

If You're So Smart, Why Aren't You Rich?

- Efficient market answer
- Hedge fund answer – superior information processing
- Dynamic modeling as a tool for gaining an information edge

Project Purpose

- Client is a **major** multi-strategy hedge fund
- Gain insight into the dynamics of value creation. Purpose is not to find specific trading opportunities
 - Technique of fundamental analysis
 - Money is made by recognizing opportunities to create and capture value before the competition
 - Project is open-ended and exploratory

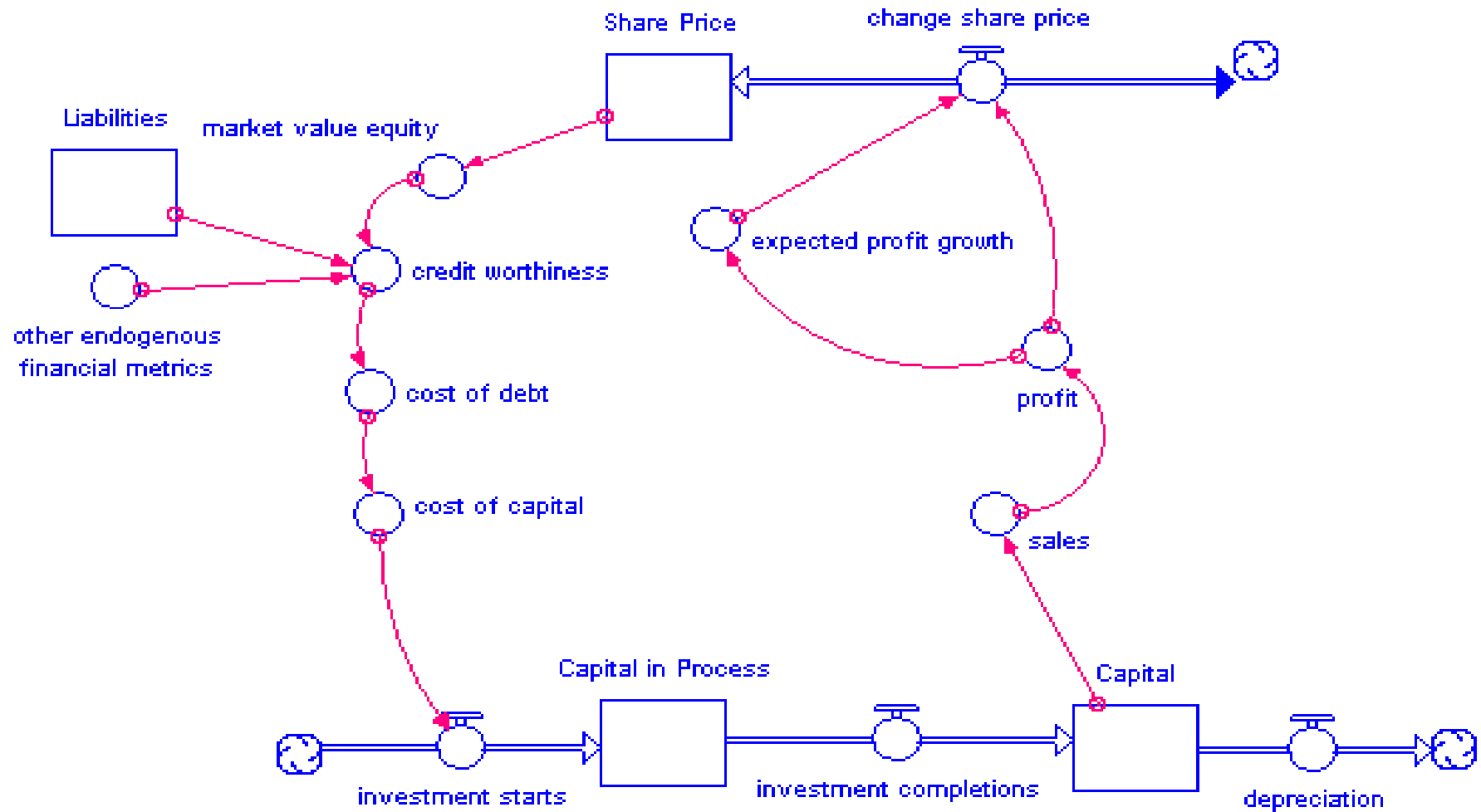
Nature of the Model

- Examine individual firms over a long time period
- Aggregate model that abstracts from the details of specific companies – similar to generic structures
- Includes full set of balance sheet items. Deals with asset-liability interaction
- Primarily a behavioral model that includes financial, behavioral and economic relationships
- Fairly rich set of feedbacks

