BRUNEL UNIVERSITY
Economics and Finance

EC1004 LECTURE 10

Issues in commercial bank risk management

Reading: Madura Chapter 19

We are going to discuss the overall nature of risk control in banks and related management issues. We shall focus successively on day-to-day, longer term and crisis considerations. Risk management is of particular importance as the focus of regulatory concern as well as due to the hard lessons that history teaches about the consequences of its failure for banks going bust.

1 Opportunities and risks

Banking is all about seeking profit but without taking excessive risks. I want first to tell you about two recent financial crises as examples of failure to recognise credit, liquidity, interest rate or market risk

Examples of crises 1: Drexels and junk bonds
Junk bonds are bonds with high risk of default
Rapid growth of junk bond market in late 1980s, new issues led by Drexel (US investment bank)
Reliance on one institution (Drexels) as market maker – standing ready to buy or sell bonds to investors, thus making them liquid
Possible underpricing of risk (investors rely on liquidity and diversification for protection)
Liquidity was vulnerable to adverse developments as all investors sought to sell and no-one wanted to buy (bankruptcy of Campeau, big issuer for example)
Drexel made big losses on its own holdings and lenders refused to give it credit
Risks – credit, market, liquidity and market liquidity risk

Examples of crises 2: Japanese banking crisis
Long term excellent performance of Japanese economy
Huge credit expansion in 1980s, backed by strong household saving directed to banks
Loans directed largely to real estate, since large companies no longer required bank finance (internal finance and securities markets).
Commercial and residential real estate prices rose sharply (“bubble”)
Further impetus from cut in Japanese interest rates in wake of Louvre Accord (attempt to lower US dollar exchange rate)

Banks found it hard to adjust to low GDP growth rates since early 1970s, felt authorities would always rescue them and herding (management risk reduced if emulate competition) – poor lending practices, raised share of loans to real estate at low interest rates
Tightening of monetary policy in 1989 as asset price inflation spread to real economy, followed by quantitative restrictions on real estate financing
Sharp falls in equity prices and real estate prices
Sharp rise in non performing loans and fall in bank capital ratios
Authorities took very long time to react – problems still not fully resolved
Failures also of investment banks and insurance companies
Sluggish economic development in the wake of this

- credit constraints
- fiscal crisis
- persistent high household consumption
- bankrupt firms kept operating

High credit risk but also errors by the authorities

2 Need for risk management

Credit, liquidity, interest rate or market risk are either inherent in banking or offer attractive profit opportunities

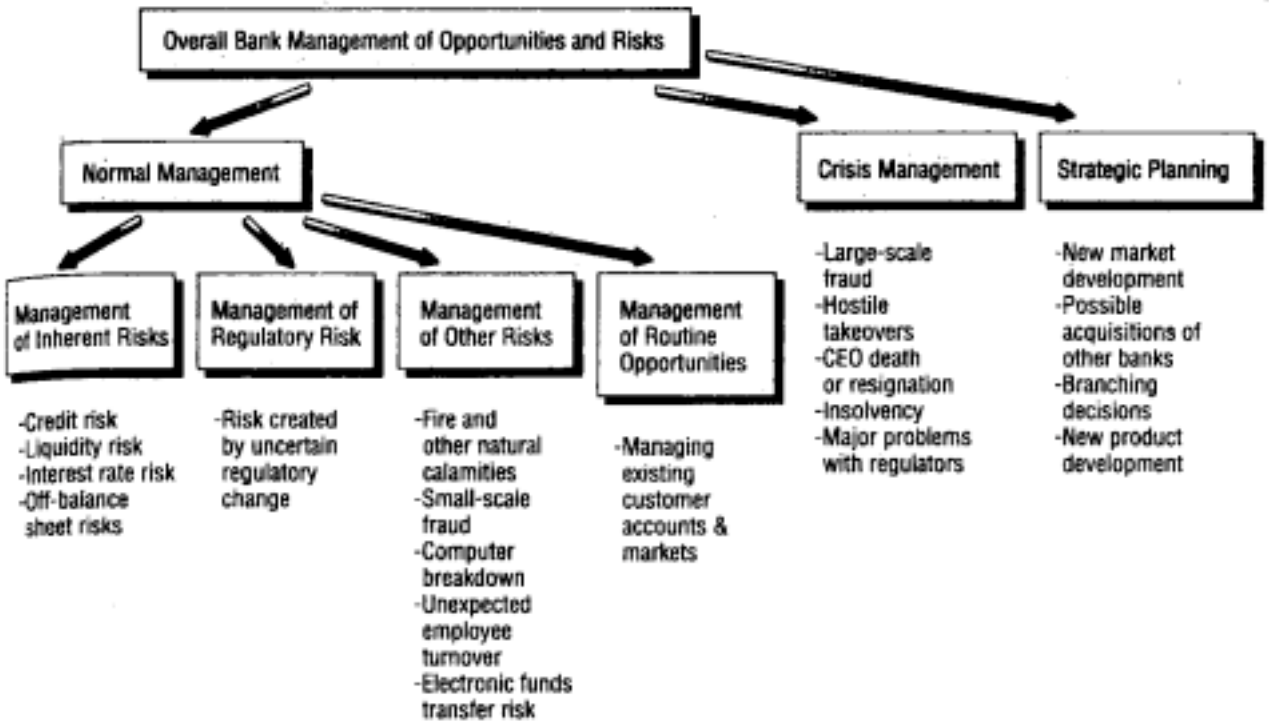
Until 1970s, banks had adequate capital, faced low volatility, fixed exchange rates, stable interest rates, capital controls, oligopolistic banking markets. Banks got high profits from low risk business but the economy was poorly served (e.g. queuing for mortgages)

