The Determinants of Operational Losses

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❶ Motivation

Focus: financial industry

- New capital adequacy framework: Basel II
- Advanced Measurement Approaches (AMA) for operational risk ⇉ op.VaR

Definition [BCBS, 2001]

Operational risk = the risk of loss resulting from inadequate or failed *internal processes*, *people* and *systems*, or from *external events*.

In banks: OpRisk ≈ all risks – (credit risk + market risk)

Operational risk event types

	Examples
ET1: Internal Fraud (IF)	Unauthorized transactions, embezzlement
ET2: External Fraud (EF)	Theft, fraud, forgery
ET3: Employment Practices and Workplace Safety (EPWS)	Discrimination, envir. safety, compensation
ET4: Clients, Products, and Business Practices (CPBP)	Disclosure issues, improper market practices
ET5: Damage to Physical Assets (DPA)	Terrorism, vandalism, natural disasters
ET6: Business Disruption and Systems Failures (BDSF)	Software/ hardware failures, other tech.
ET7: Execution, Delivery, and Process Management (EDPM)	Acct. or data entry error, failed reporting

❶ Motivation

- **Some recent corporate & banking failures traced to operational risk:**

2008: Société Générale ($7.2 bln):	fraud
2005: MasterCard International:	security breach: >40 mln credit card accounts compromised
2001: Enron:	bankruptcy
2001: Bank of New York (>$140 mln):	'9/11'
1997: NatWest Markets (≈$100 mln):	unauthorized trading
1995: Daiwa Bank (>$1.1 bln):	fraud
1995: Barings Bank:	fraud, bankruptcy

↓ ↓ ↓ ↓

OpRisk is a major source of risk by itself

⇉ FitchRatings and Moody's began to consider OpRisk in assigning corporate financial ratings.

❶ Motivation

- **GARP on SocGen** (February 4, 2008):

"Perhaps some of the simple, unspoken rules at SocGen were ``you never get punished for making money regardless of the rules broke" or ``make as much money as possible" […] The existence of such rules could potentially drive unwanted behavior. […]

Traders in this environment might conclude that as long as they succeed, the amount of risk required to attain the goal simply does not matter. But as we all know and as Kerviel proved to the world last week, not every risk will always result in success."

- **Nick Leeson and collapse of Barings:**

Fraud + drop in Nikkei index ⇉ losses escalate

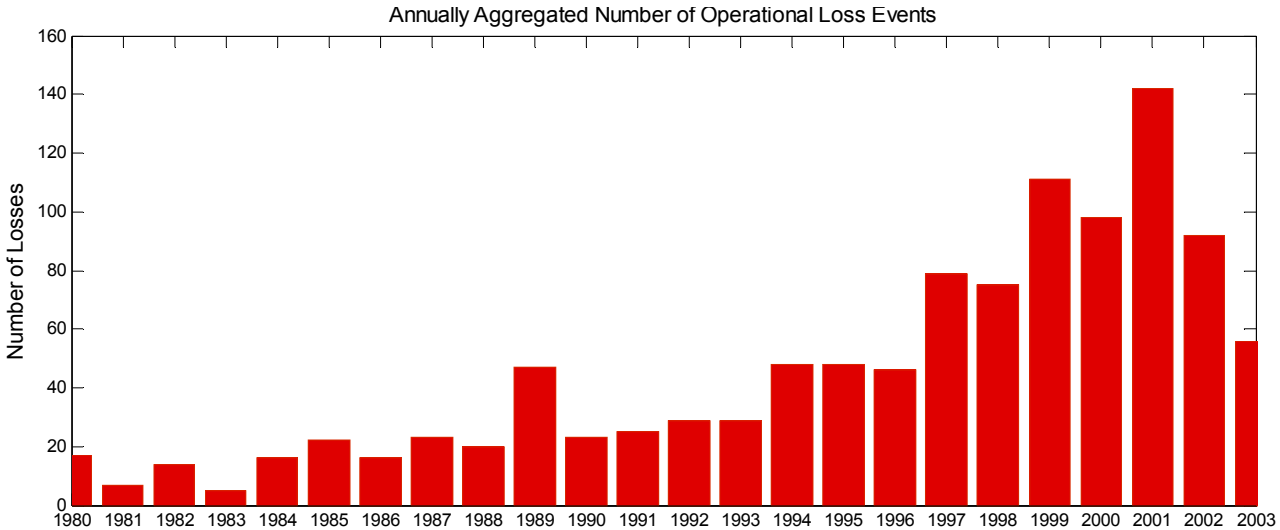
↓ ↓ ↓ ↓

OpRisk is driven by firm-specific and market-level forces

❶ Motivation

- **Operational losses vs. financial defaults:**

What drives OpRisk?



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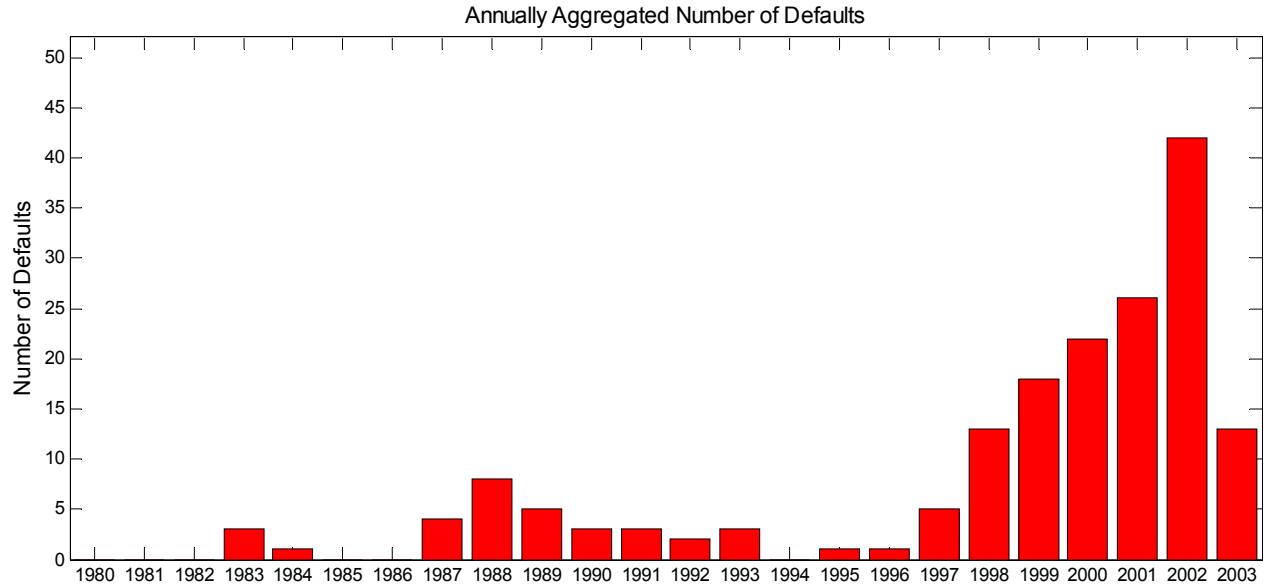


❷ Literature

Size and significance of operational losses

★ **de Fontnouvelle, DeJesus-Rueff, Jordan, and Rosengren (2006 JFE)**

- For large banks, reserve requirements for OpRisk could exceed those for market risk

★ **Cummins, Christopher, and Wei (2006 JBF)**

- OpRisk events cause market value loss due to reputational loss
- Especially banks with higher growth prospects

★ **Perry and de Fontnouvelle (2005)**

- Large operational losses lead to substantial reputational loss
- Especially losses due to internal fraud
- The effect is more significant for banks with strong shareholder rights

Exposure to macroeconomic factors

★ **Allen and Bali (2006 JBF)**

- Do not use actual operational loss data: OpRisk = equity return residual
- Cyclicality in OpRisk measurements

★ **Povel, Singh, and Winton (2007 RFS)**

- Fraud peaks during end of economic boom

❷ Literature

- **Our model resembles recent studies of corporate defaults**

  ★ **Duffie, Saita, and Wang (2007 JFE)**

  - Estimate time-varying intensity of corporate defaults
  - Function of Merton's distance to default, stock return, S&P 500, interest rates

  ★ **Das, Duffie, Kapadia, and Saita (2007 JF)**

  - Goodness-of-fit test for Poisson assumption is based on time-changed procedure: conditional Poisson is transformed into standard Poisson
  - Rejection of Poisson model ⇉ evidence of default clustering

