International Trend of Banks' Economic Capital Management

Bank of Japan Economic Capital Management Workshop

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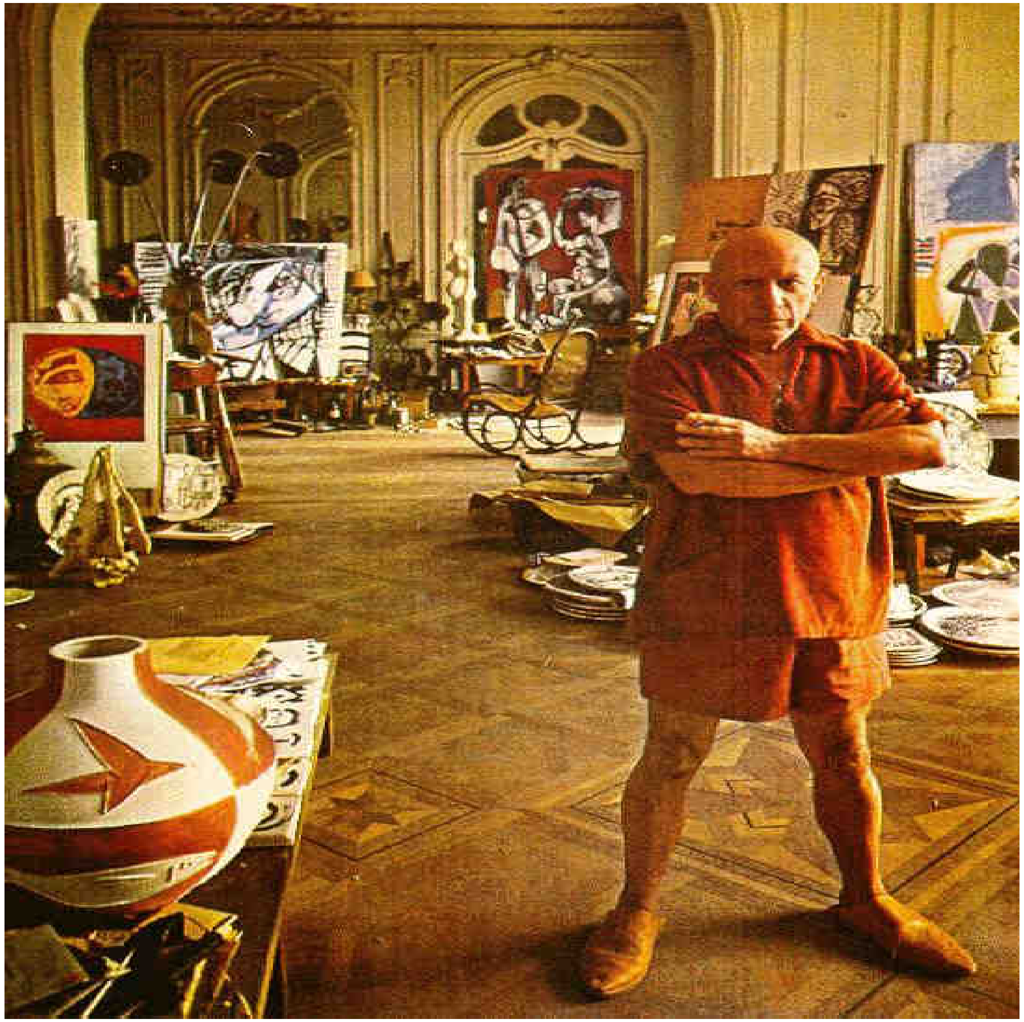
“Better risk management may be the only truly necessary element of success in banking.”

