Operational Risk Capital

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Summary

- Banks exposed to operational risk
  - the risk of loss resulting from inadequate or failed internal processes, people, and systems, or from external events
  - Data breaches, fraud, IT issues, regulatory compliance failure, legal costs
- Examples:
  1. JP Morgan's settlement with the University of California on behalf of Enron shareholders for "aiding and abetting" Enron in its financial fraud ($3.66 billion)
  2. Citigroup's loss due to the September 11 terrorist attack ($2.23 billion)
- **Research question**: Effect of operational risk capital requirement (Basel II) on operational losses of banks?
- **Main finding:** Operational risk capital reduced operational risk losses for treated banks
- **Mechanism:** improved risk management and governance of banks
- Important research question; not enough attention paid to operational risk

Identification

The effect of operational risk capital on operational losses is identified using the following equation:

$$\begin{aligned} ln(OpLoss)_{i,t} = \alpha_0 + \alpha_1 Treated_i + \alpha_2 Post_t + \alpha_3 Post_t \times Treated_i + \\ \alpha_4 Controls_{i,t-1} + FE + \epsilon_{i,t} \end{aligned}$$

Treated = 1 for European Banks, 0 for US banks that did not implement Basel II

How does the introduction of operational risk capital translate into incidence of treatment?

What changed in Basel II?

- Basel II introduced the following changes to the existing accord
  - Pillar 1 - minimum capital requirements
  - Pillar 2 - supervisory review
  - Pillar 3 - public disclosure

10. The current Accord explicitly covers only two types of risks in the definition of risk-weighted assets: (1) credit risk and (2) market risk. Other risks are presumed to be covered implicitly through the treatments of these two major risks. The treatment of market risk arising from trading activities was the subject of the Basel Committee's 1996 Amendment to the Capital Accord. The proposed New Accord envisions this treatment remaining unchanged.

11. The pillar one proposals to modify the definition of risk-weighted assets in the New Accord have two primary elements: (1) substantive changes to the treatment of credit risk relative to the current Accord; and (2) the introduction of an explicit treatment of operational risk that will result in a measure of operational risk being included in the denominator of a bank's capital ratio. The discussions below will focus on these two elements in turn.

$$Capital\ ratio = \frac{Total\ Capital}{Credit\ Risk + Market\ Risk + Operational\ Risk} \geq 8\%$$

Hard to isolate the effect of operational risk capital

$$\boxed{\frac{\text{Total capital (unchanged)}}{\text{Credit risk} + \text{Market risk} + \text{Operational Risk}} = \text{the bank's capital ratio (minimum 8\%)}}$$

Menu of approaches to measure credit risk

Standardised Approach (a modified version of the existing approach)

Foundation Internal Rating Based Approach

Advanced Internal Rating Based Approach

Menu of approaches to measure market risk (unchanged)

Standardised Approach

Internal Models Approach

Menu of approaches to measure operational risk

Basic Indicator Approach

Standardised Approach

Internal Measurement Approach

Treatment dummy capturing the effect of (i) introduction of operational risk & (ii) capital requirements more risk sensitive

Lower future losses could be driven by selection of banks into treatment

- Introduction of operational risk capital $\Longrightarrow$ better risk management $\Longrightarrow$ lower future losses
- Works only if the regulation has a bite
- Incidence of treatment will depend on changes in capital ratio, which in turn, is a function of the approach used to calibrate operational risk

	Bank A	Bank B
Region	US	Europe
Operational Risk exposure		Low
Approcah used		AMA
Change in capital	none	none
Treated	0	1
Future operational losses	no change	lower losses

- Lower losses not caused by operational risk capital; selection of good banks into treatment

Conceptual Framework

- What are the frictions? What's the trade-off that banks face?
- Conceptual framework to fix ideas
- Hard to interpret results as too many moving parts
- Pre-2007 unconstrained banks experience lower future losses
- The introduction of operational capital could make constraints binding and incentivize banks to borrow more to prevent future increases in capital

Conclusion

- Interesting paper and important question
- Operational risk is understudied
- More work needed to refine the conceptual framework and tie it better to the empirical analysis
- Exploiting heterogeneity in different dimensions of the regulation to flesh out the mechanisms
- Many avenues for future research