  ⌘ *In our model, multiple losses per firm*

  ⇉ *test Poisson model individually at firm level*

  ⇉ *then, test Poisson model at industry level*

❸ Methodology: Basic Framework

- **Operational loss process (simplistic):**

$$S_t = \sum_{i=1}^{N_t} X_i$$

- N_t and X are independent
- $N_t = N(\lambda \cdot t)$ homogeneous Poisson process
- λ constant arrival rate
- X *i.i.d.*, continuous distribution

Relax key assumptions

- **Operational loss process (our model):**

$$S'_t = \sum_{i=1}^{N'_t} X_{t(i)}$$

- N_t' and X are independent
- $N'_t = N(\Lambda(t))$ Cox process (doubly-stochastic)
- $\hat{\lambda}(t) = \hat{\beta}_0 + \sum_{k=1}^{K} \hat{\beta}_k Y_{kt}$
- $\hat{X}_t = \hat{\gamma}_0 + \sum_{m=1}^{M} \hat{\gamma}_m Z_{mt}$

Y and Z are firm-specific and macroeconomic variables

❸ Methodology: Frequency Modeling

- **Useful property of point processes** [Meyer (1971)]:

> Any point process can be obtained as a time-changed Poisson process using its arrival intensity

- **Assumptions on frequency**

  Conditional on "internal" (firm-specific) and "external" (macro) factors, events are independent.

- **If Poisson assumption is violated, implications:**
  - Contagion effects (domino effects), or
  - Clustering

❸ Methodology: Testing for Goodness of Fit

- **Having estimated event arrival intensity, research hypotheses:**

  H_o: Given firm-specific & macroeconomic environment, N_t is Poisson($\lambda(t)$)

  H_A: Given firm-specific & macroeconomic environment, N_t is not Poisson($\lambda(t)$)

- **2-step procedure for χ^2 goodness-of-fit test:**

  Step 1: Test of conditional Poisson assumption at individual firm level (i.e., firm by firm)

  Step 2: Test of conditional Poisson assumption at aggregate level (i.e., all firms)

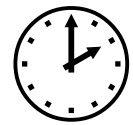
- **What will the tests tell us?**
  - If rejected at Step 1 ⇉ Omitted covariates ? Serial corr. ?
  - If not rejected at Step 1 but rejected at Step 2 ⇉ Clustering ? Domino effect ?

❸ Methodology: Testing for Goodness of Fit

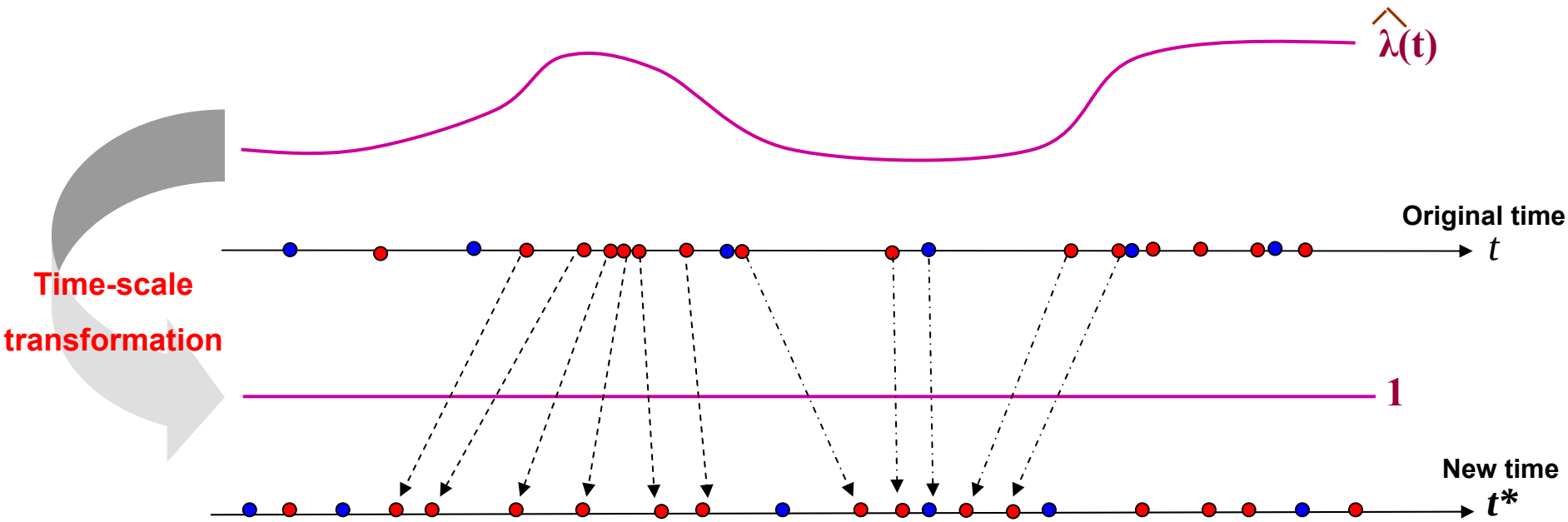
- **Time-scale transformation of non-homogeneous Poisson process.**

Formally: Çinlar (1975)

Intuitively: Speed up the clock during periods of high intensity
Slow down the clock during periods of low intensity



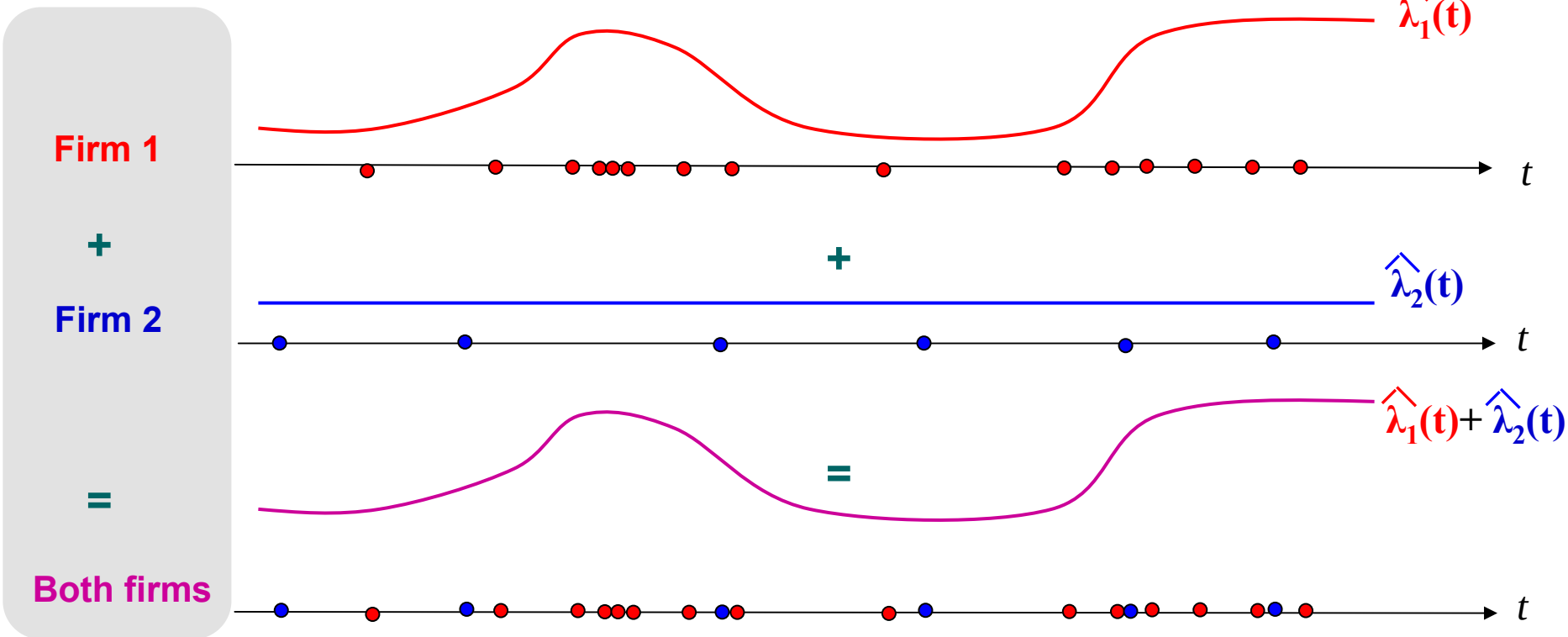
$$Poisson(\lambda(t)) \rightsquigarrow Poisson(1)$$



❸ Methodology: Testing for Goodness of Fit

- **Sum of 2 or more *independent* Poisson processes is also Poisson**

THEOREM: Let $N_{t1},\ N_{t2},\ \ldots, N_{tM}$ be M independent Poisson random variables with respective intensity rates $\lambda_1(t),\ \lambda_2(t),\ \ldots, \lambda_M(t)$. Then, $\sum_{l=1}^{M} N_{tl}$ is also a Poisson random variable with intensity rate $\sum_{l=1}^{M} \lambda_l(t)$.