- Alan Greenspan, October 2004



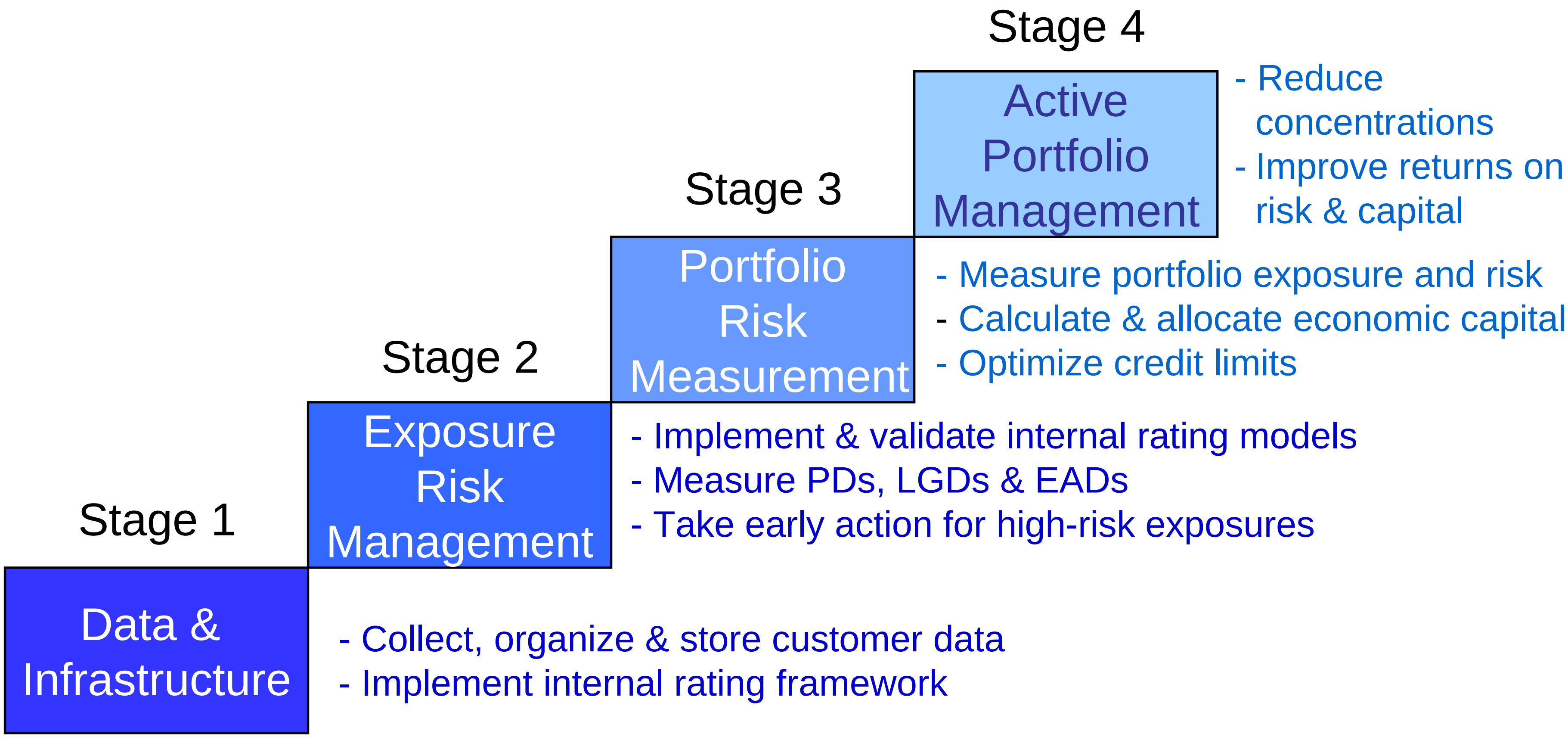
“Computers are useless. They can only give you answers.”

- Pablo Picasso

Key Questions Leading Banks Ask About Their Credit Portfolios

- What are the risks and returns of our credit portfolios?
- How much economic capital does each credit portfolio require to support our desired debt rating?
- Given the required amounts of economic capital, are we earning an appropriate return on this capital?
- What are the credit risk concentrations by industry and country?
- How can we better use economic capital measures in our business strategy?
- How will our credit portfolios perform under stress scenarios?
- Which are our best customers?
- Which are our worst customers and what can we do about them?