Case Study – Capital Structure, Endogenous Oscillations and Value Creation

- Endogenous perspective fundamental to System Dynamics
- Capital structure big issue in economics and finance
 - Modigliani – Miller and multiple extensions
 - Capital structure is irrelevant to value creation
- Capital structure is very important to financial market professionals
- Not much behavioral modeling on the topic

A Model



The Calibration Database

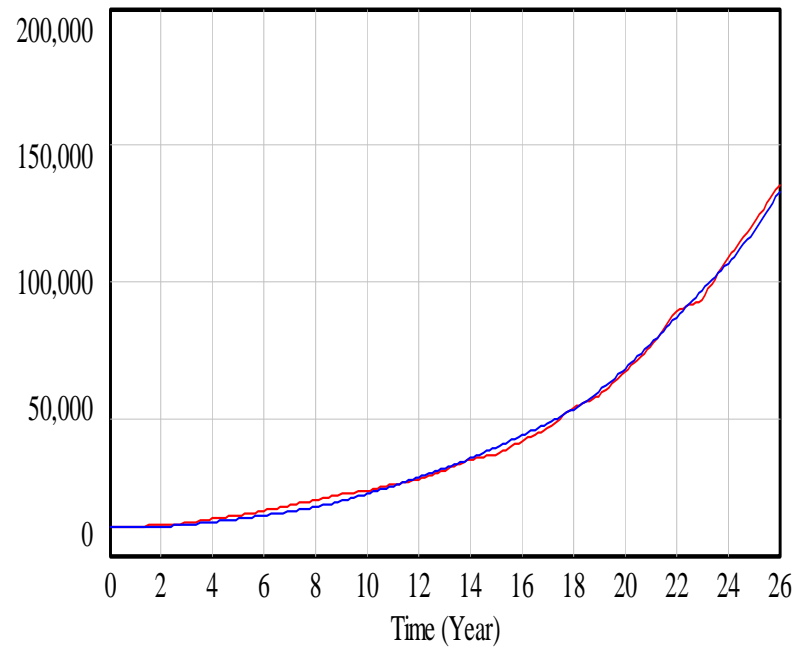
- CS- First Boston data base
- 25 years of yearly data
- Comprehensive financial data including “capital events” that account for mergers and acquisitions
- Investment and capital stock adjusted for inflation

Calibration variables

- Total assets including capitalized R&D
- Sales
- Cash flow
- Book value of Debt
- Net working capital
- SG&A expense
- Market value common equity