❹ Data Description

- **Data source**

  Algo Financial Institutions Risk Scenarios Trends (**FIRST**)
  Marketed by Algorithmics Inc., member of the Fitch Group

- **Available info**

  Event date, loss $, event type, geography, firm name, claimant, contributory factors

- **Data collection process**

  Public sources, primarily 3rd parties:

  - SEC filings
  - NYSE
  - Court orders
  - Customers, investors
  - Media, …

  Possible selection bias:

  - Larger-scale events
  - Only events discovered
  - But no or little self-selection bias

- **Sample used in our study**

  - U.S. financial industry
  - 1980 – 2003

  Only firms with info on CRSP and Compustat

  157 firms; 1,159 events

❹ Data Description

Most frequently cited contributory factors

- Lack of control
- Management action/inaction
- Employee misdeeds
- Organizational structure
- Excessive concentration of power

Internal

- Changes in market conditions

External

Classify events into 8 categories

Model 1	Internal Fraud	ET1 (IF)
Model 2	Fraud	ET1, ET2 (IF, EF)
Model 3	All Except Internal Fraud	
Model 4	All Except Fraud	
Model 5	Internal Events	ET1, ET3, ET6, ET7 (IF, EPWS, BDSF, EDPM)
Model 6	External Events	ET2, ET4, ET5, Other (EF, CPBP, DPA, Other)
Model 7	Physical Disasters	ET5 (DPA)
Model 8	All Events	

❺ Frequency Analysis

- **Goal:** Identify factors that cause operational risk events to take place

- **Econometric methodology**

  - MLE estimator
  - Panel data (1 panel = 1 firm)
  - Firm-month data
  - Dependent variable: monthly aggregated loss count
  - Independent variables: firm-specific and macro-level covariates

❺ Results: Frequency Models

Result 1:

Larger firms experience more frequent losses

(MVE +)

- ★ Larger banks have higher number of losses ⇇ more transactions, higher volumes
- ★ Larger banks are more in the public eye ?

- ⌘ Other firm size measures (Total Assets, Net Income)

❺ Results: Frequency Models

Result 2:

Operational loss events signal financial distress

(leverage + , market-to-book - , equity return volatility +)

- ★ Financially constrained firms can not afford to devote sufficient resources to regulatory oversight and internal control that are costly
- ★ Especially so for Internal Fraud and all internal events

❺ Results: Frequency Models

Result 3:

Higher profitability is associated with higher frequency of events

(ROA +)

- ★ Especially Fraud and all internal events
- ★ Moral hazard ? Lots of money lying around ⇉ easier to steal
- ★ Moral hazard ? Authorities relax internal controls when profitability needs to be juiced up ? (SocGen)
- ★ Agrees with Povel, Singh, Winton (2007): frauds peak during end of econ. boom

- ⌘ Other profitability measures (equity returns, EPS, Tobin's Q)

❺ Results: Frequency Models

Result 4:

The human factor plays significant role

(# Employees + , # Employees^2 -)

- ★ Non-linear relationship: ↗ ↘
- ★ Reflects balance between potential for misdeeds (↗) and shared control (↘)
- ★ Especially Fraud and all internal events
- ★ Need better training and employee supervision

❺ Results: Frequency Models

Result 5:

Macroeconomic environment plays a smaller role

1. Baa-Aaa corporate bond yield spread
2. Unemployment rate
3. 3-month trailing T-bill rate
4. S&P 500 1-month return
5. Trailing st.dev. of S&P 500 returns over past 3 years
6. GDP growth rate
7. other

- ★ Results overall inconclusive
- ★ Uniformly same sign (-) only for GDP growth:
- ★ Economy slowdown ⇆ more frequent losses

❺ Results: Frequency Models

Main findings

- ★ Operational risk is largely internal to a firm
- ★ Market-level economic environment has a smaller effect
- ★ Is OpRisk controllable?

Other considerations

- ⌘ January dummy included in all models (+ ***)
- ⌘ SOX dummy (Aug. 2002 – Dec. 2003) in alternative models (- ***)

❺ Results: Frequency Models

- Previous models include *only firms for which at least 1 loss was reported*.

- **Potential criticism of the model:**

  Does our model differentiate between firms with ≥ 1 loss and 0 loss ?

- If so, then our model captures operational ***risk***.

❺ Results: Frequency Models

- **Model extension:**

  Include all firms with SIC code 6* and re-estimate models**

  - 4,481 firms
  - 9 times the original sample size

- **Findings**

  - ★ Pseudo R^2 significantly increased
  - ★ Majority of coefficients preserve sign
  - ★ *t*-statistics increased; *p*-values lower

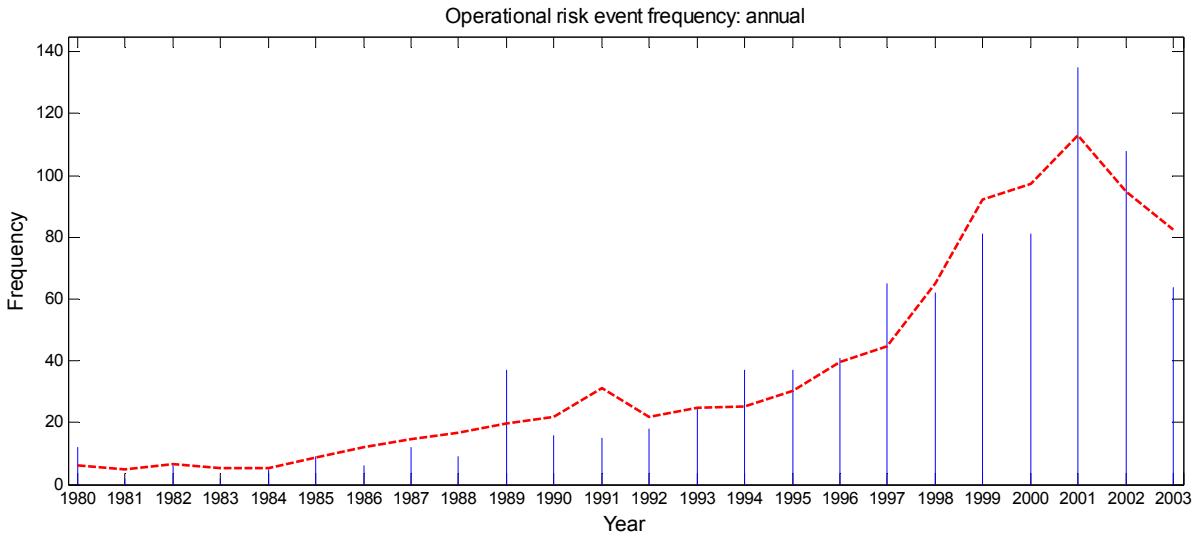
Earlier results are reinforced

➤➤ Our model does capture intrinsic characteristics of firms that have higher operational risk