The Path Towards Superior Portfolio Performance: 4 Stages



Banks that are at the forefront of managing credit risk and achieving higher returns per amount of credit risk or economic capital, have a common high-level strategy: *they all manage their credit portfolios actively*

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Measuring Required Economic Capital

- Leading banks have transitioned away from using required regulatory capital toward required economic capital as the basis for making lending, pricing, and portfolio decisions
- Leading banks typically measure credit portfolio risk, return, and economic capital requirements across the entire institution on at least a monthly basis using a sophisticated credit portfolio model
- Different credit-risky portfolio segments are combined:
  - Large corporate, middle-market and retail loans
  - Structured finance
  - Sovereign and corporate bonds
  - Counterparty risks from derivatives portfolios

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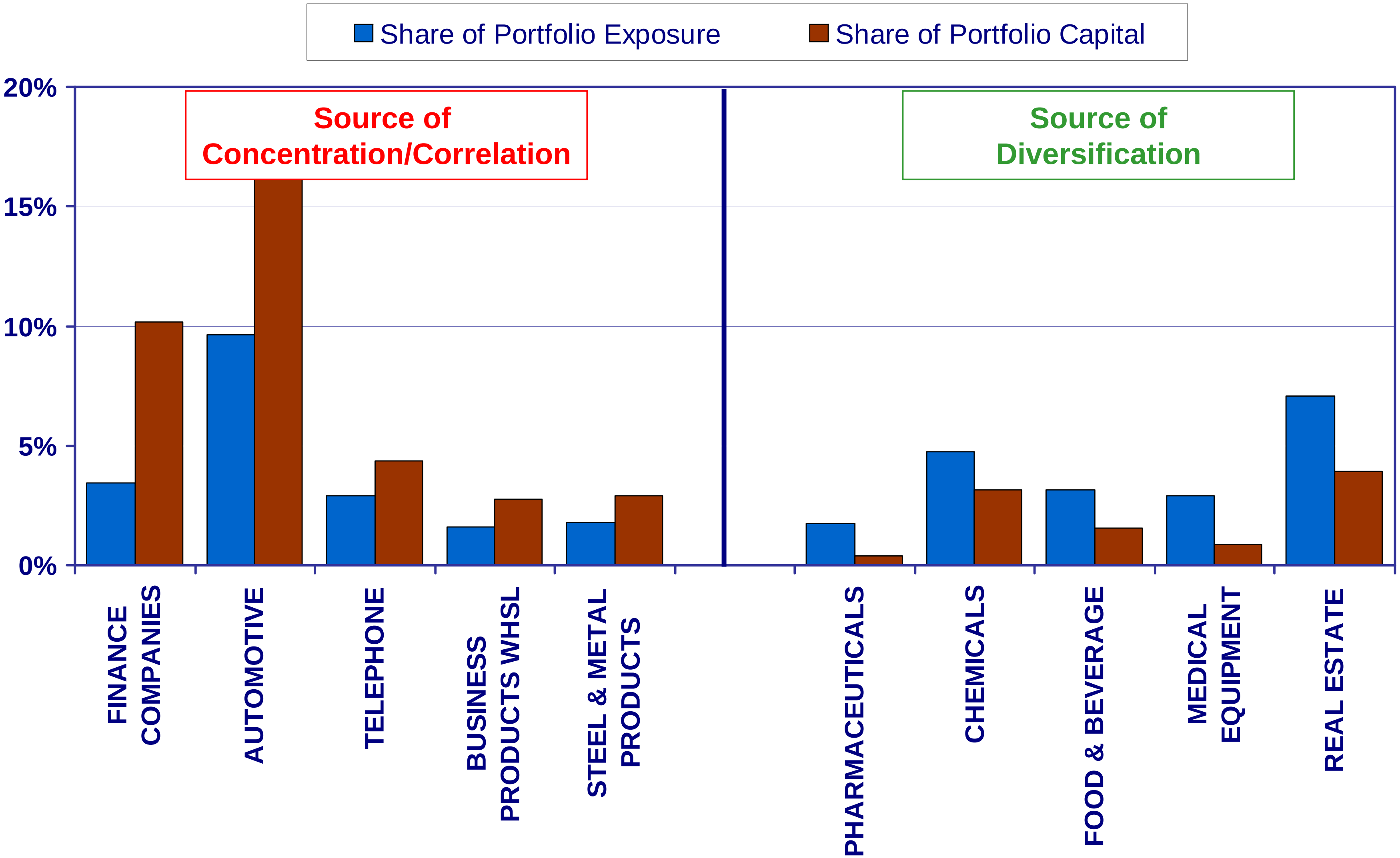
Industry Concentrations: Exposure vs. Economic Capital



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Banks Use Required Economic Capital for Many Purposes

