Basel II and Implications for Capital Requirements in the Current Economy

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Disclaimer: This presentation reflects conclusions drawn solely by the author and are not intended to represent official position of Barclays bank on this topic.

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Overview

- Banks are required to set aside Capital to cover unforeseen losses that will not be covered through normal business income and loss provisioning

- Under a standard known as Basel II, minimum capital requirements must be estimated by banks through internal ratings based systems that evaluate the risk of individual borrowers
  - This standard was adopted in 2006 after bank failures occurred world-wide
  - Banks with international exposure are required to adopt this standard for their portfolios

- We review some of the key challenges faced in adopting the Basel 2 standard in a stressed economic environment for a retail revolving portfolio
  - Focus in this discussion is on Credit Risk as it constitutes the vast majority of required capital for these portfolios

- We assess some of the impacts that this new standard could have on bank solvency

Basel History

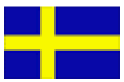
- Group of 10 Developed Nations formed the Basel Committee in 1974
  - Administration is via the BIS (Bank for International Settlements)
  - G10 realized that international banks need to be better armed for economic & market risk
  - In 1988, the first Accord was adopted (Basel I)
  - In July 2006, Basel II was adopted; it refined the initial Accord

- Objective: Prevent banks from failing and causing crises in financial markets

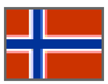
- Scope: Pillar I Regulatory Capital covers Credit, Market and Operational Risk capital requirements; Pillar II covers stress testing and capital adequacy

Banking Crises

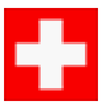
<u>A number of banking crises caused the Basel Committee to Act</u>



Sweden 91-94



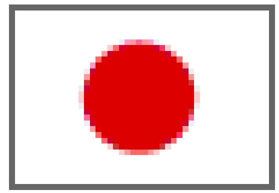
Norway 88-93



Switzerland 91-96

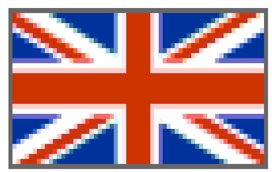
Spain 78-83

Germany 74



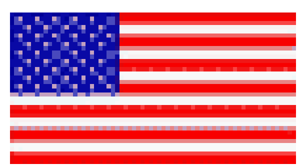
Japan 94-02

** Y40 Trillion or $342Billion in non-performing loans in Sept. 2002*



United Kingdom

- BCCI 91
- Barings 95
- Small Banks 91-92



USA

- Continental Illinois 84
- Savings & Loan Crisis 82-95
- Bank of New England 90-91

Timelines for Basel II Compliance

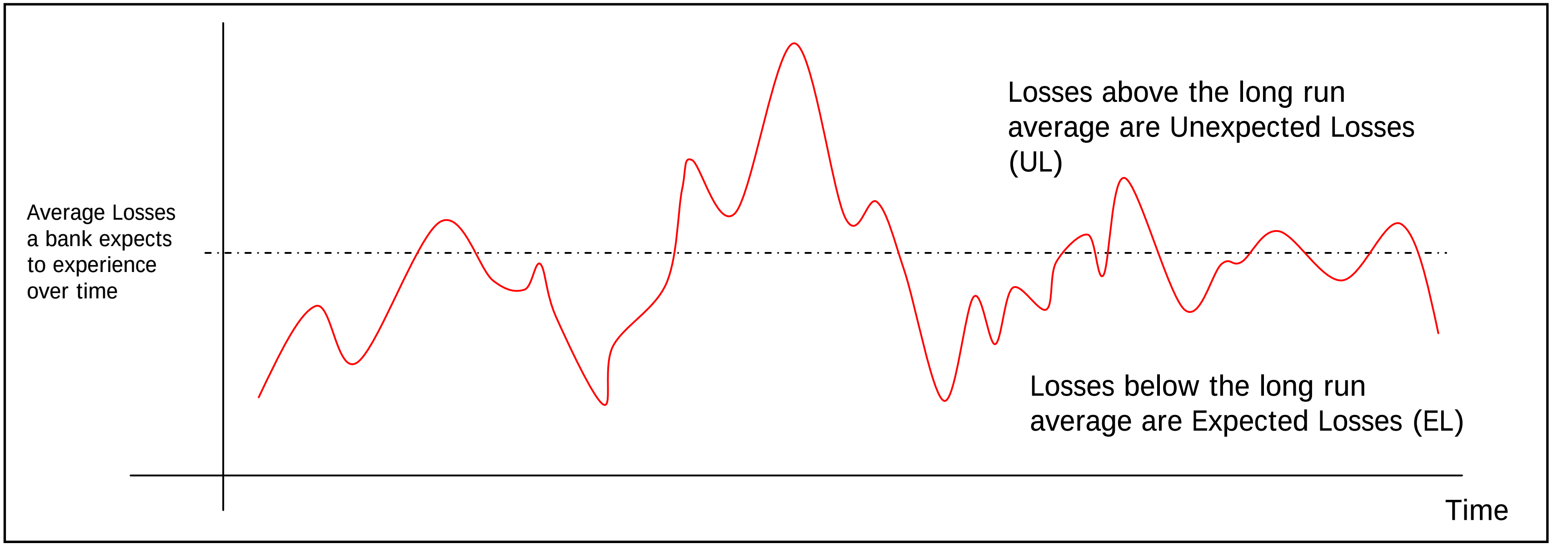
- International Banks in participating (G10) countries are to adopt the new standard