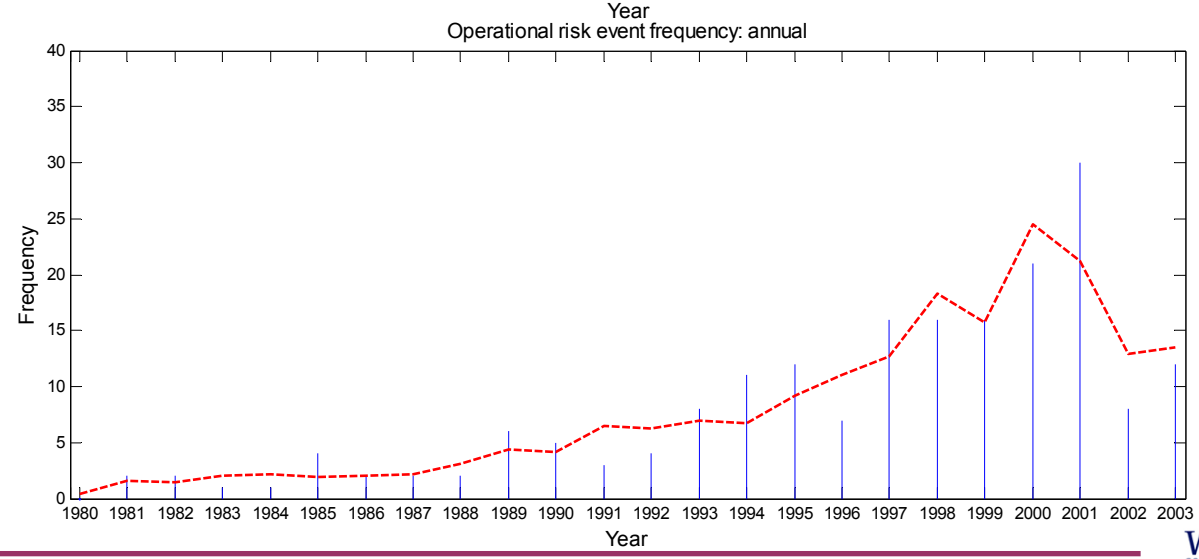
❺ Results: Frequency Models

- **Fitted vs. actual frequency**

All event types



Fraud



⑥ Results: Goodness-of-Fit Tests

Step 1: **Firm level**

Proportion of violations of Poisson model (≈ 25%). Use *time-rescaled data*.

$$\frac{1}{N}\sum_{i=1}^{N} I\left\{P(\chi^2 > W_i^2) < \alpha\right\} \qquad where \qquad W^2 = \sum_{k=1}^{K} \frac{(n_k - c)^2}{c}$$

Proportion of firms with *p*-value < α

Bin Size (c)	α	Internal Fraud	Fraud	Internal Events	External Events	Physical Disasters	All Events
1	*0.10*	0.2424	0.3250	0.2391	0.2346	0	0.2785
	0.05	0.2424	0.2750	0.2391	0.1852	0	0.2658
	0.01	0.2121	0.2250	0.1739	0.1605	0	0.1899
2	*0.10*	0.3158	0.4333	0.3415	0.4098	0	0.3846
	0.05	0.2632	0.3667	0.2927	0.2623	0	0.2923
	0.01	0.2632	0.3000	0.2195	0.1967	0	0.2462
3	*0.10*	0.6666	0.5909	0.4138	0.5400	N/A	0.4821
	0.05	0.4444	0.5000	0.2069	0.3600	N/A	0.3929
	0.01	0.3333	0.2727	0.1724	0.1800	N/A	0.2500
4	*0.10*	0.6000	0.4667	0.5455	0.6222	N/A	0.6275
	0.05	0.6000	0.4000	0.4091	0.4889	N/A	0.4706
	0.01	0.4000	0.2667	0.2273	0.2444	N/A	0.2745

- ★ Higher proportion implies more widespread rejection of conditional Poisson model
- ★ Partial violation
- ★ Omitted covariates ?

❻ Results: Goodness-of-Fit Tests

Step 2: **Aggregate level**

Combine all firms' point processes by adding estimated intensities.

Use *time-rescaled data*.

$$p-value = P(\chi^2 > W^2)$$

p-values

Bin size (c)	Internal Fraud	Fraud	Internal Events	External Events	Physical Disasters	All Events
1	0***	0***	0***	0***	0***	0.4172
2	0***	0***	0***	0***	0***	0***
3	0***	0***	0***	0***	0***	0***
4	0***	0***	0***	0***	0***	0***

- ★ ***p*-value = 0** implies strong rejection of Poisson model
- ★ Widespread violation of joint conditional Poisson assumption (Step 2)
- ★ Possibly because Poisson assumption was violated for some firms (Step 1) **?**

❻ Results: Goodness-of-Fit Tests

- **Obvious solution: Restrict analysis to firms with no violation at Step 1**

- **Modified results:**
  - ★ Few rejections in non-fraud related events and external events
  - ★ However, widespread rejection in fraud-related events

- **Additional tests:**
  - ⌘ Serial dependence? AR(1) tests: (-), stronger for fraud, but insignificant.
  - ⌘ Missing covariates? ΔIP (-), lagged macro covariates, total # events in past 3 yrs (-). Weak, inconclusive.
  - ⌘ Regulatory factor? Regulatory claimants (e.g., SEC, NASD, NYSE) 30% overall; up to 50-60% in 2002-2003.

    Li (2005): SEC budget & fraud detection.

❼ Discussion

- **Summary of main findings:**

  - ★ Operational risk events are largely idiosyncratic; macroeconomic environment has limited impact.
  - ★ Operational risk events cluster.

    Partial violation of Poisson assumption at firm level (omitted covariates ?)

    Widespread violation at industry level, especially for fraud (clustering ?)

- **Further research directions:**

  - ★ Links between firms' OpRisk events ?
  - ★ Relation of OpRisk to corporate governance metrics & internal control measures (work in progress) ?
  - ★ Links between OpRisk and default prediction (work in progress) ?

QUESTIONS?

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Additional slides follow

Data Description

- **Event types (Basel II definitions)**

ET1: Internal Fraud (IF)

ET2: External Fraud (EF)

ET3: Employment Practices and Workplace Safety (EPWS)

ET4: Clients, Products, and Business Practices (CPBP)

ET5: Damage to Physical Assets (DPA)

ET6: Business Disruption and Systems Failures (BDSF)

ET7: Execution, Delivery, and Process Management (EDPM)

Other

Covariates

Firm-specific covariates

- $Numloss^{start}_i$ i=1,2,…,8 - Monthly loss count at 'start date', by ET
- $Numloss^{end}_i$ i=1,2,…,8 - Monthly loss count at 'end date', by ET
- $Loss_i$ i=1,2,…,8 - Monthly aggregated loss amount at 'end date', by ET ($'000)
- $Duration_i$ i=1,2,…,8 - Average duration of events, at 'end date', by ET (months)
- *LogMVE* - Market value of equity (log $'000)
- *TA* - Total assets ($'000)
- *Leverage* - Leverage ratio
- *ROA* - Return on assets
- *Retsd* - Trailing st.dev. monthly stock ret. over past yr. (dec. ann.)
- *Market-to-book* - Market to book ratio
- *LogEmpl* - # employees (log '000)

Macroeconomic covariates

- *LogSpread* - Baa-Aaa corporate bond yield spread (log $)
- *Unemplr* - Unemployment rate (dec. ann.)
- *Tbill3mr* - 3-month trailing T-bill rate (dec. ann.)
- *S&P1mr* - S&P 500 1-month return (dec. ann.)
- *S&P1mrsd* - Trailing st.dev. S&P 500 1-m. ret. over past 3 yrs (dec. ann.)
- *GDPgr* - GDP growth rate (dec. ann.)