- Capital Adequacy Assessment
- External Reporting
- Basel II Pillar 2 Compliance
- Internal Reporting
- Strategic Planning
- Capital Budgeting
- Risk and Performance Measurement
- Limit Setting
- Risk-Based Pricing
- Customer Profitability Analysis

Economic Capital Adequacy, External Reporting, and Regulatory Compliance

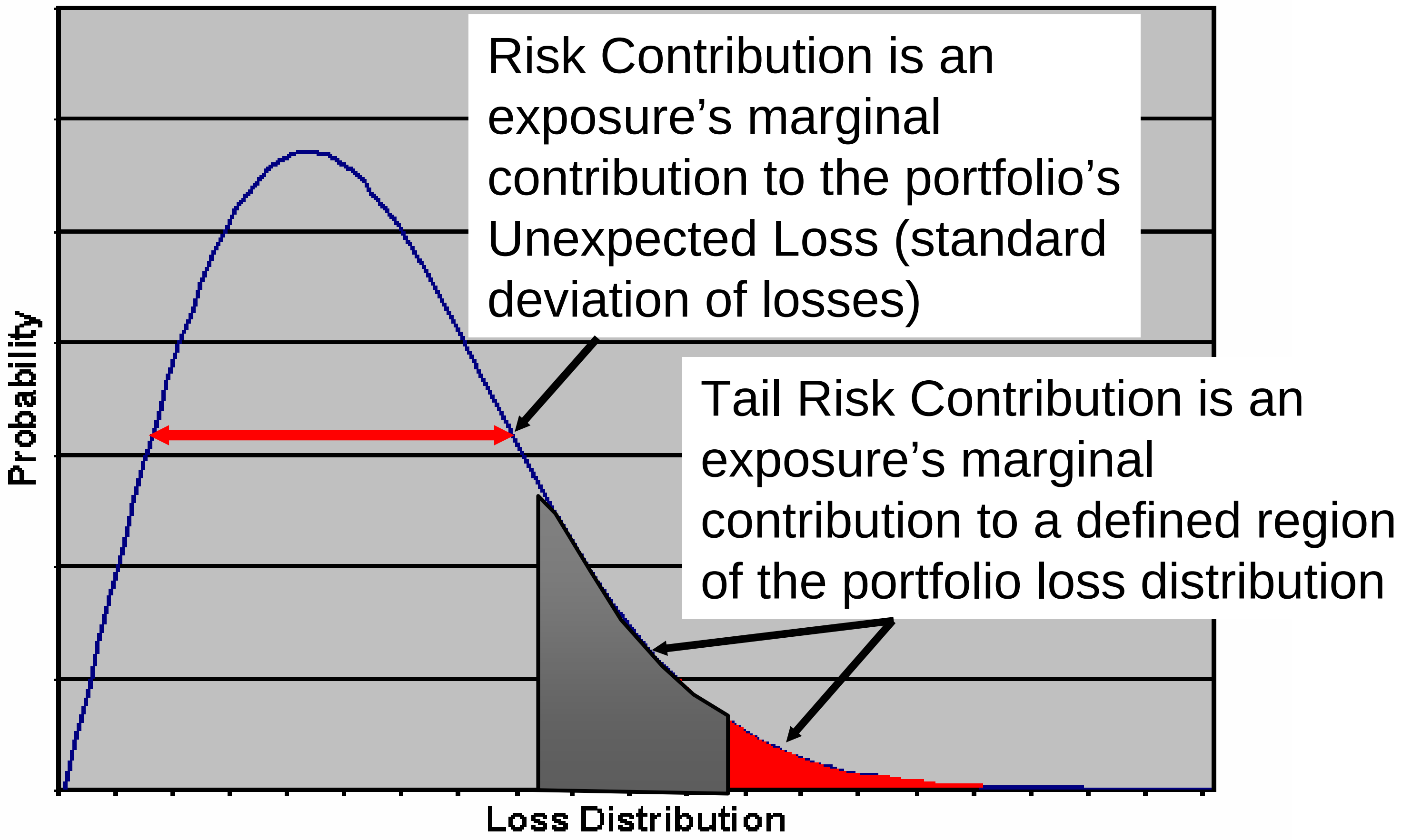
- Leading banks compare economic capital requirements with available capital to gauge whether the degree of leverage is appropriate for the amount of risk undertaken and the bank’s desired credit quality
- This comparison is often provided to:
  - Regulators
  - Rating agencies
  - Investors
- Most regulators expect leading banks to use sophisticated economic capital models for Basel II Pillar 2 compliance