- Individual nations are given latitude in how and on what time-line they adopt Basel II
  - European banks are expected to largely have adopted the standard by 2010
  - Core US banks (assets >= $250B) in 2008 and are to fully transition by 2011
  - Local regulators (e.g., FSA, Federal Reserve, OCC, FDIC) arbitrate compliance and opt-out applications
  - Banks can apply to Opt out of the new standard by filing for dispensation with local regulators

- Once a bank commits to a time-line for compliance, they must bring the vast majority of their assets under the umbrella
  - Guidance is that on a consolidated basis 85% of assets must be under the Advanced IRB Compliant

Purpose of Capital

- Capital acts as a buffer to keep banks solvent when losses exceed those experienced under normal market and operating conditions
  – Expected losses are viewed as a cost of doing business and are to be covered through provisioning and pricing of credit exposure



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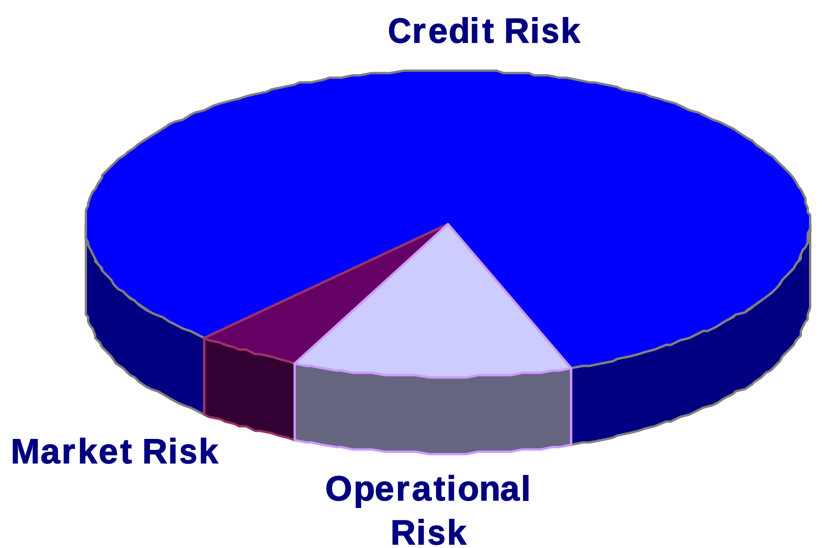
Capital Requirements for Retail Exposures

- Unexpected Losses originate from three primary sources and must be covered by Capital
  - Credit Risk
  - Operational Risk
  - Market Risk
- In retail portfolios, Credit Risk Capital comprises ~ 80% of the total capital required
- Capital requirements are met through a combination of Equity, Retained Earnings, and potentially government funding

Required Capital by Risk Type for Retail Portfolios



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Basel I – Credit Risk Capital

- The original Basel I Accord required banks to classify loans into tranches according to risk grades or borrower delinquency status
- Based on these risk classes, a bank is to “weight” the assets according to this level of risk
- For Retail Revolving portfolios, risk weighting is 75% on good assets and 150% on high risk asset classes
- Total Capital must be supplied that is at least 8% of these Risk Weighted Assets