❸ Frequency Models

	Model 1 Internal Fraud		Model 2 Fraud		Model 3 All Except Internal Fraud		Model 4 All Except Fraud	
Const	-24.8825 (-10.20)***	-27.7912 (-8.55)***	-24.3660 (-12.55)***	-27.6231 (-9.96)***	-19.6371 (-18.37)***	-16.9998 (-10.53)***	-19.5623 (-17.46)***	-15.9756 (-9.43)***
LogMVE	**0.5839 (5.77)*****	**0.6957 (5.76)*****	**0.5303 (6.02)*****	**0.6714 (6.18)*****	**0.5865 (9.84)*****	**0.5281 (8.23)*****	**0.6014 (9.65)*****	**0.5139 (7.87)*****
Leverage	7.0324 (3.49)***	6.3604 (3.22)***	7.0414 (4.26)***	6.3836 (4.00)***	3.2378 (3.67)***	3.1290 (3.55)***	2.9355 (3.25)***	2.8536 (3.15)***
Market-to-book	-0.9702 (-2.19)**	-1.1183 (-2.24)**	-0.8540 (-2.47)***	-1.0368 (-2.75)***	-0.4268 (-1.87)*	-0.4314 (-1.86)*	-0.3915 (-1.72)*	-0.3834 (-1.70)*
ROA	27.0562 (2.12)**	25.9866 (2.02)**	21.3273 (1.81)*	20.3205 (1.67)*	5.8282 (0.75)	6.1541 (0.78)	5.4281 (0.68)	6.1464 (0.76)
Retsd	0.6469 (4.99)***	0.6845 (4.88)***	0.5817 (4.63)***	0.6440 (4.86)***	0.4390 (6.24)***	0.3977 (5.41)***	0.4345 (6.05)***	0.3813 (5.09)***
LogEmpl	0.6933 (1.78)*	0.5873 (1.54)	1.0683 (2.79)***	0.9487 (2.48)**	0.2775 (1.71)*	0.3050 (2.03)**	0.1618 (1.05)	0.2135 (1.51)
LogEmpl²	-0.1160 (-2.25)**	-0.1127 (-2.14)**	-0.1516 (-3.11)***	-0.1489 (-2.92)***	-0.0534 (-2.39)**	-0.0509 (-2.33)**	-0.0409 (-1.88)*	-0.0387 (-1.83)*
LogSpread		-1.2408 (-2.31)**		-0.9772 (-2.45)**		0.1294 (0.51)		0.2518 (0.92)
Unemplr		27.4634 (1.65)*		23.4099 (1.81)*		-16.9483 (-2.10)**		-22.7627 (-2.59)***
Tbill3mr		2.8489 (1.69)*		3.6043 (2.97)***		-0.6026 (-0.78)		-1.3754 (-1.61)
S&P1mr		0.2819 (1.56)		0.2521 (1.65)*		-0.0757 (-0.62)		-0.1145 (-0.88)
S&P1mrsd		0.7725 (0.62)		0.5287 (0.56)		-0.7700 (-1.06)		-0.9588 (-1.18)
GDPgr		-1.7782 (-0.84)		-0.8830 (-0.63)		-1.9666 (-2.16)**		-2.3451 (-2.29)**
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		12 (0.0684)*		16 (0.0161)**		9 (0.1647)		12 (0.0544)*
Pseudo R^2	**0.2533**	**0.2605**	**0.3242**	**0.3321**	**0.3691**	**0.3723**	**0.3472**	**0.3523**

❸ Frequency Models

	Model 5 Internal Events		Model 6 External Events		Model 7 Physical Disasters		Model 8 All Events	
Const	-23.0795 (-15.45)***	-24.7160 (-11.18)***	-19.4907 (-15.90)***	-15.7568 (-8.58)***	-32.2745 (-8.28)***	11.9474 (0.78)	-19.8661 (-19.71)***	-18.0602 (-11.92)***
LogMVE	**0.5025 (5.36)*****	**0.6281 (7.52)*****	**0.6210 (9.86)*****	**0.5068 (6.96)*****	**1.6871 (5.84)*****	**1.1305 (3.60)*****	**0.5881 (10.41)*****	**0.5532 (9.28)*****
Leverage	6.2224 (5.22)***	5.7583 (5.25)***	2.5596 (2.55)**	2.4673 (2.43)**	-3.2329 (-1.51)	-2.0604 (-1.08)	3.6600 (4.33)***	3.5056 (4.18)***
Market-to-book	-0.5399 (-1.99)**	-0.6204 (-2.25)**	-0.4555 (-1.58)	-0.4420 (-1.49)	-1.5311 (-1.20)	-1.1671 (-0.84)	-0.5039 (-2.28)**	-0.5197 (-2.29)**
ROA	27.2857 (3.66)***	28.7157 (3.99)***	-2.6010 (-0.26)	-3.5748 (-0.35)	-41.9166 (-2.78)***	-31.2136 (-3.09)***	8.9007 (1.26)	9.0971 (1.27)
Retsd	0.6225 (7.03)***	0.6670 (7.28)***	0.3854 (4.72)***	0.3115 (3.48)***	0.2025 (0.46)	0.0229 (0.04)	0.4705 (6.91)***	0.4408 (6.07)***
LogEmpl	1.0369 (3.48)***	0.9374 (3.24)***	0.0820 (0.53)	0.1656 (1.16)	0.2555 (0.29)	0.1315 (0.20)	0.3245 (2.07)**	0.3327 (2.29)**
LogEmpl²	-0.1533 (-4.15)***	-0.1520 (-3.94)***	-0.0279 (-1.25)	-0.0270 (-1.25)	-0.1179 (-1.01)	-0.0427 (-0.59)	-0.0610 (-2.87)***	-0.0584 (-2.79)***
LogSpread		-0.3717 (-1.02)		0.1448 (0.52)		4.7687 (3.14)***		-0.0650 (-0.27)
Unemplr		10.6121 (0.94)		-22.8820 (-2.40)**		-364.13 (-2.66)***		-10.3126 (-1.28)
Tbill3mr		0.8292 (0.80)		-0.6791 (-0.79)		-25.8650 (-2.91)***		-0.1366 (-0.19)
S&P1mr		0.2130 (1.54)		-0.1645 (-1.19)		-2.7310 (-4.13)***		-0.0219 (-0.20)
S&P1mrsd		-0.2280 (-0.24)		-0.8148 (-1.04)		-21.8201 (-3.05)***		-0.5348 (-0.78)
GDPgr		-2.2918 (-1.75)*		-1.6866 (-1.63)		-62.8225 (-5.78)***		-1.9511 (-2.24)**
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		8 (0.2096)		11 (0.0783)*		108 (0.0000)***		8 (0.2672)
Pseudo R^2	**0.2838**	**0.2877**	**0.3733**	**0.3776**	**0.2403**	**0.5427**	**0.3720**	**0.3748**

❸ Frequency Models

	Model 1 Internal Fraud		Model 2 Fraud		Model 3 All Except Internal Fraud		Model 4 All Except Fraud	
Const	-24.8825 (-10.20)***	-27.7912 (-8.55)***	-24.3660 (-12.55)***	-27.6231 (-9.96)***	-19.6371 (-18.37)***	-16.9998 (-10.53)***	-19.5623 (-17.46)***	-15.9756 (-9.43)***
LogMVE	0.5839 (5.77)***	0.6957 (5.76)***	0.5303 (6.02)***	0.6714 (6.18)***	0.5865 (9.84)***	0.5281 (8.23)***	0.6014 (9.65)***	0.5139 (7.87)***
Leverage	**7.0324 (3.49)*** **	**6.3604 (3.22)*** **	**7.0414 (4.26)*** **	**6.3836 (4.00)*** **	**3.2378 (3.67)*** **	**3.1290 (3.55)*** **	**2.9355 (3.25)*** **	**2.8536 (3.15)*** **
Market-to-book	**-0.9702 (-2.19)** **	**-1.1183 (-2.24)** **	**-0.8540 (-2.47)*** **	**-1.0368 (-2.75)*** **	**-0.4268 (-1.87)* **	**-0.4314 (-1.86)* **	**-0.3915 (-1.72)* **	**-0.3834 (-1.70)* **
ROA	27.0562 (2.12)**	25.9866 (2.02)**	21.3273 (1.81)*	20.3205 (1.67)*	5.8282 (0.75)	6.1541 (0.78)	5.4281 (0.68)	6.1464 (0.76)
Retsd	**0.6469 (4.99)*** **	**0.6845 (4.88)*** **	**0.5817 (4.63)*** **	**0.6440 (4.86)*** **	**0.4390 (6.24)*** **	**0.3977 (5.41)*** **	**0.4345 (6.05)*** **	**0.3813 (5.09)*** **
LogEmpl	0.6933 (1.78)*	0.5873 (1.54)	1.0683 (2.79)***	0.9487 (2.48)**	0.2775 (1.71)*	0.3050 (2.03)**	0.1618 (1.05)	0.2135 (1.51)
LogEmpl²	-0.1160 (-2.25)**	-0.1127 (-2.14)**	-0.1516 (-3.11)***	-0.1489 (-2.92)***	-0.0534 (-2.39)**	-0.0509 (-2.33)**	-0.0409 (-1.88)*	-0.0387 (-1.83)*
LogSpread		-1.2408 (-2.31)**		-0.9772 (-2.45)**		0.1294 (0.51)		0.2518 (0.92)
Unemplr		27.4634 (1.65)*		23.4099 (1.81)*		-16.9483 (-2.10)**		-22.7627 (-2.59)***
Tbill3mr		2.8489 (1.69)*		3.6043 (2.97)***		-0.6026 (-0.78)		-1.3754 (-1.61)
S&P1mr		0.2819 (1.56)		0.2521 (1.65)*		-0.0757 (-0.62)		-0.1145 (-0.88)
S&P1mrsd		0.7725 (0.62)		0.5287 (0.56)		-0.7700 (-1.06)		-0.9588 (-1.18)
GDPgr		-1.7782 (-0.84)		-0.8830 (-0.63)		-1.9666 (-2.16)**		-2.3451 (-2.29)**
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		12 (0.0684)*		16 (0.0161)**		9 (0.1647)		12 (0.0544)*
Pseudo R^2	**0.2533**	**0.2605**	**0.3242**	**0.3321**	**0.3691**	**0.3723**	**0.3472**	**0.3523**