Increased complexity of risks faced by banks since 1970s due to:

- competition and deregulation
- asset price volatility (e.g. floating exchange rates)
- hedging scope – use of derivatives
- government protection of banks via lender of last resort (safety net) and moral hazard (like having car insurance that doesn't get more expensive when you crash)
- regulation risks
    - erratic change,
    - general initiatives not suited to individual institutions
    - perverse incentives
    - limiting innovation

- Business risks increased (fraud, professional liability etc.)

Management of risks and opportunities



3 Day to day risk management

3.1 Managing credit risk

Banks in most countries still get bulk of income from this source

Key aspects from risk control perspective:

- underwriting and loan origination – credit analysis (lecture 9)
- charging a high enough interest rate to cover the risk
- funding and servicing – documentation must be sound (protect bank's claim for repayment)
- risk processing - monitoring (following borrowers' fortunes and ensuring funds are not misused) and diversification (avoid excessive concentration of loans in a single sector subject to high risks e.g. real estate)
- credit culture - avoiding herding and sticking to rules (not easing credit standards just because all the other banks are easing theirs)

3.2 Liquidity risk and liability management

Definition of liability management: ensuring maintenance of continuity and cost effectiveness of funding assets. 3 issues:

(1) Diversification of funding sources to reduce liquidity risk - CDs, eurodollars, repos, securitisation, subordinated debt as well as interbank, time and demand deposits

(2) Decide on liability mix - choice of:
- traditional deposits ("products") incorporating services and with payoff insensitive to fortunes of intermediary, for small users
- and risk-sensitive investment instruments, for large users where choice determines degree of monitoring

(3) Maturity structure - duration matching between assets and liabilities affects the degree of interest rate risk, but may also reduce flexibility to react to new information

3.3 Managing interest rate risk

Balance potential gain against risk of loss
Measurement procedures essential (simplest is gap in maturity between assets and liabilities)
- Matching of maturities
- Floating Rate loans (but more credit risk)
- Use of derivatives such as interest rate futures

3.4 Managing market risk

VAR models

Cover whole institution Value at risk is the total value of a potential loss in market value that the bank stands to lose from holding a market position

VaR models seek to aggregate risks for the entire institution, comprising trading risks (day to day) and investment risks (longer term)
$VaRx = Vx * dV/dP * \Delta Pi$
(VaRx is the market value of position x, dV/dP its sensitivity to price moves per $ market value and ΔPi is the adverse price movement over time)

Assumptions are needed on distribution of price changes (e.g. normal), serial correlation, stability of volatility and covariances (usually based on past averages) Example, JP Morgan – random walk, normal, no serial correlation, standard deviations stable, interrelation of two price movements "joint normal"

For derivatives, market risk calculated with portfolio approach, looking at net position after offsetting exposures. Underlying risk factors (e.g. convexity risk, basis risk, volatility risk) need to be separately considered and aggregated in constructing VaR

Can be extended to credit risk, e.g. by assuming default probability of firms is related to the leverage and volatility of a firm's equity value

Problems – "fat tails" mean normal distribution gives little information on unlikely events such as 1987 equity market crash – 20 standard deviations.

Even for "normal" use, assumptions may not be correct and future may not resemble past (e.g. in terms of correlations)

VaRs may generate adverse market dynamics by requiring banks to all sell assets at once

Assume risk exogenous when it can be endogenous to collective behaviour

Stress tests

Essential complement to VaRs which only show losses from normal activity.

Stress tests involve identification of consequences for portfolios of possible "worst cases" (using historical shocks, hypothetical changes or Monte Carlo tests – assessing a number of combinations)

Examples: policy regime shifts, deposit runs, collapses in market liquidity, counterparty failures, unprecedented shifts in interest rates, yield curve, exchange rates, equity or commodity prices

Essential to begin by calibrating exposure to relevant risk, which may be indirect (via borrowers and other counterparties). E.g. interest rate risk: use of duration gap analysis for assets, liabilities and thus on equity – possibly also allowing for convexity, or if duration not available simple maturity gap

Issue: should stress tests be standardised across banks with different portfolios?