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Basel I Limitations

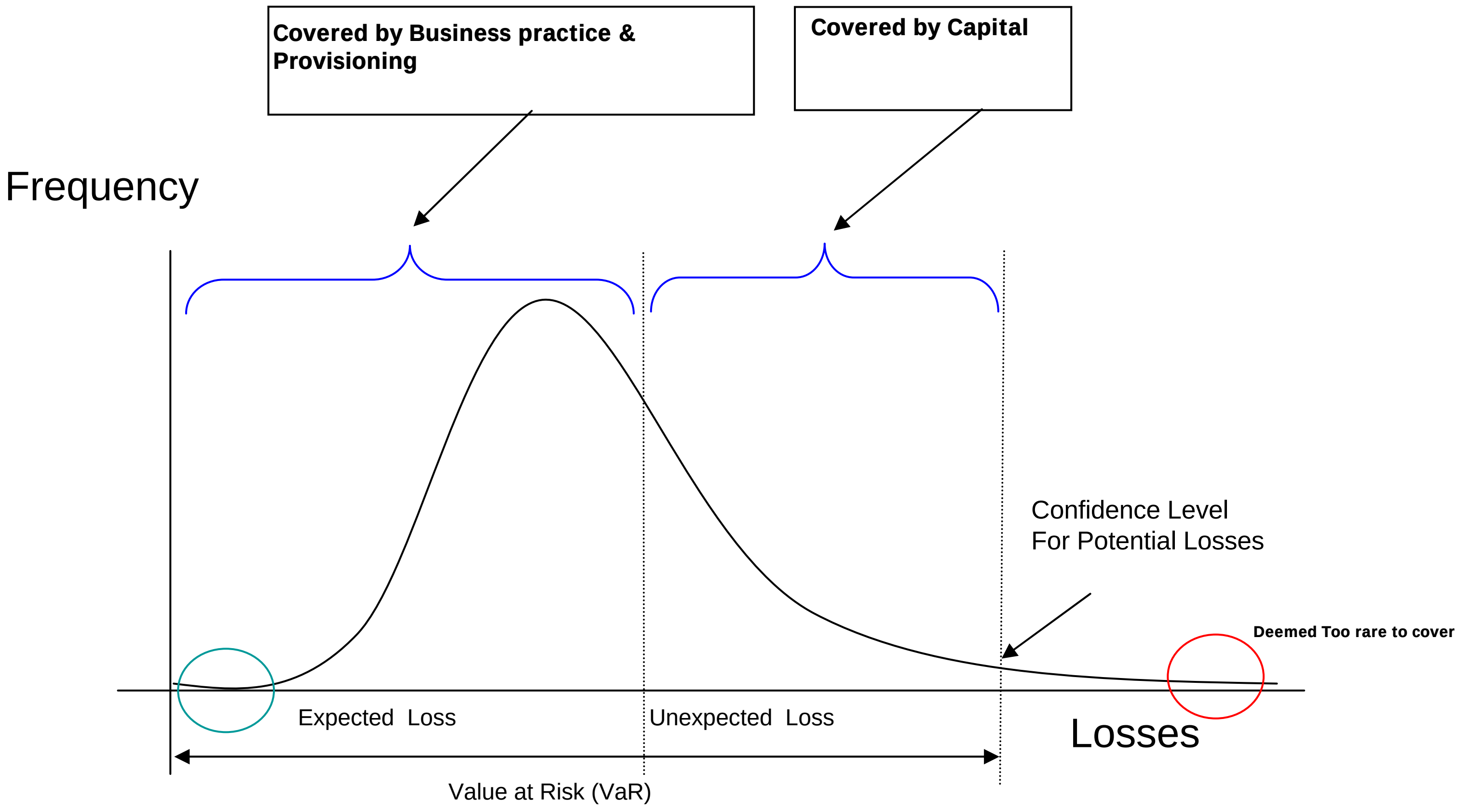
- Risk classifications are very broad, leading to inaccurate assessments of borrower risk and therefore capital requirements

- Estimates are retrospective rather than prospective – do not adequately reflect risk of borrowers who are current on loans today but who could default in the future

- Do not account for regulatory changes, lending practices, economic cyclicality – all of which could influence both level of loan loss and borrower default risk in the future

Basel II IRB Approach

- Required Capital = Value at Risk (VaR) or Total Loss – Expected Loss
  - VaR is determined by the distribution of losses and the upper bound of the distribution at which the occurrence of losses is deemed too low to set capital aside
    - Under Basel 2, the C.I. level is 99.9%, with an implied chance of uncovered loss occurrence <= 0.1% in any given year



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Basel II IRB Approach (cont'd)

- Internal models are used to project capital requirements at the individual loan level under the Basel II Standard

  - PD = Probability of a loan default

  - EAD = Amount Owed at Default

  - LGD = Fraction of exposure (EAD) that will not be recovered when a loss occurs

- Capital requirements are derived by subtracting Expected Losses from Total Losses

  - The loss distribution is computed for each borrower to arrive at the Unexpected Loss amount

Area of the loss distribution
bounded at the extreme tail by the c.i.