❸ Frequency Models

	Model 5 Internal Events		Model 6 External Events		Model 7 Physical Disasters		Model 8 All Events	
Const	-23.0795 (-15.45)***	-24.7160 (-11.18)***	-19.4907 (-15.90)***	-15.7568 (-8.58)***	-32.2745 (-8.28)***	11.9474 (0.78)	-19.8661 (-19.71)***	-18.0602 (-11.92)***
LogMVE	0.5025 (5.36)***	0.6281 (7.52)***	0.6210 (9.86)***	0.5068 (6.96)***	1.6871 (5.84)***	1.1305 (3.60)***	0.5881 (10.41)***	0.5532 (9.28)***
Leverage	**6.2224 (5.22)*****	**5.7583 (5.25)*****	**2.5596 (2.55)****	**2.4673 (2.43)****	**-3.2329 (-1.51)**	**-2.0604 (-1.08)**	**3.6600 (4.33)*****	**3.5056 (4.18)*****
Market-to-book	**-0.5399 (-1.99)****	**-0.6204 (-2.25)****	**-0.4555 (-1.58)**	**-0.4420 (-1.49)**	**-1.5311 (-1.20)**	**-1.1671 (-0.84)**	**-0.5039 (-2.28)****	**-0.5197 (-2.29)****
ROA	27.2857 (3.66)***	28.7157 (3.99)***	-2.6010 (-0.26)	-3.5748 (-0.35)	-41.9166 (-2.78)***	-31.2136 (-3.09)***	8.9007 (1.26)	9.0971 (1.27)
Retsd	**0.6225 (7.03)*****	**0.6670 (7.28)*****	**0.3854 (4.72)*****	**0.3115 (3.48)*****	**0.2025 (0.46)**	**0.0229 (0.04)**	**0.4705 (6.91)*****	**0.4408 (6.07)*****
LogEmpl	1.0369 (3.48)***	0.9374 (3.24)***	0.0820 (0.53)	0.1656 (1.16)	0.2555 (0.29)	0.1315 (0.20)	0.3245 (2.07)**	0.3327 (2.29)**
LogEmpl²	-0.1533 (-4.15)***	-0.1520 (-3.94)***	-0.0279 (-1.25)	-0.0270 (-1.25)	-0.1179 (-1.01)	-0.0427 (-0.59)	-0.0610 (-2.87)***	-0.0584 (-2.79)***
LogSpread		-0.3717 (-1.02)		0.1448 (0.52)		4.7687 (3.14)***		-0.0650 (-0.27)
Unemplr		10.6121 (0.94)		-22.8820 (-2.40)**		-364.13 (-2.66)***		-10.3126 (-1.28)
Tbill3mr		0.8292 (0.80)		-0.6791 (-0.79)		-25.8650 (-2.91)***		-0.1366 (-0.19)
S&P1mr		0.2130 (1.54)		-0.1645 (-1.19)		-2.7310 (-4.13)***		-0.0219 (-0.20)
S&P1mrsd		-0.2280 (-0.24)		-0.8148 (-1.04)		-21.8201 (-3.05)***		-0.5348 (-0.78)
GDPgr		-2.2918 (-1.75)*		-1.6866 (-1.63)		-62.8225 (-5.78)***		-1.9511 (-2.24)**
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		8 (0.2096)		11 (0.0783)*		108 (0.0000)***		8 (0.2672)
Pseudo R^2	**0.2838**	**0.2877**	**0.3733**	**0.3776**	**0.2403**	**0.5427**	**0.3720**	**0.3748**

❸ Frequency Models

	Model 1 Internal Fraud		Model 2 Fraud		Model 3 All Except Internal Fraud		Model 4 All Except Fraud	
Const	-24.8825 (-10.20)***	-27.7912 (-8.55)***	-24.3660 (-12.55)***	-27.6231 (-9.96)***	-19.6371 (-18.37)***	-16.9998 (-10.53)***	-19.5623 (-17.46)***	-15.9756 (-9.43)***
LogMVE	0.5839 (5.77)***	0.6957 (5.76)***	0.5303 (6.02)***	0.6714 (6.18)***	0.5865 (9.84)***	0.5281 (8.23)***	0.6014 (9.65)***	0.5139 (7.87)***
Leverage	7.0324 (3.49)***	6.3604 (3.22)***	7.0414 (4.26)***	6.3836 (4.00)***	3.2378 (3.67)***	3.1290 (3.55)***	2.9355 (3.25)***	2.8536 (3.15)***
Market-to-book	-0.9702 (-2.19)**	-1.1183 (-2.24)**	-0.8540 (-2.47)***	-1.0368 (-2.75)***	-0.4268 (-1.87)*	-0.4314 (-1.86)*	-0.3915 (-1.72)*	-0.3834 (-1.70)*
ROA	**27.0562 (2.12)****	**25.9866 (2.02)****	**21.3273 (1.81)***	**20.3205 (1.67)***	**5.8282 (0.75)**	**6.1541 (0.78)**	**5.4281 (0.68)**	**6.1464 (0.76)**
Retsd	0.6469 (4.99)***	0.6845 (4.88)***	0.5817 (4.63)***	0.6440 (4.86)***	0.4390 (6.24)***	0.3977 (5.41)***	0.4345 (6.05)***	0.3813 (5.09)***
LogEmpl	0.6933 (1.78)*	0.5873 (1.54)	1.0683 (2.79)***	0.9487 (2.48)**	0.2775 (1.71)*	0.3050 (2.03)**	0.1618 (1.05)	0.2135 (1.51)
LogEmpl²	-0.1160 (-2.25)**	-0.1127 (-2.14)**	-0.1516 (-3.11)***	-0.1489 (-2.92)***	-0.0534 (-2.39)**	-0.0509 (-2.33)**	-0.0409 (-1.88)*	-0.0387 (-1.83)*
LogSpread		-1.2408 (-2.31)**		-0.9772 (-2.45)**		0.1294 (0.51)		0.2518 (0.92)
Unemplr		27.4634 (1.65)*		23.4099 (1.81)*		-16.9483 (-2.10)**		-22.7627 (-2.59)***
Tbill3mr		2.8489 (1.69)*		3.6043 (2.97)***		-0.6026 (-0.78)		-1.3754 (-1.61)
S&P1mr		0.2819 (1.56)		0.2521 (1.65)*		-0.0757 (-0.62)		-0.1145 (-0.88)
S&P1mrsd		0.7725 (0.62)		0.5287 (0.56)		-0.7700 (-1.06)		-0.9588 (-1.18)
GDPgr		-1.7782 (-0.84)		-0.8830 (-0.63)		-1.9666 (-2.16)**		-2.3451 (-2.29)**
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		12 (0.0684)*		16 (0.0161)**		9 (0.1647)		12 (0.0544)*
Pseudo R^2	**0.2533**	**0.2605**	**0.3242**	**0.3321**	**0.3691**	**0.3723**	**0.3472**	**0.3523**