Internal Risk Reporting

- Required economic capital has become the *language of risk* at leading banks – it is how different portfolios and risk types are compared
- Internal risk reports show which exposures are most risky or consume the most economic capital, and how this changes over time

Economic Capital Allocation: Contribution to Risk or Tail Risk

Good credit portfolio models distinguish Risk Contribution from Tail Risk Contribution and enable either to be used for economic capital allocation, depending on management's goals



Aligning Economic Capital Allocation with Management's Goals

- What are management's goals?
  - Managing earnings or loss volatility?
  - Managing the risk of extreme losses?
  - Managing the risk of some less-extreme loss amount?
- Management's goals may not be aligned with the goals of regulators
- Most leading banks allocate total credit portfolio required economic capital using Tail Risk Contribution with a large tail region, reflecting the portfolio loss level that would cause the bank to lose strategic flexibility

Strategic Planning and Capital Budgeting

- Required economic capital is used for strategic planning and capital budgeting at leading banks:
  - Strategic scenario analysis
  - Capital allocation among business lines
  - Business line growth and performance targets
  - Acquisition/divestiture analysis

Measuring Risk and Business Line Performance

- Required economic capital is used to measure portfolio risk and the risk-adjusted performance of business lines at leading banks
  - Business lines are usually charged for economic capital usage using a CAPM approach
  - This performance may be an important component of management incentive compensation

Credit Limits, Risk-Based Pricing and Customer Profitability

- Dynamic, required economic capital based guidance limits supplement hard notional counterparty limits
  - Such limits can help ensure that exposure reduction occurs if credit quality deteriorates
- Required economic capital is used for risk-based pricing at many leading banks: the price includes the cost of the economic capital required
- The cost of required economic capital is also used in customer profitability calculations

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Credit Portfolio Stress Testing

- Goals:
  - Help understand how economic cycles, especially downturns as described by “stress scenarios”, affect risk, loss and capital for a portfolio
  - Complement simulation analyses with estimates of potential large losses from specific events or economic conditions
  - Help management plan for responses to stress scenarios
  - Communicate management responses to stress scenarios internally and to regulators
- Challenges:
  - Deciding what scenarios to choose and why
  - Estimating the probability of scenario events
  - Linking stress scenarios to credit risk factors

