversion.
- Consider “framing” of questions.
- Ensure response consistency.

Questionnaire Design

Do...

- Consider the entire portfolio.
- Use wealth scaling.

*Would you accept the following investment with
\$ $\langle PctWealth * Wealth \rangle$ of your investable funds?*

*Double your investment with 50% probability, or lose
the entire investment with 50% probability.*

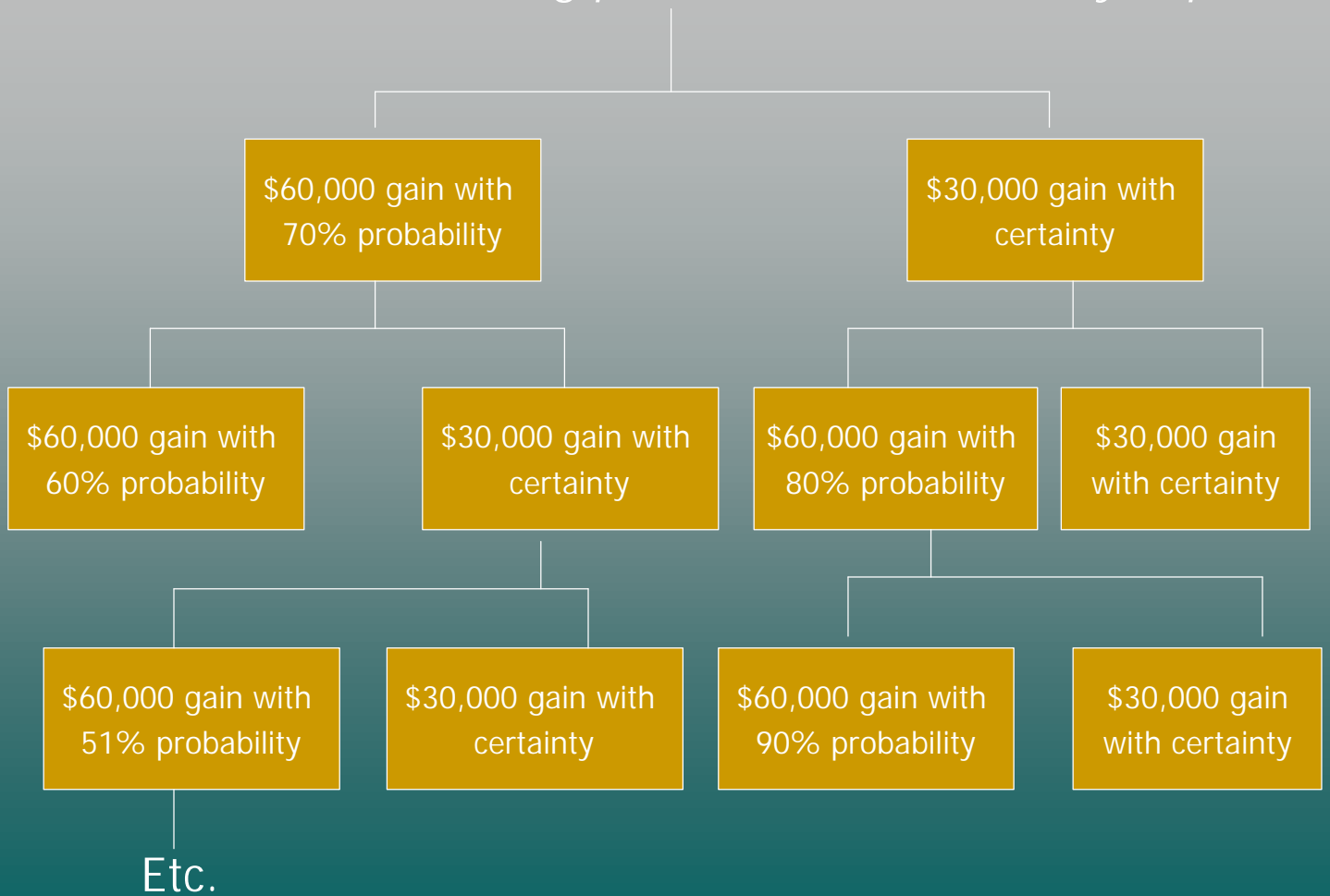
- Yes
- No

Questionnaire Design

Do...

Use adaptive questions

Which of the following pairs of investments do you prefer?



Questionnaire Design

Don't...

Assume risk=losing money.

I would only select investments where it is unlikely I will lose my original investment

Questionnaire Design

Don't...

Assume that asking individuals about their risk preferences can provide meaningful information.

Which of the following statements best describes your feelings about investment risk?

- I would only select investments that have a low degree of risk.
- I prefer investments with emphasis on those with a low degree of risk and a small portion in others that have a higher degree of risk that may yield greater returns.
- I prefer to select a balanced mix of investments -- some with a low degree of risk, others will have a higher degree of risk that may yield greater returns.
- I prefer to select an aggressive mix of investments -- some that have a low degree of risk, but with emphasis on others that have a higher degree of risk that may yield greater returns.
- I would select an investment that has only a higher degree of risk and a greater potential for higher returns.

Questionnaire Design

Don't...

Confuse the long-term investment strategy
with day-to-day cash flow issues

I find it easy to pay my monthly bills from my current pay.

- I strongly disagree
- I disagree
- I somewhat agree
- I agree
- I strongly agree

Questionnaire Design

Don't...

Make assumptions about the relationship between past behavior and risk tolerance

Have you ever invested in individual stocks or stock mutual funds?

- No, and I would be uncomfortable with the risk if I did.
- No, but I would be comfortable with the risk if I did.
- Yes, but I was uncomfortable with the risk.
- Yes, and I felt comfortable with the risk.

Questionnaire Design

Benefits of Computerization

- Customization of questionnaires.
- Response consistency.
- Weight scaling.
- Sensitivity analysis.
- Feedback.
- Reporting.
- Electronic delivery.



4. Identify Portfolio Choices

5. Select the Portfolio

- Absolute vs. Relative Mapping.
- Downside Risk vs. Standard Deviation.

6. Monitor Progress

Institute participant performance measurement and monitoring.

Review

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- 2 Identify the investment goal.
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