❸ Frequency Models

	Model 5 Internal Events		Model 6 External Events		Model 7 Physical Disasters		Model 8 All Events	
Const	-23.0795 (-15.45)***	-24.7160 (-11.18)***	-19.4907 (-15.90)***	-15.7568 (-8.58)***	-32.2745 (-8.28)***	11.9474 (0.78)	-19.8661 (-19.71)***	-18.0602 (-11.92)***
LogMVE	0.5025 (5.36)***	0.6281 (7.52)***	0.6210 (9.86)***	0.5068 (6.96)***	1.6871 (5.84)***	1.1305 (3.60)***	0.5881 (10.41)***	0.5532 (9.28)***
Leverage	6.2224 (5.22)***	5.7583 (5.25)***	2.5596 (2.55)**	2.4673 (2.43)**	-3.2329 (-1.51)	-2.0604 (-1.08)	3.6600 (4.33)***	3.5056 (4.18)***
Market-to-book	-0.5399 (-1.99)**	-0.6204 (-2.25)**	-0.4555 (-1.58)	-0.4420 (-1.49)	-1.5311 (-1.20)	-1.1671 (-0.84)	-0.5039 (-2.28)**	-0.5197 (-2.29)**
ROA	**27.2857 (3.66)*** **	**28.7157 (3.99)*** **	**-2.6010 (-0.26)**	**-3.5748 (-0.35)**	**-41.9166 (-2.78)*** **	**-31.2136 (-3.09)*** **	**8.9007 (1.26)**	**9.0971 (1.27)**
Retsd	0.6225 (7.03)***	0.6670 (7.28)***	0.3854 (4.72)***	0.3115 (3.48)***	0.2025 (0.46)	0.0229 (0.04)	0.4705 (6.91)***	0.4408 (6.07)***
LogEmpl	1.0369 (3.48)***	0.9374 (3.24)***	0.0820 (0.53)	0.1656 (1.16)	0.2555 (0.29)	0.1315 (0.20)	0.3245 (2.07)**	0.3327 (2.29)**
LogEmpl²	-0.1533 (-4.15)***	-0.1520 (-3.94)***	-0.0279 (-1.25)	-0.0270 (-1.25)	-0.1179 (-1.01)	-0.0427 (-0.59)	-0.0610 (-2.87)***	-0.0584 (-2.79)***
LogSpread		-0.3717 (-1.02)		0.1448 (0.52)		4.7687 (3.14)***		-0.0650 (-0.27)
Unemplr		10.6121 (0.94)		-22.8820 (-2.40)**		-364.13 (-2.66)***		-10.3126 (-1.28)
Tbill3mr		0.8292 (0.80)		-0.6791 (-0.79)		-25.8650 (-2.91)***		-0.1366 (-0.19)
S&P1mr		0.2130 (1.54)		-0.1645 (-1.19)		-2.7310 (-4.13)***		-0.0219 (-0.20)
S&P1mrsd		-0.2280 (-0.24)		-0.8148 (-1.04)		-21.8201 (-3.05)***		-0.5348 (-0.78)
GDPgr		-2.2918 (-1.75)*		-1.6866 (-1.63)		-62.8225 (-5.78)***		-1.9511 (-2.24)**
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		8 (0.2096)		11 (0.0783)*		108 (0.0000)***		8 (0.2672)
Pseudo R^2	**0.2838**	**0.2877**	**0.3733**	**0.3776**	**0.2403**	**0.5427**	**0.3720**	**0.3748**

❸ Frequency Models

	Model 1 Internal Fraud		Model 2 Fraud		Model 3 All Except Internal Fraud		Model 4 All Except Fraud	
Const	-24.8825 (-10.20)***	-27.7912 (-8.55)***	-24.3660 (-12.55)***	-27.6231 (-9.96)***	-19.6371 (-18.37)***	-16.9998 (-10.53)***	-19.5623 (-17.46)***	-15.9756 (-9.43)***
LogMVE	0.5839 (5.77)***	0.6957 (5.76)***	0.5303 (6.02)***	0.6714 (6.18)***	0.5865 (9.84)***	0.5281 (8.23)***	0.6014 (9.65)***	0.5139 (7.87)***
Leverage	7.0324 (3.49)***	6.3604 (3.22)***	7.0414 (4.26)***	6.3836 (4.00)***	3.2378 (3.67)***	3.1290 (3.55)***	2.9355 (3.25)***	2.8536 (3.15)***
Market-to-book	-0.9702 (-2.19)**	-1.1183 (-2.24)**	-0.8540 (-2.47)***	-1.0368 (-2.75)***	-0.4268 (-1.87)*	-0.4314 (-1.86)*	-0.3915 (-1.72)*	-0.3834 (-1.70)*
ROA	27.0562 (2.12)**	25.9866 (2.02)**	21.3273 (1.81)*	20.3205 (1.67)*	5.8282 (0.75)	6.1541 (0.78)	5.4281 (0.68)	6.1464 (0.76)
Retsd	0.6469 (4.99)***	0.6845 (4.88)***	0.5817 (4.63)***	0.6440 (4.86)***	0.4390 (6.24)***	0.3977 (5.41)***	0.4345 (6.05)***	0.3813 (5.09)***
LogEmpl	**0.6933 (1.78)***	**0.5873 (1.54)**	**1.0683 (2.79)*****	**0.9487 (2.48)****	**0.2775 (1.71)***	**0.3050 (2.03)****	**0.1618 (1.05)**	**0.2135 (1.51)**
LogEmpl²	**-0.1160 (-2.25)****	**-0.1127 (-2.14)****	**-0.1516 (-3.11)*****	**-0.1489 (-2.92)*****	**-0.0534 (-2.39)****	**-0.0509 (-2.33)****	**-0.0409 (-1.88)***	**-0.0387 (-1.83)***
LogSpread		-1.2408 (-2.31)**		-0.9772 (-2.45)**		0.1294 (0.51)		0.2518 (0.92)
Unemplr		27.4634 (1.65)*		23.4099 (1.81)*		-16.9483 (-2.10)**		-22.7627 (-2.59)***
Tbill3mr		2.8489 (1.69)*		3.6043 (2.97)***		-0.6026 (-0.78)		-1.3754 (-1.61)
S&P1mr		0.2819 (1.56)		0.2521 (1.65)*		-0.0757 (-0.62)		-0.1145 (-0.88)
S&P1mrsd		0.7725 (0.62)		0.5287 (0.56)		-0.7700 (-1.06)		-0.9588 (-1.18)
GDPgr		-1.7782 (-0.84)		-0.8830 (-0.63)		-1.9666 (-2.16)**		-2.3451 (-2.29)**
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		12 (0.0684)*		16 (0.0161)**		9 (0.1647)		12 (0.0544)*
Pseudo R^2	**0.2533**	**0.2605**	**0.3242**	**0.3321**	**0.3691**	**0.3723**	**0.3472**	**0.3523**

❸ Frequency Models

	Model 5 Internal Events		Model 6 External Events		Model 7 Physical Disasters		Model 8 All Events	
Const	-23.0795 (-15.45)***	-24.7160 (-11.18)***	-19.4907 (-15.90)***	-15.7568 (-8.58)***	-32.2745 (-8.28)***	11.9474 (0.78)	-19.8661 (-19.71)***	-18.0602 (-11.92)***
LogMVE	0.5025 (5.36)***	0.6281 (7.52)***	0.6210 (9.86)***	0.5068 (6.96)***	1.6871 (5.84)***	1.1305 (3.60)***	0.5881 (10.41)***	0.5532 (9.28)***
Leverage	6.2224 (5.22)***	5.7583 (5.25)***	2.5596 (2.55)**	2.4673 (2.43)**	-3.2329 (-1.51)	-2.0604 (-1.08)	3.6600 (4.33)***	3.5056 (4.18)***
Market-to-book	-0.5399 (-1.99)**	-0.6204 (-2.25)**	-0.4555 (-1.58)	-0.4420 (-1.49)	-1.5311 (-1.20)	-1.1671 (-0.84)	-0.5039 (-2.28)**	-0.5197 (-2.29)**
ROA	27.2857 (3.66)***	28.7157 (3.99)***	-2.6010 (-0.26)	-3.5748 (-0.35)	-41.9166 (-2.78)***	-31.2136 (-3.09)***	8.9007 (1.26)	9.0971 (1.27)
Retsd	0.6225 (7.03)***	0.6670 (7.28)***	0.3854 (4.72)***	0.3115 (3.48)***	0.2025 (0.46)	0.0229 (0.04)	0.4705 (6.91)***	0.4408 (6.07)***
LogEmpl	**1.0369 (3.48)*** **	**0.9374 (3.24)*** **	**0.0820 (0.53)**	**0.1656 (1.16)**	**0.2555 (0.29)**	**0.1315 (0.20)**	**0.3245 (2.07)** **	**0.3327 (2.29)** **
LogEmpl²	**-0.1533 (-4.15)*** **	**-0.1520 (-3.94)*** **	**-0.0279 (-1.25)**	**-0.0270 (-1.25)**	**-0.1179 (-1.01)**	**-0.0427 (-0.59)**	**-0.0610 (-2.87)*** **	**-0.0584 (-2.79)*** **
LogSpread		-0.3717 (-1.02)		0.1448 (0.52)		4.7687 (3.14)***		-0.0650 (-0.27)
Unemplr		10.6121 (0.94)		-22.8820 (-2.40)**		-364.13 (-2.66)***		-10.3126 (-1.28)
Tbill3mr		0.8292 (0.80)		-0.6791 (-0.79)		-25.8650 (-2.91)***		-0.1366 (-0.19)
S&P1mr		0.2130 (1.54)		-0.1645 (-1.19)		-2.7310 (-4.13)***		-0.0219 (-0.20)
S&P1mrsd		-0.2280 (-0.24)		-0.8148 (-1.04)		-21.8201 (-3.05)***		-0.5348 (-0.78)
GDPgr		-2.2918 (-1.75)*		-1.6866 (-1.63)		-62.8225 (-5.78)***		-1.9511 (-2.24)**
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		8 (0.2096)		11 (0.0783)*		108 (0.0000)***		8 (0.2672)
Pseudo R^2	**0.2838**	**0.2877**	**0.3733**	**0.3776**	**0.2403**	**0.5427**	**0.3720**	**0.3748**

