All Bank Risks are Idiosyncratic, Until They Are Not:
The Case of Operational Risk

Discussion:
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Idea: OpRisk contributes to systemic risk

Traditionally, OpRisk has been believed to be largely *idosyncratic* to a bank.
Paper summary

- **Background: Regulatory capital requirements**

  **Old approach** (Basel II): *Advanced Measurement Approach (AMA).*
  - Regulatory capital is based on internal loss models.
  - Risk-sensitive.
  - But... Banks use different internal modeling practices. Lack of comparability of risk-weighted assets calculations across banks.

  **New approach** (Basel III): *Standardized Measurement Approach (SMA).*
  - Regulatory capital is an increasing function of BI Component and Loss Component.
  - Different weights to different bank activities.
  - Risk-sensitive (but less than AMA?). Simple. Greater comparability across banks.
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The paper suggests that bank activities with greater contribution of OpRisk to systemic risk should be assigned higher weights.
Paper summary

Main findings

Biggest contributors to *systemic risk* are:

**By OpRisk event type**
- Internal fraud (IF, *1% *)
- Clients, Products, and Business Practices (CPBM, *78%*)
- Execution, Delivery, and Process Management (EDPM, *14%*)

**By business line**
- Retail banking (*47%*)
- Corporate – other (*18%*)

**By operational loss amount/frequency**
- Total amount of tail losses (>99th, 99.5th, 99.9th perc.)
- Frequency of tail events

* *% all operational losses.*
Paper summary

- I enjoyed reading the paper!
- Well written.
- Comprehensive data (2002-2016), close to 300K op. loss events.
- Great idea, big economic implications.
- Of interest to regulators in light of Basel III.
Motivation (1)

What is the channel through which OpRisk contributes to systemic risk?

- From the paper: “if idiosyncratic losses from any risk source for a large financial institution are big enough, they can pose a threat within an interconnected financial system”
  

- Examples in the introduction (SocGen, Barings, WF) are all examples that impact just one institution. Need better examples (e.g., 2008 fin. crisis?)
Motivation (2)

Why would an operational loss (\textdollar\$) lead to systemic risk?

- Operational loss (\textdollar\$) = \textit{direct} cost of operational risk

- But there are also \textit{indirect} costs: Reputational damage, e.g., loss of market value), loss of customers, loss of personnel (e.g., CEO resignation)

- Most banks can easily handle a multi-mln \$ loss, even a bln \$ loss. Most banks fail \textit{not} because of direct material loss, but because of reputational damage (e.g., WF).

- \textbf{Suggestion:} Think about measures of indirect operational loss, e.g., loss in market value or CDS spread increase around/after operational risk announcements.
Empirical methodology (1)

Premise: *This quarter*'s op. losses help predict this quarter*'s (?) systemic risk.*

In most instances, there seems to be a several quarters’ lag.

**Suggestion:** Include *lagged* op. losses in regression models. 4 lags.
Empirical methodology (2)

One key model relies on Acharya et al.’s (2017) estimate of **systemic risk**:

\[
SES_{i,t} = 0.15 MES_{i,t-1} + 0.04 LVG_{i,t-1}
\]

- **Acharya et al. (2017)**
  - A bank’s stock returns on market’s worst 5% days before crisis (2006-2007)
  - A bank’s leverage before crisis (2006-2007)
Comments

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- Acharya et al. use 1 obs per bank: one before and one after crisis. This paper uses quarterly data 2002Q1 - 2016Q4. → Same coefficients won't hold.
- This paper’s sample contains the financial crisis... Same coefficients won’t hold.
- Acharya’s sample: 102 banks >$5bln market cap. This paper: 26 BHCs >$50bln assets.
- Acharya’s model included additional controls, but they are statistically insignificant, so ok, but should still include for consistency.
  
  **Suggestion**: Re-estimate the model.
Comments

- **Empirical methodology (3)**

  Development of hypotheses. Section 3 lacks theoretical arguments and one-sided hypotheses.
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For example,

**Hypothesis 2A:** Operational risks associated with different event types and business lines have different impacts on the systemic risk of large financial institutions, ceteris paribus.

- **Suggestion:** Need theoretical/empirical arguments why op. losses in certain ETs and BLs would contribute more to systemic risk.

- The paper finds that *Internal Fraud* events are significantly associated with systemic risk. Unintuitive... Why?

- The paper finds that op. losses in *Retail Banking* business line are significantly associated with systemic risk. Why?
Empirical methodology (4)

Timing.

1. Occurrence date.
2. Discovery date.
3. Accounting date. = The first date financial impact is recorded or legal reserves for future losses are estimated.

There are also:
4. Public announcement date.
5. Settlement date.
Empirical methodology (4)

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Concerns:
- Authors aggregate all losses from the same event at accounting date. **Suggestion:** Treat them as separate losses to avoid look-ahead bias?
- Is it possible to accurately estimate future financial impact around or prior to financial crisis? How close is your estimation vs. true realized loss?
Other

- Acharya et al. (2017) also examined systemic risk in the CDS market.
- Implicit government guarantees. What’s the effect on systemic risk?
- Are your estimates economically significant?
  
  “A 10% increase in operational losses is associated with a 0.0067 increase in Systemic Risk or 0.048 standard deviations.“
  
  “A one standard deviation increase in Ln(OpLoss) is associated with 0.14 standard deviations increase in Systemic Risk.“
- Risk Management Index is used as a control variable. Endogeneity?
- Distance-to-default and its interaction with op. loss may be problematic. Endogeneity. Perhaps, it’s not DD that is amplifying the effect of op. losses on systemic risk, but a 3rd variable that’s driving both DD and op. losses.
- Choice of IV variables in robustness tests is unclear. It seems that all 3 are directly related to systemic risk.
- Would greater regulatory capital for op. risk reduce systemic risk?
Thank you for your attention!

Comments or questions:

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EXTRA
Operational risk event types

ET1: Internal Fraud
   – unauthorized activity, theft & fraud involving at least 1 internal party

ET2: External Fraud
   – theft & fraud by a 3rd party, systems security

ET3: Employment Practices and Workplace Safety
   – discrimination, general liability, compensation

ET4: Clients, Products, and Business Practices
   – improper business & market practices, model errors

ET5: Damage to Physical Assets
   – natural and man-made disasters, vandalism

ET6: Business Disruption and Systems Failures
   – hardware & software failures, telecommunications

ET7: Execution, Delivery, and Process Management
   – data entry error, missed deadline, delivery failure