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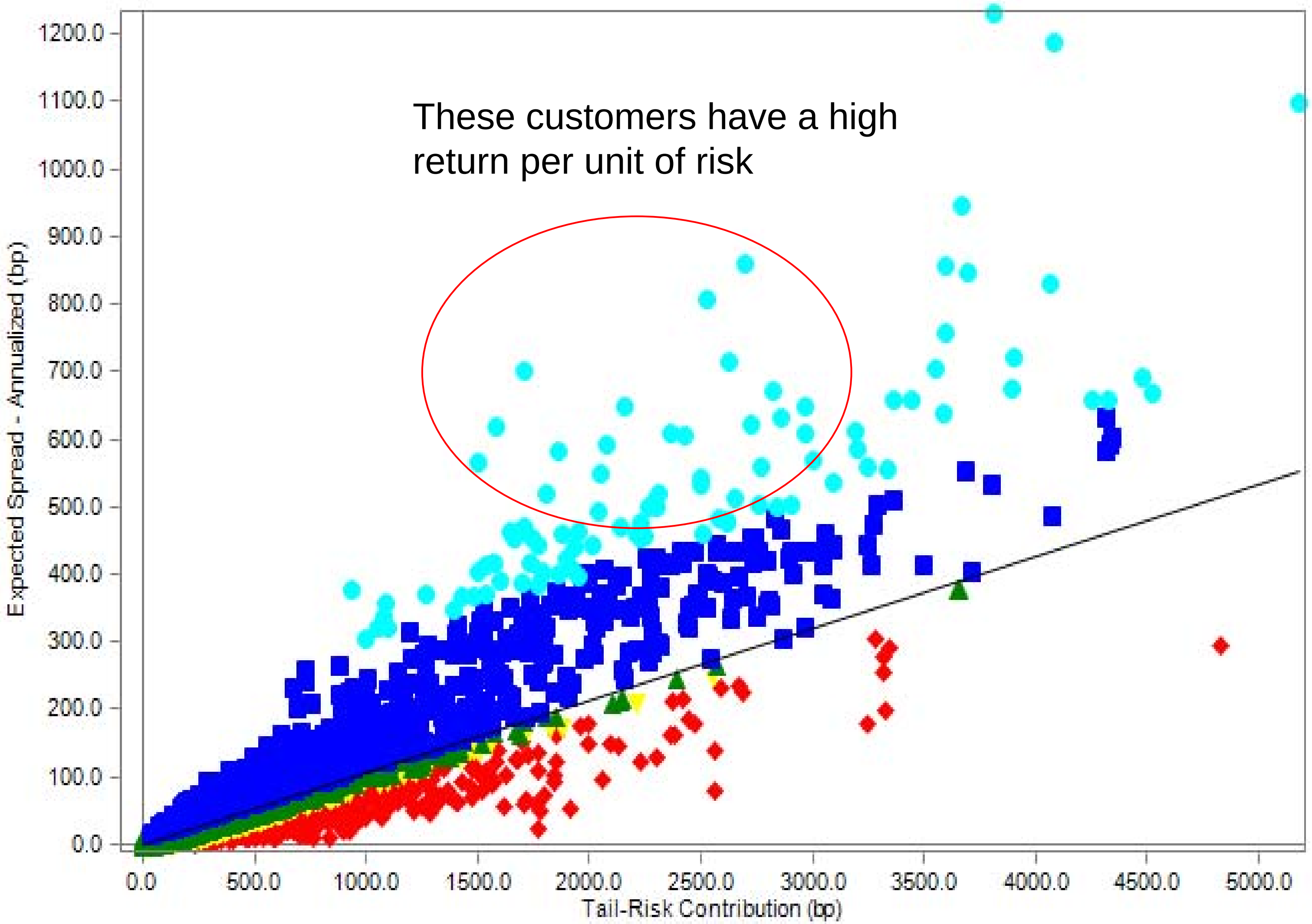
