Stress Testing Conglomerates

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Comptroller of the Currency
Administrator of National Banks

Stress Testing Conglomerates
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Outline

- Definitions
- Review of Stresses in Market Risk
- Current practices in stress testing by major area of risk
  - Interest Rate Risk
  - Credit risk
- A Vision for consolidated stress testing.
  - Problems

Stress Testing

- **Stress Testing**: Estimated change in the value of a firm arising from a plausible change in the economic environment
  - E.g., moderate stagflation

Risk Factors

- **Risk Factors:** Variables that characterize the environmental conditions that are held to determine or predict a variable of interest
  - Interest Rates, GDP growth

Scenarios

- **Scenario:** A deterministic set of values for the risk factors
  - Fed funds up 200 bps
  - 10-year swap rate up 300 bps
  - GDP declines 2% over two years

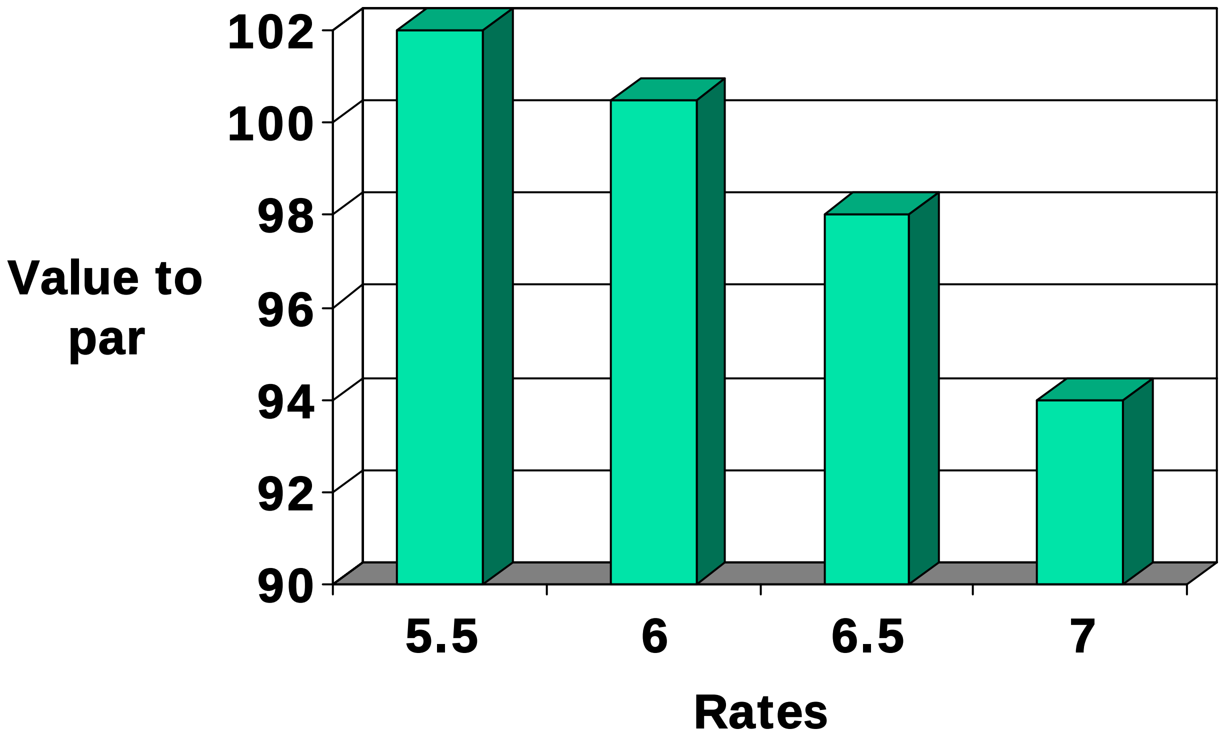
Evolution for Trading Book

- Regulator imposed global data sets
- Consensus as to plausibility of scenarios
- Well understood computation engines
- Industry innovated and diffused stress tests from best practice to standard practice

Interest Rate Risk

- American banks can be usefully thought of as exposed to single factor, even at the aggregate level
- “Valuation profiles” commonly used, at instrument level and consolidated level