Capital(K) = {NORM[(1-R)^-0.5*INVNORM(PD) + (R/(1-R))^0.5*INVNORM(CI)]* EAD * LGD –

(PD * EAD * LGD)}

Expected Loss

- Specified variables include:

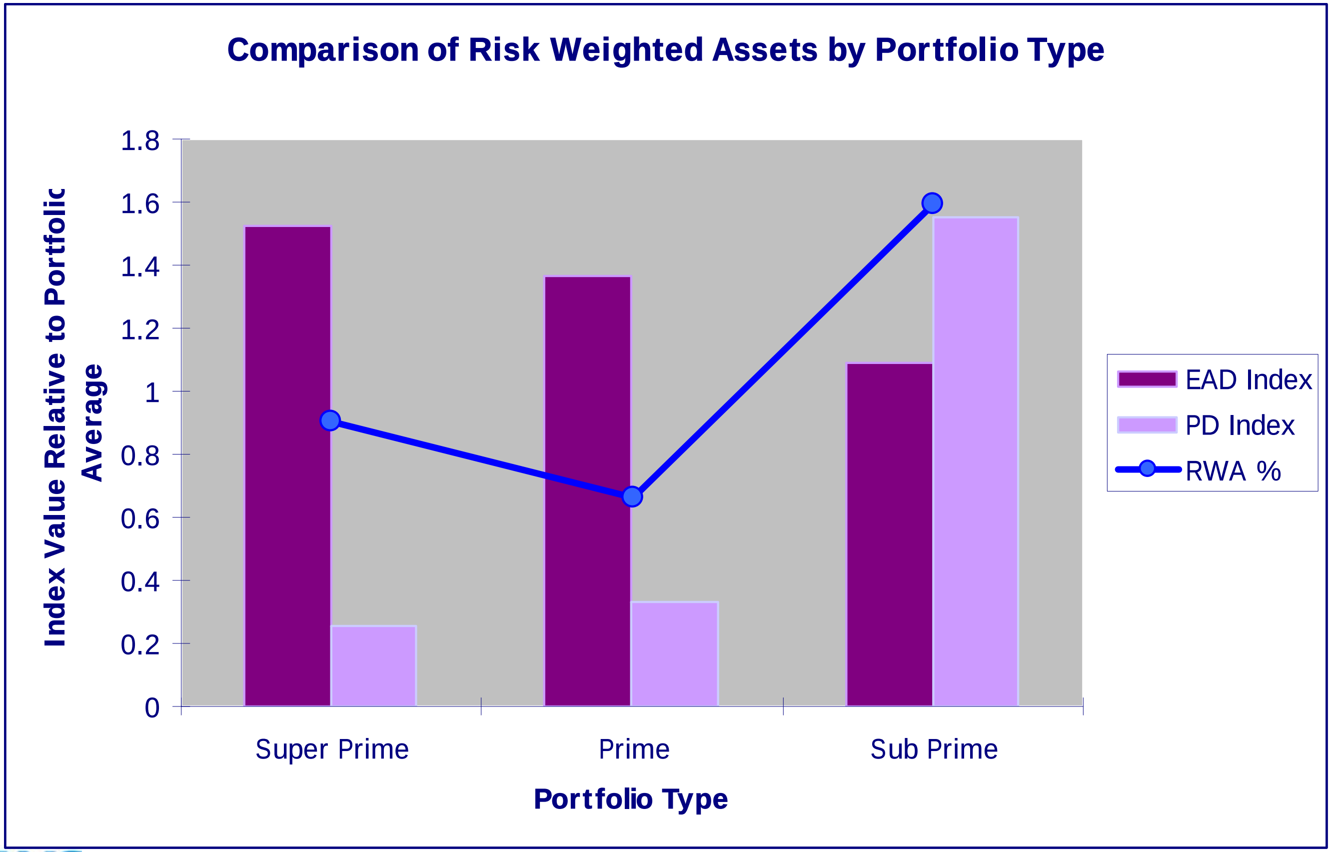
  R= Asset Correlations or the propensity of borrowers credit to co-vary in payment behavior

  CI = confidence interval applied to the loss distribution (99.9% Regulatory)

  RWA or Risk Weighted Assets = 12.5 * K, or the amount of assets deemed to be at risk of default in a portfolio

Portfolio Mix Implications

- Under the new standard, portfolios with too much credit exposure or too much risk will have higher capital requirements
- Withdrawal of credit (⇩EAD) or tightening lending standards (⇩PD) are two mechanisms used by lending institutions can drive capital requirements (and unexpected losses) down
  - Several trillion in credit is expected to be withdrawn from the banking system over the year