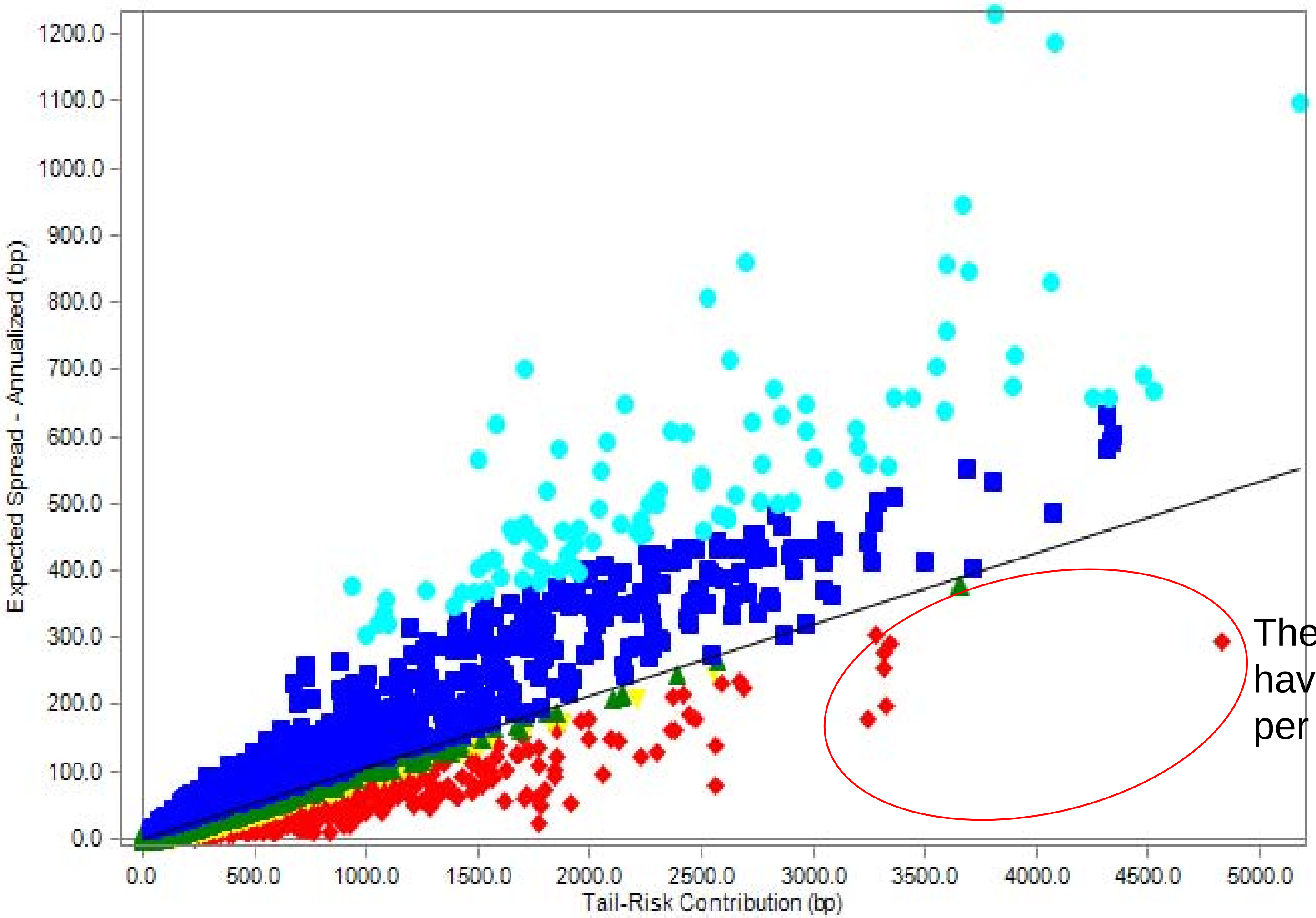
Best Customers



