Investment Strategy for Defined-Benefit Pension Funds

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Outline of Key Ideas

- Because the sponsoring company guarantees the liability, a corporate DB pension plan should be analyzed as an integral part of the firm and not as a stand-alone entity.
- Immunizing the DB liability minimizes risk and *ex ante* cost to the firm and employees.
- A pension plan's value to employees can be enhanced at no additional cost to the firm by offering some easy-to-understand choices.
- New pension alternatives can be designed and produced to take advantage of globalization of financial markets and new financial technology.

Nature of the Pension Obligation

- Pension obligation is effectively collateralized debt, and ABO is the relevant measure of indebtedness.
- A formula that links promised benefits to final salary is not indexed because new accruals depend on continued employment.

Case study: Boots' pension immunization

Objectives

- Lower costs
- Increase security of benefits

Implementation

- In April 2000, Boots' pension fund had £2.3bn in assets with 75% equities, 20% short-term bonds and 5% in cash
- Equity portfolio was first swapped into a passive index trust, then 75% AAA sterling bonds and 25% AAA inflation-linked bonds with an average duration of 15.3 years

Results

- Avoided losses from collapse in equity prices
- Big reduction in management fees

Why Don’t Firms Adopt Boots’ Strategy?

- Current accounting rules create the illusion that investing in equities reduces pension expenses without increasing the volatility of earnings
- A corporation facing bankruptcy might seek to transfer value to its shareholders from its employees, creditors, or government (PBGC) by increasing the risk of its assets