Interest Rate Risk



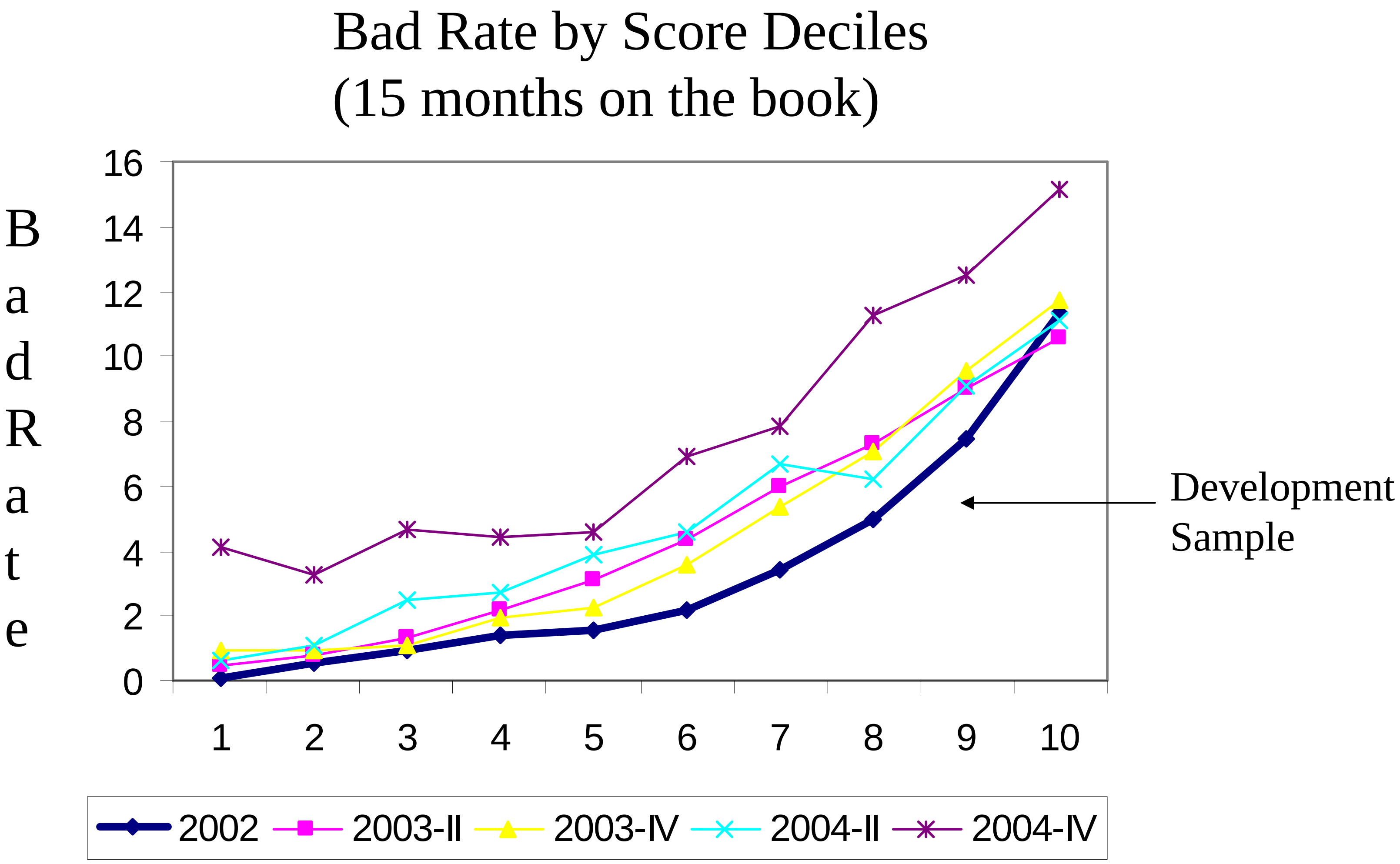
Secondary Issues

- Two major arbitrary assumptions
  - Rate sensitivity of retail depositors
  - Non earning assets and liabilities
- Secondary risk factors
  - Volatility
  - Correlations between bases
- Leverage magnifies errors: Bottom line error = Percentage error for item * item as percentage of equity

Credit Risk

- Portfolio credit-risk models are a relatively new phenomenon
- Generally a “reduced form” form function of credit scores, not factor-driven
- Suggests current machinery allows stress tests only on scores

Back test on performance by rating.



Benefits of factor-driven credit-risk stress tests

- Gain an improved sense of how portfolio fits together
- Tie into market risks
- Rationalize risk profile

Evolution to consolidated stress tests, positive current developments

- Regulator-imposed consolidated global data sets
- Plausibility of scenarios a given
  - Moderate stagflation
  - Stagnation with disinflation has receded
  - Instability of correlations is nugatory

Problems with computation engines

- No consensus on methodology to arrive at common holding period
  - Trading 10 days, A/L two months, Credit: business cycle
- The large number of factors precludes transparency
  - Modeler's job to maintain transparency
- Regulatory risk
  - Many regulators confuse capital adequacy with risk management

Conclusions

- Meaningful consolidated stress testing of commercial banks is not yet feasible
- Market risk and interest-rate risk show that useful aggregate stress tests are possible
  - "Proof of concept"
- Evolution toward meaningful stress tests for credit risk has begun
- Too soon to tell