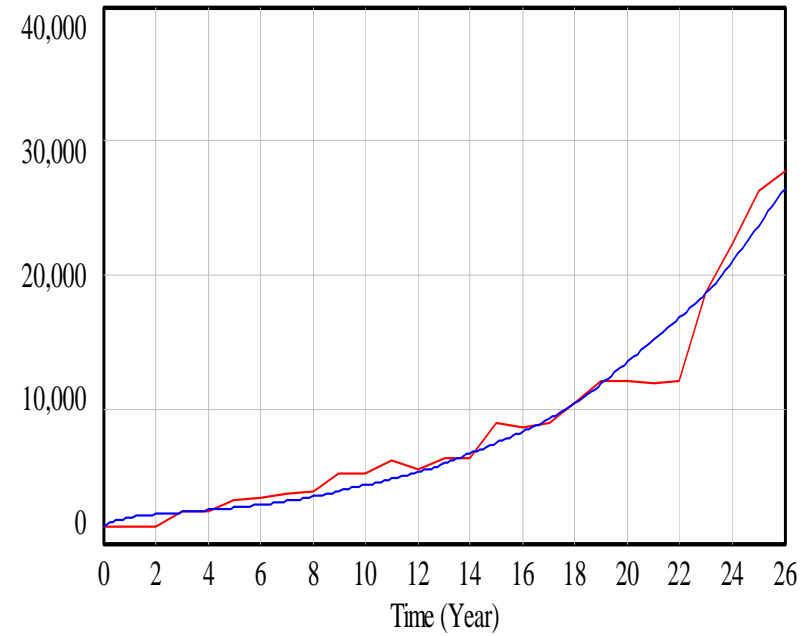
Sample Calibration Results

total assets



total op assets : baseline —————
total asset data : baseline —————

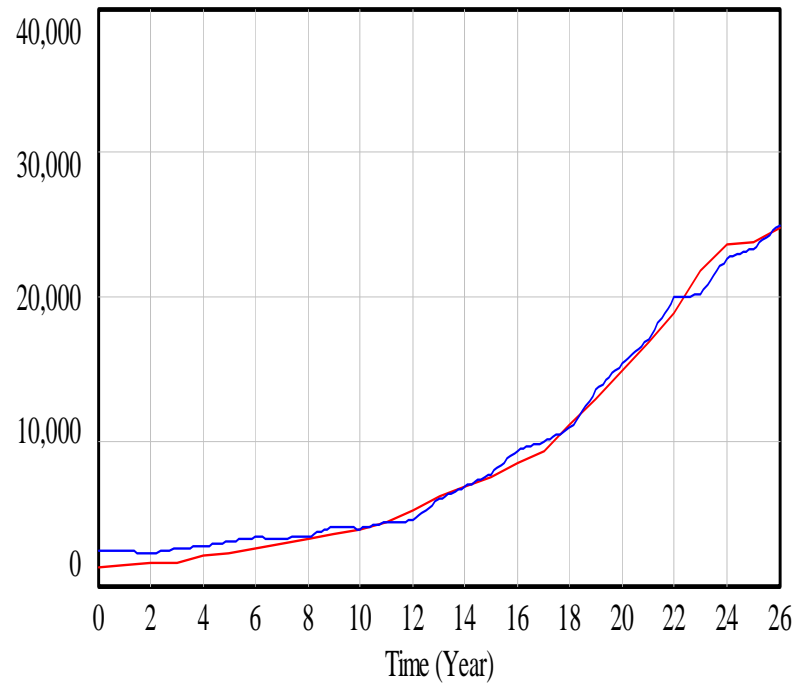
Debt



Debt : baseline —————
Debt and equivalents : baseline —————

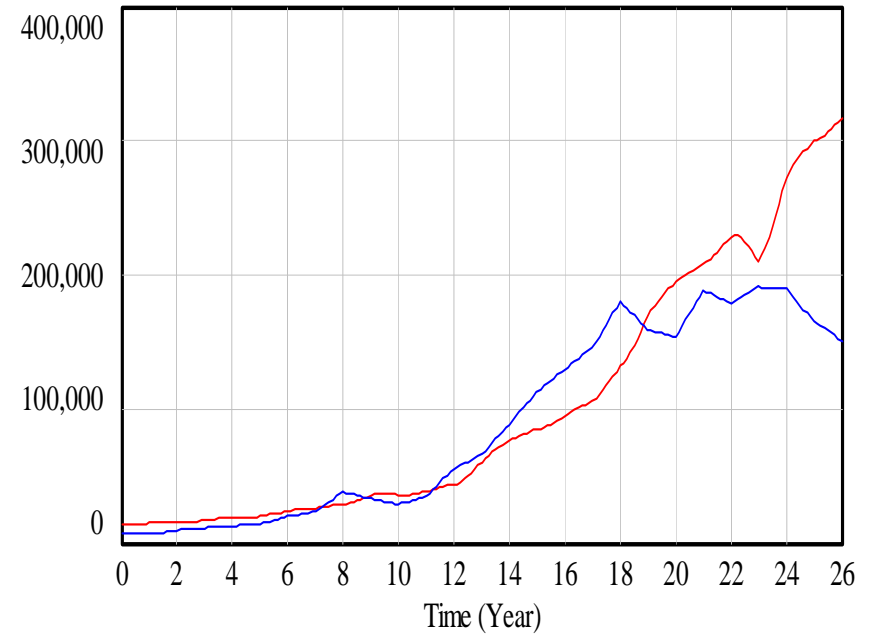
Sample Calibration Results

Cash flow



free cash flow : baseline —————
gross cash flow data : baseline —————

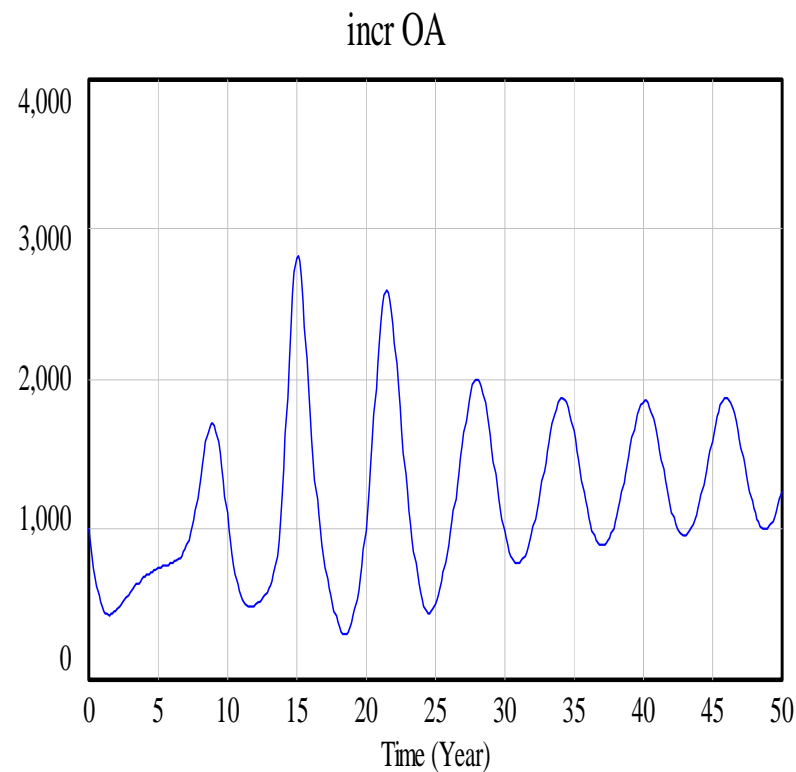
market value



market value data : baseline —————
market value equity : baseline —————

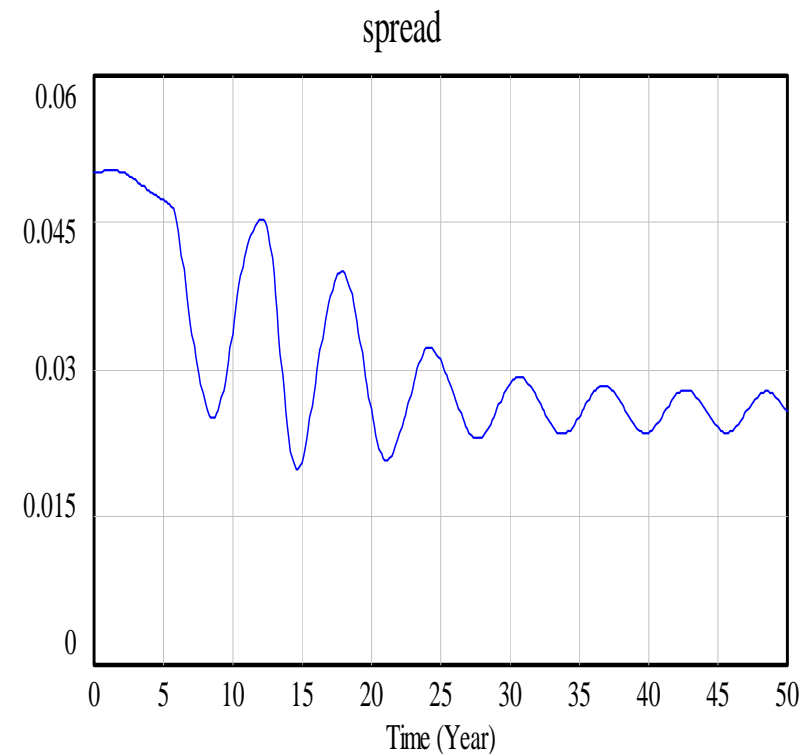
What Could Cause the System to Oscillate?

Investment



incr OA : jj to oscillation sens

Spread over Risk Free Rate



spread : jj to oscillation sens

Factors Leading to Oscillations

- Higher target debt
- Low profit margin
- Investment responsiveness to cost of capital
- Target debt responsiveness to cost of debt

Final Observations

- What are the opportunities to make money?
 - Changing the capital structure can stabilize performance and reduce risk
 - Capital structure significantly affects value creation
 - Low cost of capital can lead to an overshoot and collapse process
- Model application to the national economy