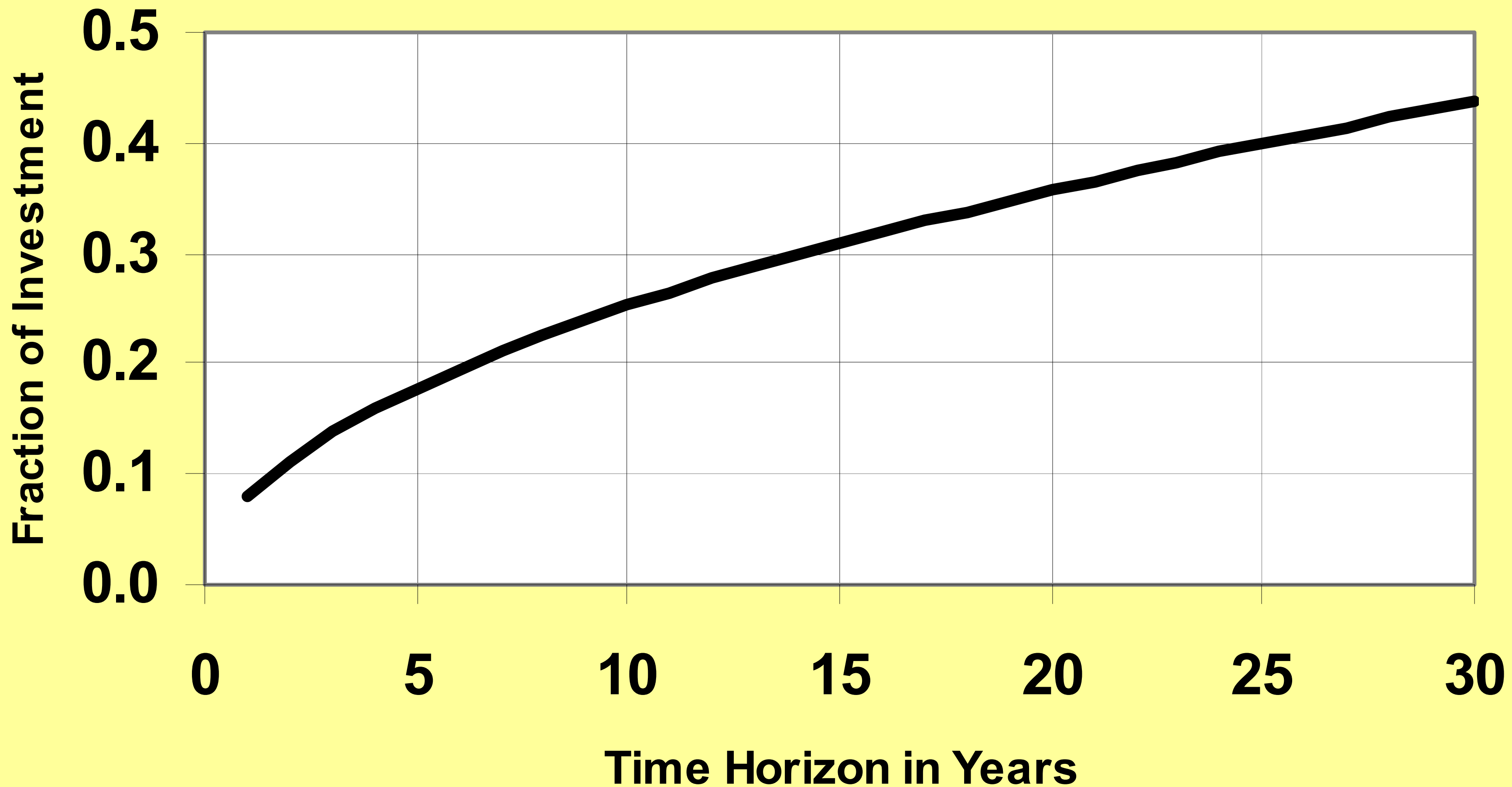
Different Pension Paradigms

	Traditional Paradigm	**New Paradigm**
Analytical perspective:	Pension plan viewed as a stand-alone entity with focus on future flows	Pension plan viewed as an integral part of sponsoring firm with focus on market value of assets and liabilities
Nature of pension liability:	PBO	ABO
Valuation framework:	Actuarial smoothing and assumed discount rates	Law of One Price No arbitrage between equity and fixed income when properly adjusting for risk
Measure of risk:	Probability of shortfall	Cost of insuring against a shortfall
Investment policy for plan sponsor:	Passive investment in equities can lower *ex ante* cost of benefits. Optimal asset mix is "diversified."	Immunization minimizes *ex ante* cost of benefits

Fallacies About Pension Finance

- Equities are safe in the long run
- Equities are a good inflation hedge
- Equities lower the cost of providing benefits
- The right discount rate to use in evaluating pension liabilities is the expected return on pension assets

Equities Are *Not* Safe in the Long Run



Why Are So Many People Misled?

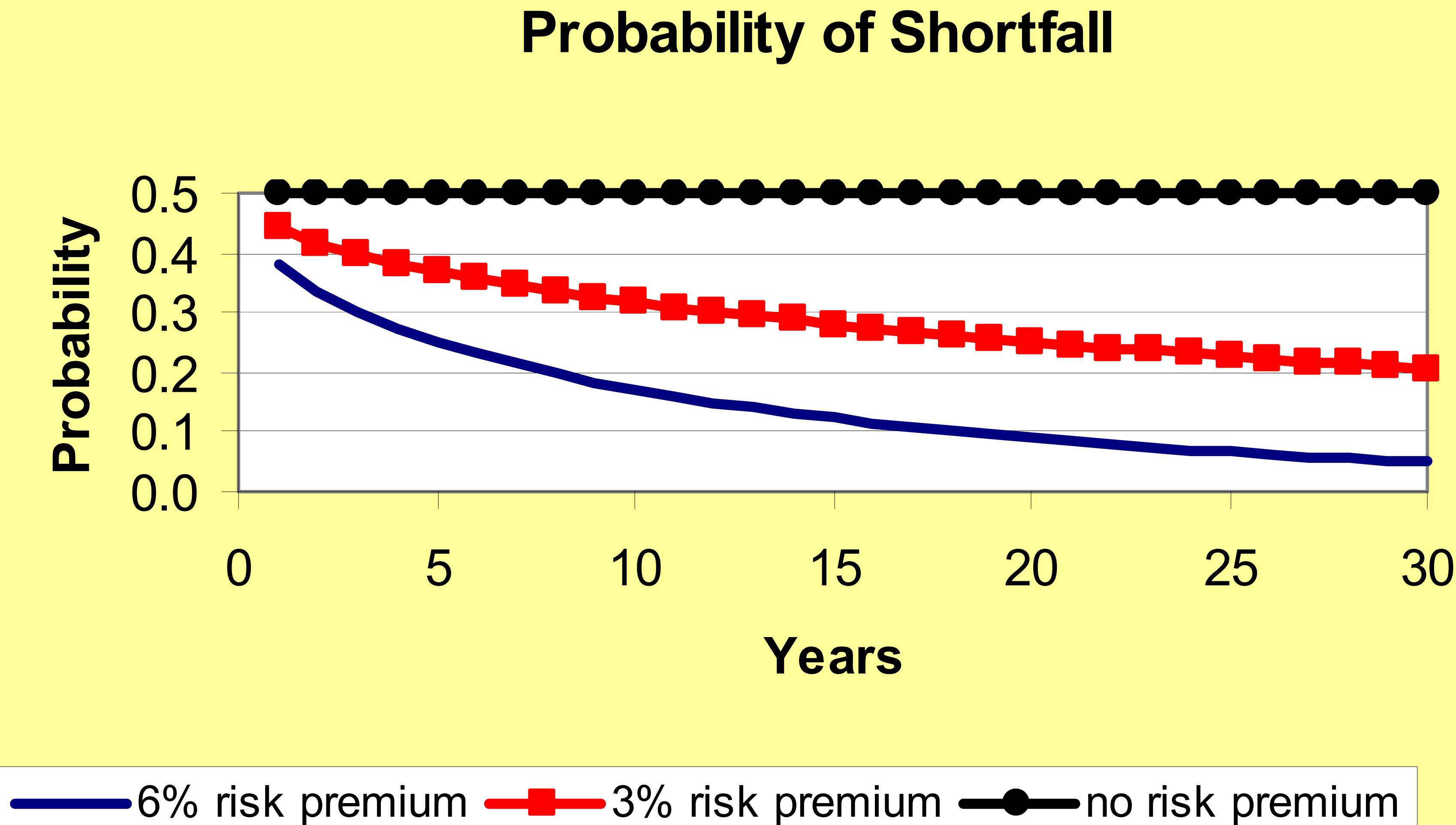
Both of the following propositions are *true:*