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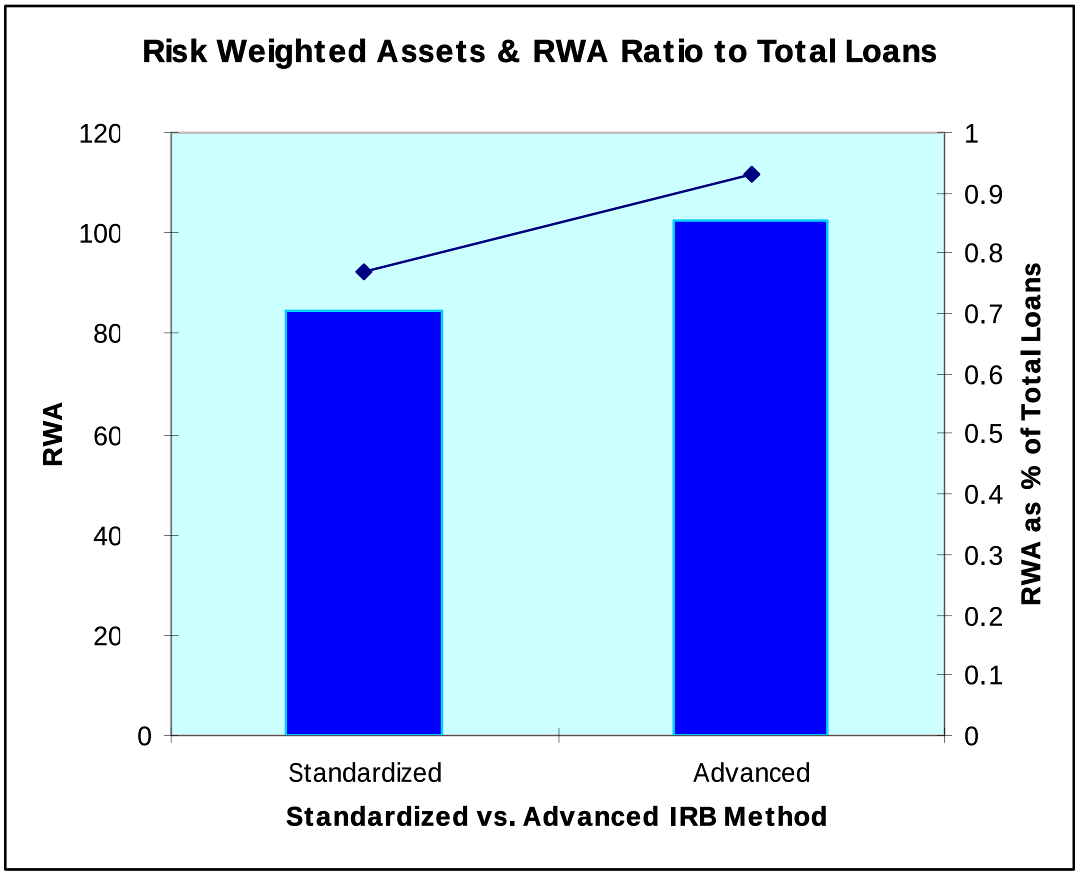
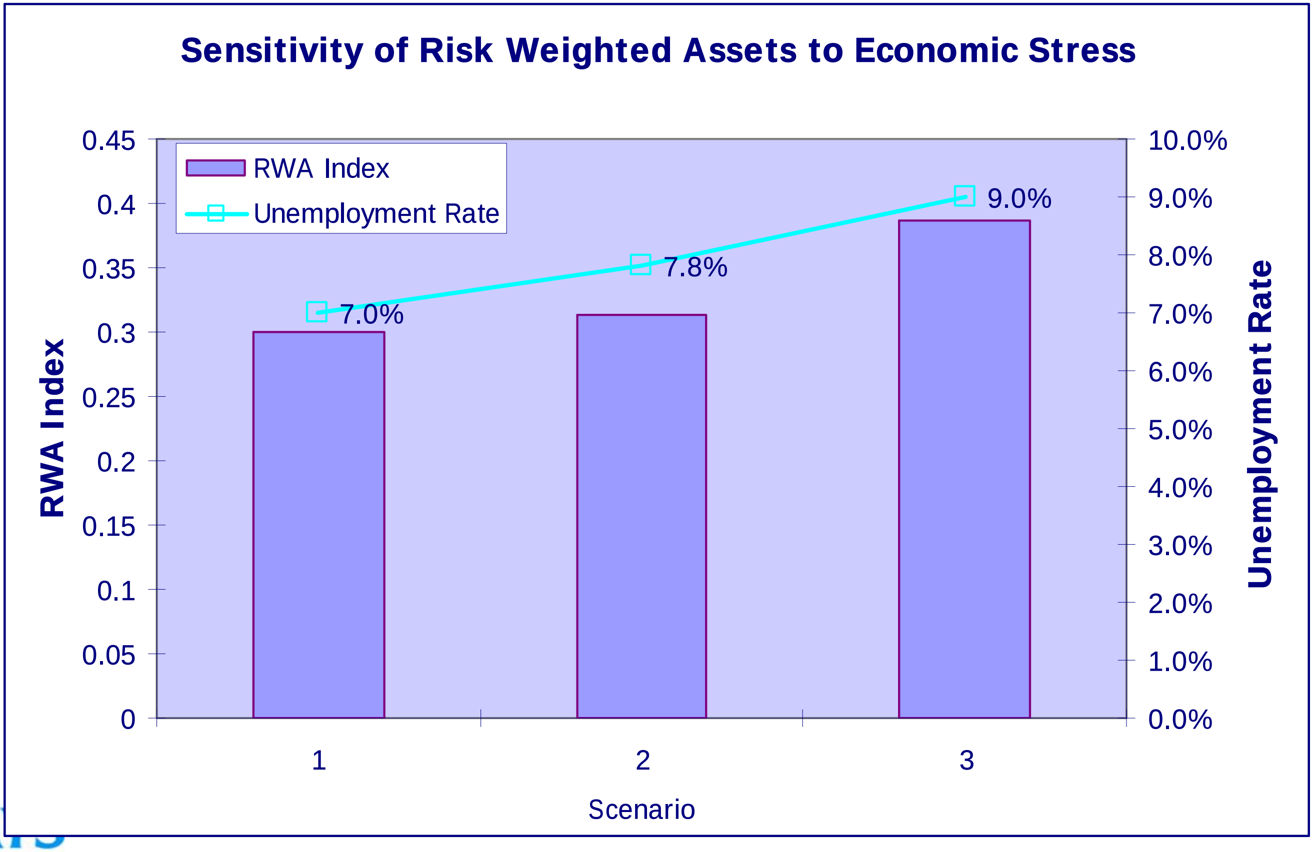
Migration from Basel I to Basel II