Worst Customers



These customers have a low return per unit of risk

What Is Active Credit Portfolio Management?

- Active credit portfolio management is a portfolio management strategy designed to:
  - Diversify the portfolio better
  - Reduce portfolio volatility (unexpected loss)
  - Improve return/risk
  - Use economic capital more efficiently
  - Create capacity to do more business
  - Increase shareholder value

What Is Active Credit Portfolio Management?

- The strategy involves:
  - Holding credit only when the bank is being paid well for the marginal portfolio risk (after considering relationship income)
  - Reducing concentration/portfolio correlation caused by:
    - Excessive origination in single names, countries and/or industries
    - Deterioration in credit quality
      - When credit quality deteriorates, portfolio correlation increases and portfolio risk and required economic capital accelerate

Major Trend Toward Active Credit Portfolio Management

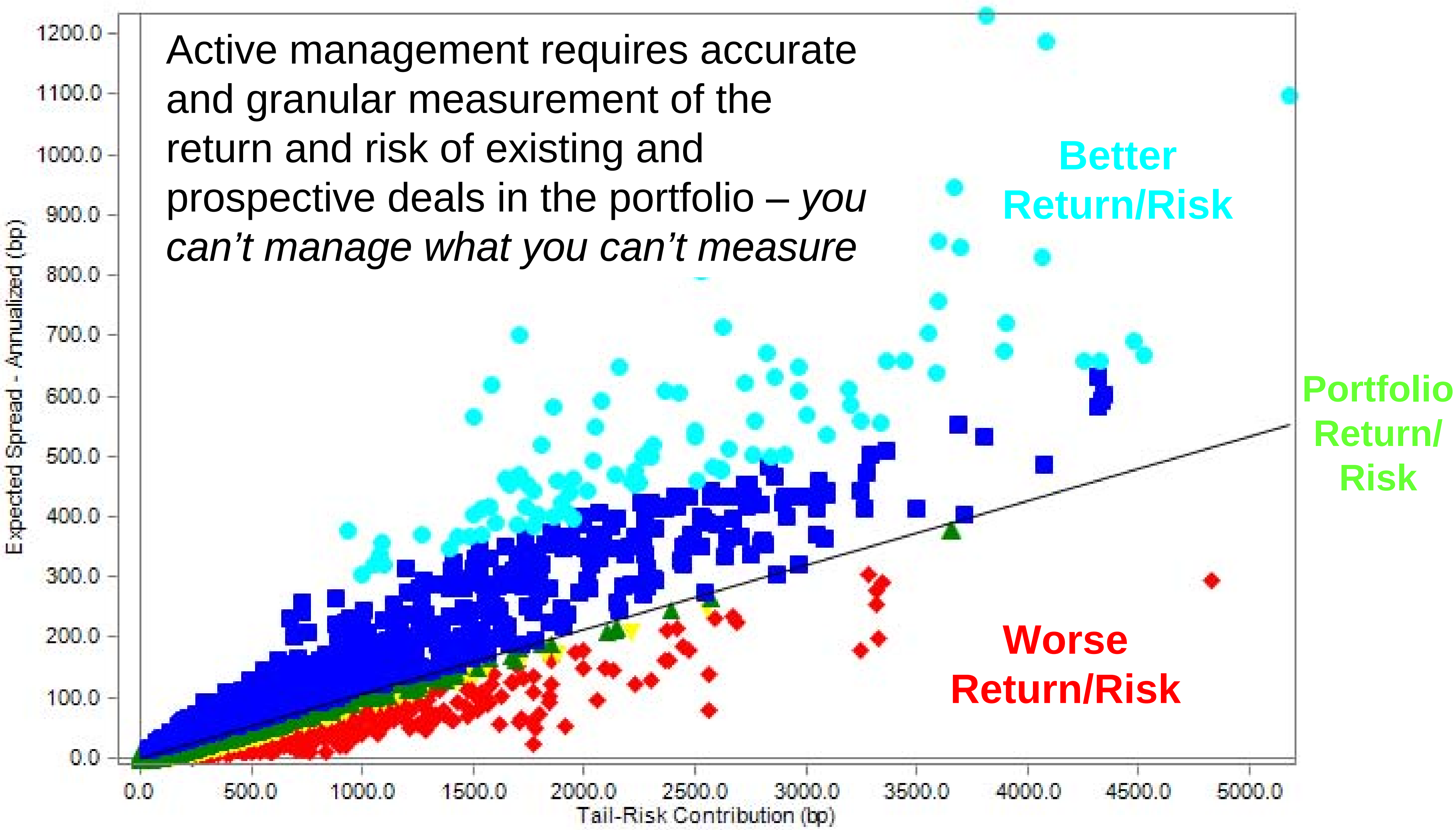
- Active credit portfolio management began among a few leading edge banks in the late 1990s, mainly to:
  - Reduce concentrations and unexpected losses
  - Increase capital velocity
  - Improve returns on risk and capital
- Especially since 2003, there has been an acceleration in adoption and use of active credit portfolio management among other banks
- What convinced senior management at these banks to pursue active credit portfolio management?
  - Large credit losses in 2000 – 2002
  - Better liquidity in loans, CDS, and CDOs
  - Success stories among their leading-edge peers in reducing concentrations and improving returns on risk and economic capital

Success Stories

- One leading bank client estimated that loan loss savings were 6 times what was invested in active credit portfolio management over a 3-year period starting in 1998
  - This client was originating 3 times as much on the same capital base
- Another client eliminated “non-core” customers, reducing the portfolio size by 35% and the economic capital by 70%
  - This significantly increased returns on economic capital and created capacity to use the bank’s balance sheet more productively
- Other clients have reported doubling or tripling returns per risk and economic capital

Accurate and Granular Risk and Return Measurement

Active management requires accurate and granular measurement of the return and risk of existing and prospective deals in the portfolio – *you can't manage what you can't measure*



Performance Improvement: a Gradual Process

- Active credit portfolio management can begin even if not all data is perfect
- In practice, portfolio performance improvement is a gradual process of adding exposures with high return/risk ratios and shedding exposures with low return/risk ratios
- This usually implies a gradual process of achieving greater diversification
- A relatively small number of exposures can have a hugely disproportionate effect on risk and economic capital
  - "Some 70% of [one bank's] problem loans involve 15 large corporate customers" – *American Banker*, April 17, 2001
- Reducing these excessive concentrations improves return per risk and economic capital

Summary

- An accurate, granular credit portfolio model is essential for making good credit origination, pricing and portfolio decisions
- Required economic capital has become the language of risk at leading banks
- Credit portfolio management can produce:
  - Better diversification
  - Reduced portfolio volatility (unexpected loss)
  - Improved return/risk
  - More efficient use of economic capital
  - Capacity to do more business
  - Increased shareholder value