- Volatility of average compound rate of return on stocks declines with length of time horizon

  (*SmartMoney University* *Time vs Risk*)

- Probability of a shortfall declines with length of time horizon

Probability of a Shortfall Declines With Time Horizon If Risk Premium Is Positive



Flaws in Conventional Analysis

- Should take account of *severity* of shortfall, not just its *probability*
- Misinterpretation of historical equity returns

Valid Ways to Account for Severity

- Expected utility (Merton/Samuelson)
- Cost of shortfall insurance (Bodie)

Equities are *not* a good inflation hedge

- Historical evidence: The only sustained period of inflation in the U.S. in this century was the 1970s. This was one of the worst decades for stocks.

Equities Do *Not* Lower Benefit Costs

- Distinction between *ex ante* and *ex post* costs
- Good asset returns make the benefits more affordable, but not less expensive

Use the Bond Rate to Value Liabilities

- The discount rate must match the risk of the promised cash flows

DB or DC?

- Defined benefit - pro and con
  - No risk to beneficiary (unless not inflation protected or subject to default risk)
  - Easy to understand
  - “Expensive”
- Defined contribution – pro and con
  - More choice for participants
  - No default risk
  - Hard to understand
  - High costs of information, transactions, and agency
- Is current popularity of DC among policy-makers in business and government a result of fallacious reasoning or wishful thinking?

Who should guarantee pensions?

- Government – pro and con
  - Paradox of power
  - Low transaction and agency costs
  - Transnational portability costs
- Employers and/or trade unions
  - Lower information and agency costs if people trust the sponsor
  - Portability costs across employers or industries
- Private-sector financial intermediaries
  - Greatest portability, flexibility and choice
  - Highest transaction, information, and agency costs
  - Cost of regulation

Policy options

- Goal is to improve welfare by completing markets and eliminating waste
- Governments can supply default-free bonds linked to various indexes of cost of living or standard of living
- International pension swaps can lower the costs of diversification and hedging
- Financial intermediaries can mass produce customized solutions that are easy for people to understand

Other Policy Issues

- Should guaranteeing pensions be paired with other policy objectives?
- Possible examples:
  - Privatization of state-owned enterprise
  - Economic development
  - Helping certain industries, regions, or interest groups through indirect subsidies
  - Making the financial system more robust by introducing pension funds that compete for household savings and for financing of enterprises

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