❸ Frequency Models

	Model 1 Internal Fraud		Model 2 Fraud		Model 3 All Except Internal Fraud		Model 4 All Except Fraud	
Const	-24.8825 (-10.20)***	-27.7912 (-8.55)***	-24.3660 (-12.55)***	-27.6231 (-9.96)***	-19.6371 (-18.37)***	-16.9998 (-10.53)***	-19.5623 (-17.46)***	-15.9756 (-9.43)***
LogMVE	0.5839 (5.77)***	0.6957 (5.76)***	0.5303 (6.02)***	0.6714 (6.18)***	0.5865 (9.84)***	0.5281 (8.23)***	0.6014 (9.65)***	0.5139 (7.87)***
Leverage	7.0324 (3.49)***	6.3604 (3.22)***	7.0414 (4.26)***	6.3836 (4.00)***	3.2378 (3.67)***	3.1290 (3.55)***	2.9355 (3.25)***	2.8536 (3.15)***
Market-to-book	-0.9702 (-2.19)**	-1.1183 (-2.24)**	-0.8540 (-2.47)***	-1.0368 (-2.75)***	-0.4268 (-1.87)*	-0.4314 (-1.86)*	-0.3915 (-1.72)*	-0.3834 (-1.70)*
ROA	27.0562 (2.12)**	25.9866 (2.02)**	21.3273 (1.81)*	20.3205 (1.67)*	5.8282 (0.75)	6.1541 (0.78)	5.4281 (0.68)	6.1464 (0.76)
Retsd	0.6469 (4.99)***	0.6845 (4.88)***	0.5817 (4.63)***	0.6440 (4.86)***	0.4390 (6.24)***	0.3977 (5.41)***	0.4345 (6.05)***	0.3813 (5.09)***
LogEmpl	0.6933 (1.78)*	0.5873 (1.54)	1.0683 (2.79)***	0.9487 (2.48)**	0.2775 (1.71)*	0.3050 (2.03)**	0.1618 (1.05)	0.2135 (1.51)
LogEmpl²	-0.1160 (-2.25)**	-0.1127 (-2.14)**	-0.1516 (-3.11)***	-0.1489 (-2.92)***	-0.0534 (-2.39)**	-0.0509 (-2.33)**	-0.0409 (-1.88)*	-0.0387 (-1.83)*
LogSpread		**-1.2408 (-2.31)****		**-0.9772 (-2.45)****		**0.1294 (0.51)**		**0.2518 (0.92)**
Unemplr		**27.4634 (1.65)***		**23.4099 (1.81)***		**-16.9483 (-2.10)****		**-22.7627 (-2.59)*****
Tbill3mr		**2.8489 (1.69)***		**3.6043 (2.97)*****		**-0.6026 (-0.78)**		**-1.3754 (-1.61)**
S&P1mr		**0.2819 (1.56)**		**0.2521 (1.65)***		**-0.0757 (-0.62)**		**-0.1145 (-0.88)**
S&P1mrsd		**0.7725 (0.62)**		**0.5287 (0.56)**		**-0.7700 (-1.06)**		**-0.9588 (-1.18)**
GDPgr		**-1.7782 (-0.84)**		**-0.8830 (-0.63)**		**-1.9666 (-2.16)****		**-2.3451 (-2.29)****
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		**12 (0.0684)***		**16 (0.0161)****		**9 (0.1647)**		**12 (0.0544)***
Pseudo R^2	**0.2533**	**0.2605**	**0.3242**	**0.3321**	**0.3691**	**0.3723**	**0.3472**	**0.3523**

❸ Frequency Models

	Model 5 Internal Events		Model 6 External Events		Model 7 Physical Disasters		Model 8 All Events	
Const	-23.0795 (-15.45)***	-24.7160 (-11.18)***	-19.4907 (-15.90)***	-15.7568 (-8.58)***	-32.2745 (-8.28)***	11.9474 (0.78)	-19.8661 (-19.71)***	-18.0602 (-11.92)***
LogMVE	0.5025 (5.36)***	0.6281 (7.52)***	0.6210 (9.86)***	0.5068 (6.96)***	1.6871 (5.84)***	1.1305 (3.60)***	0.5881 (10.41)***	0.5532 (9.28)***
Leverage	6.2224 (5.22)***	5.7583 (5.25)***	2.5596 (2.55)**	2.4673 (2.43)**	-3.2329 (-1.51)	-2.0604 (-1.08)	3.6600 (4.33)***	3.5056 (4.18)***
Market-to-book	-0.5399 (-1.99)**	-0.6204 (-2.25)**	-0.4555 (-1.58)	-0.4420 (-1.49)	-1.5311 (-1.20)	-1.1671 (-0.84)	-0.5039 (-2.28)**	-0.5197 (-2.29)**
ROA	27.2857 (3.66)***	28.7157 (3.99)***	-2.6010 (-0.26)	-3.5748 (-0.35)	-41.9166 (-2.78)***	-31.2136 (-3.09)***	8.9007 (1.26)	9.0971 (1.27)
Retsd	0.6225 (7.03)***	0.6670 (7.28)***	0.3854 (4.72)***	0.3115 (3.48)***	0.2025 (0.46)	0.0229 (0.04)	0.4705 (6.91)***	0.4408 (6.07)***
LogEmpl	1.0369 (3.48)***	0.9374 (3.24)***	0.0820 (0.53)	0.1656 (1.16)	0.2555 (0.29)	0.1315 (0.20)	0.3245 (2.07)**	0.3327 (2.29)**
LogEmpl²	-0.1533 (-4.15)***	-0.1520 (-3.94)***	-0.0279 (-1.25)	-0.0270 (-1.25)	-0.1179 (-1.01)	-0.0427 (-0.59)	-0.0610 (-2.87)***	-0.0584 (-2.79)***
LogSpread		**-0.3717 (-1.02)**		**0.1448 (0.52)**		**4.7687 (3.14)*** **		**-0.0650 (-0.27)**
Unemplr		**10.6121 (0.94)**		**-22.8820 (-2.40)** **		**-364.13 (-2.66)*** **		**-10.3126 (-1.28)**
Tbill3mr		**0.8292 (0.80)**		**-0.6791 (-0.79)**		**-25.8650 (-2.91)*** **		**-0.1366 (-0.19)**
S&P1mr		**0.2130 (1.54)**		**-0.1645 (-1.19)**		**-2.7310 (-4.13)*** **		**-0.0219 (-0.20)**
S&P1mrsd		**-0.2280 (-0.24)**		**-0.8148 (-1.04)**		**-21.8201 (-3.05)*** **		**-0.5348 (-0.78)**
GDPgr		**-2.2918 (-1.75)*** **		**-1.6866 (-1.63)**		**-62.8225 (-5.78)*** **		**-1.9511 (-2.24)** **
Num. Obs.	17,290	17,266	17,290	17,266	17,290	17,266	17,290	17,266
χ^2 macro		**8 (0.2096)**		**11 (0.0783)***		**108 (0.0000)*** **		**8 (0.2672)**
Pseudo R^2	**0.2838**	**0.2877**	**0.3733**	**0.3776**	**0.2403**	**0.5427**	**0.3720**	**0.3748**