- In an unfavorable economy, Basel II may require more capital to be set aside
  - Expected degradation in borrower risk is "built-in" through forward looking Point-in-Time estimates of PD or default probability
    - Additional calibrations for regulatory, policy and economic effects may be embedded in PD estimates
  - Through the Cycle adjustments to smooth out capital requirements over time may narrow the gap between the two methods during a recessionary period



Stress Testing

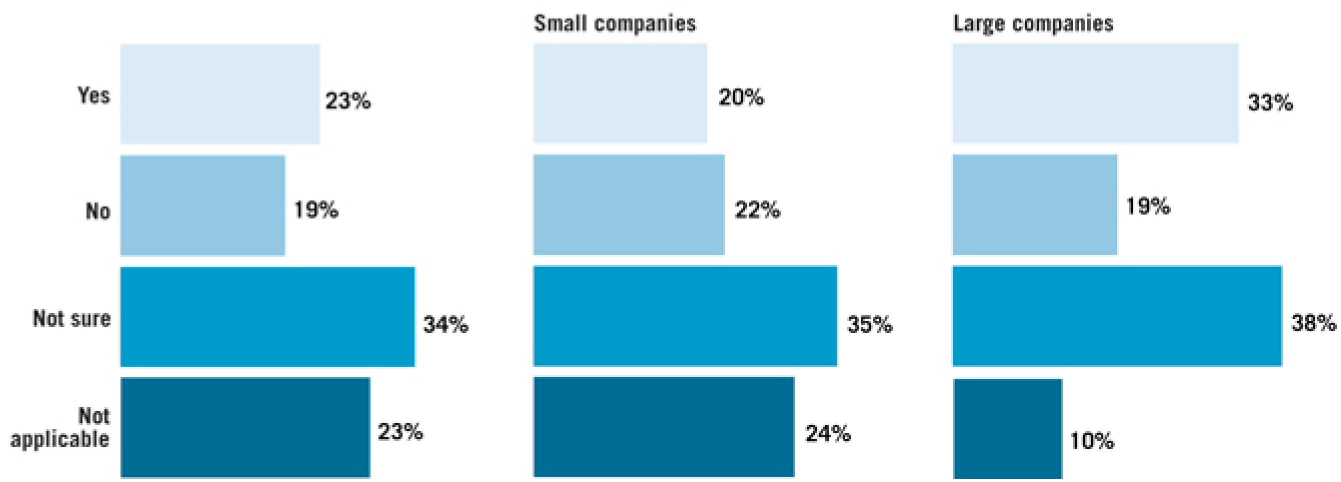
- As part of Pillar II of the Basel II Accord, Banks are required to stress default rates for adverse economic conditions and evaluate capital requirements accordingly
  - Recently, the Federal reserve has been asking the top 20 US banks receiving government funding to prove that they have enough capital to maintain a healthy capital to RWA ratio under a state of economic duress
- Stress analysis shows that capital requirements rise significantly as the economic prognosis deteriorates



Impact on Capital Requirements

- Institutions are divided on whether capital requirements will go up under the new standard
  - Moving to the new standard will benefit some institutions because risk assessment will be more precise
  - Capital requirements are dynamic and are causing institutions to vary in their views

<u>Survey question:</u>
Do you expect your capital requirements to rise under Basel II?