Inability to do a stress test may show accounting and institutional inadequacies.

3.5 Controlling risk of fraud

Second only to credit risk as a cause of bank failure. Incentives increase when bank in financial distress. Solutions:

- external as well as internal auditing, examinations, legal division checks

4 Managing routine opportunities

Easy to neglect existing customers when managing risk and coping with change – but they are assets to bank whose value increases with time

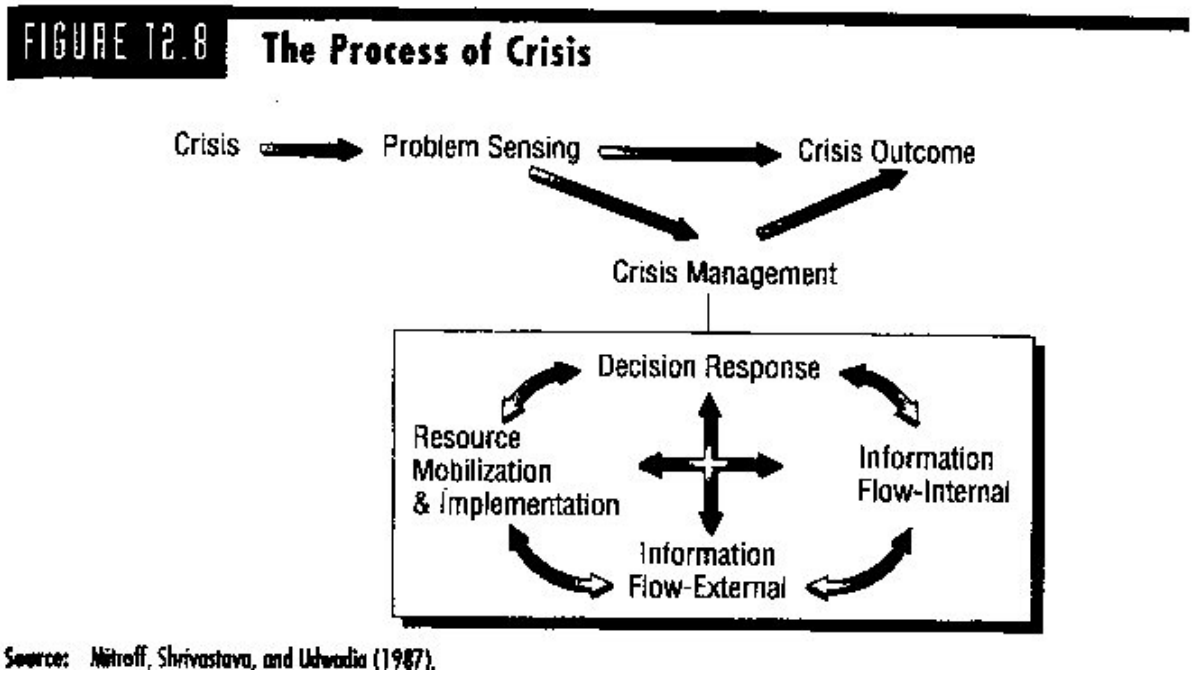
- strategic pricing so existing customers are not disadvantaged (UK mortgage lenders do the opposite)
- nurturing relationships with established customers

5 Crisis management

Typical crises – bad loans, fraud, takeovers, executive succession, problems with regulators, reputation

Bank's long term strategic orientation helps it positively to cope, while organisation complexity is hindrance

Nonsequential interactive process of crisis management (diagram)



6 Strategic planning

Successful banks tend to do well in the following areas:

Innovation – to ensure profitability – need for stream of innovations, to ensure profitability
Risk management over long term
Human resources, especially managerial talent
Marketing, to specific customer base
Managing acquisitions (organisational compatibility, management succession),

Planning especially of resources
Organisational design (mix of central and local control)
Cost accounting (unbundling services to avoid cross subsidisation)
Incentives to workforce (do you reward loan officers according to quantity of loans or quality?)

7 A critique - the credit rationing theory of financial crises

In run up to a financial crisis, credit rationing is excessively eased, while during crisis it is overtightened in response
In response to uncertain events (where probabilities hard to assign) subjective views of risk depart from objective in period of calm
Risk management goes awry. No market mechanism ensures risks of crisis (as opposed to cycle) correctly priced; capital ratios decline and interest rat spreads shrink
Causes (i) competition from imprudent creditors (ii) psychologically-induced errors by management (iii) institutional factors (iv) disaster myopia among regulators
Pattern of disaster myopia traceable in many different crises

Exercises

What risks have been identified to which banks are subject?

Why do you think banks are vulnerable to risky behaviour although there are "textbook" reasons to avoid it?

Which risk-management actions can we find that could have averted the Drexel or Japanese banking crisis?

Re-examine the Chief Executive report from RBS we looked at last week

What risks are identified by Goodwin that might face the bank?
Can you think of any others to which RBS might be subject, given the material in this lecture?