Source: *American Banker*/Greenwich Associates Executive Forum 4Q '08

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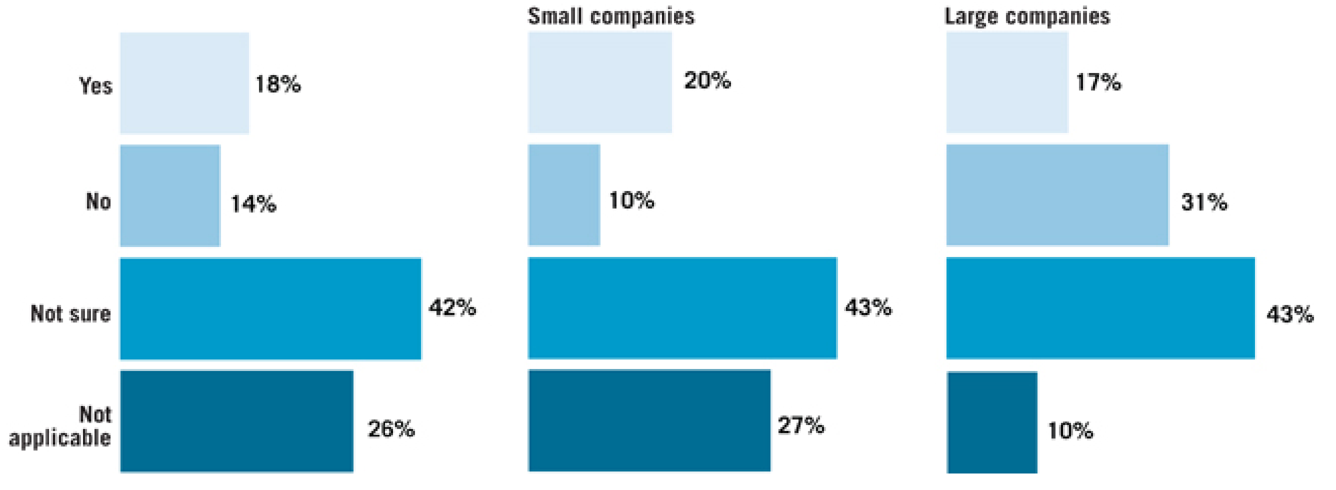
Basel II Impact in the US

- Concerns about the competitiveness of the US under the new approach have been raised
  - US regulations impose floors on allowed reductions in capital that may result in higher requirements when applying the new standard
  - Long transition period for US banks relative to international institutions
  - Leverage ratio = capital to assets must be > 5% to be well capitalized
  - Exemption of some institutions (including investment banks regulated by the SEC)
- But opinions are divided on whether the new standard puts US banks at a competitive disadvantage

Survey results to question:
When your bank adopts Basel II, do you expect to be put at a competitive disadvantage?



Source: *American Banker*/Greenwich Associates Executive Forum 4Q '08

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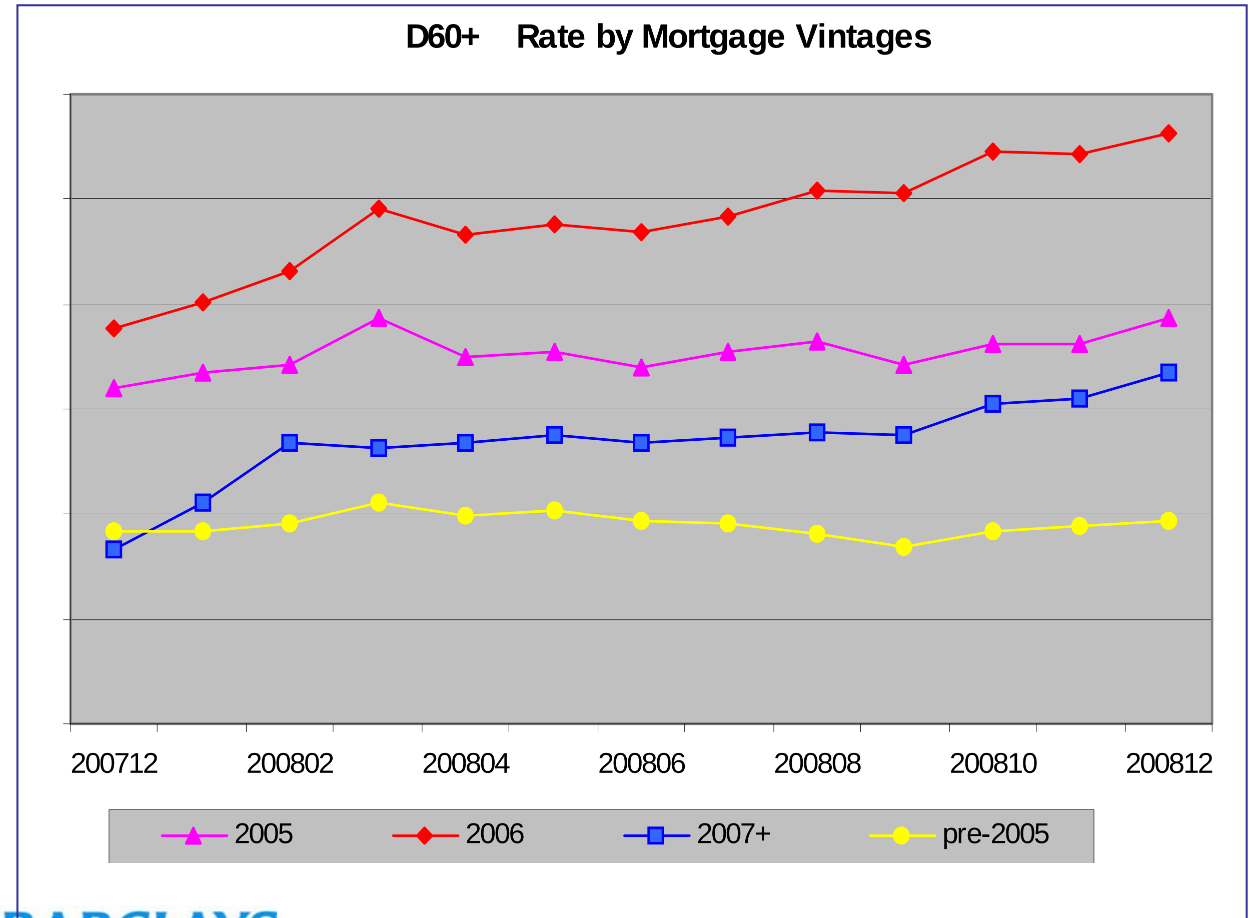
Implications

- Once bad investments or loans are made, particularly in an eroding economy, it is difficult for banks to quickly reduce capital expenses

- Basel II Standard has not yet been fully adopted, so it is hard to say whether it would have helped to prevent the current crisis



Mortgages booked in 2005-2007 period show worse credit quality

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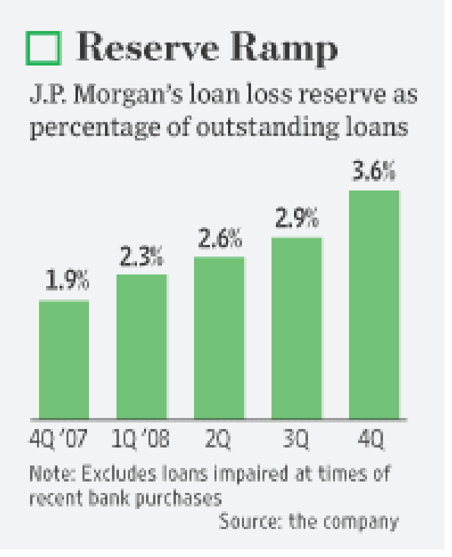
Implications (Cont'd)

- In the current economic environment, even healthy banks are constrained in the amount of capital they are able to invest and make credit available to borrowers
  - Banks expect defaults to continue to rise
  - At the same time, reduced lending acts as a drag on economic growth
- The government is trying to stem the resulting credit crunch by infusing capital into the banking system, even to healthy financial institutions



Source: WSJ, 19 January 2009

Even banks with strong credit performance are experiencing on-going increases in required reserves (and capital)

Implications (Cont'd)

- Many banks have failed or needed government investment because they cannot acquire enough capital to meet rapidly growing requirements

- Raising capital in today's environment poses a number of challenges
  - Private Investors bring conditions around management of a bank
  - Issuing of stock has the potential of diluting share value
  - Retained earnings may be difficult to sustain in a weak lending environment
  - Government investment brings conditions around executive compensation, bank oversight, and lending/investment practices
  - Selling off portions of a portfolio or institution may be harmful from a strategic point of view

Conclusions

- The new standard is driving a directional response to ensure that institutions are better prepared to weather adverse economic and market conditions
  - As the US economy has continued to erode, minimum requirements under Basel II have been observed to rise causing a need to infuse more capital

- But the current crisis is a result of risk that is already embedded in the financial system
  - For example, bad loans booked in 2005-07 period were not under these standards
  - Investors have already purchased toxic assets associated with these loans
  - Some argue that capital requirements may not have gone far enough to address loan origination practices or market valuations
  - More regulatory scrutiny can be expected (e.g., stress testing)

- Government and private investors are stepping in to both support supply of credit to stimulate economic growth and to prevent banks from failing
  - Dilution of share values can also result when new stock is issued to raise capital, making it more difficult to raise capital in private markets
  - Governments are also taking a significant role in underwriting risk by purchasing insurance against toxic assets or by purchasing shares in a company