

Who Disciplines Bank Managers?

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- Major losses incurred by many banks have led to departures of executives.
- Replacing executives is one of the critical decisions taken by directors.
- Soundness and losses are likely to be substantial factors in that decision.
- Supervisory authorities have attempted to complement regulatory discipline with market discipline (e.g., Flannery, 1998; Maechler and McDill, 2006; Ashcraft, 2008; Schaeck, 2008).
- Market discipline has two distinct dimensions:
 - market participants' ability to monitor changes in a bank's condition,
 - market participants' ability to influence a bank's actions (Flannery, 2001, 2008).

We analyze the effectiveness of a new face of market discipline: the ability to fire a bank executive if not performing adequately



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- The idea is that stakeholders (i.e., shareholders, debtholders, supervisors/regulators) exert sufficient discipline well before a bank experiences serious difficulties, inducing bank executives to take corrective actions.
 - This argument is also reflected in the corporate finance literature that highlights the role of institutional shareholders in corporate governance and monitoring (e.g., Kini et al., 2004; Parrino et al., 2003).

However, the current wave of banking sector problems illustrates clearly that these monitoring mechanisms have either not materialized or have not been sufficient (Flannery, 2008).



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Hypothesis:

Rising bank risk and/or the materialization of large losses induce stakeholders (i.e., shareholders, debtholders, supervisors) to discipline bank executives by raising the probability that they could be fired.



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We try to advance the literature in a number of ways:

- Focus on a new ,face‘ of market discipline: Executive turnovers
- Isolate different channels of market discipline
- ‘Laboratory setting’ – ideal conditions (no support expectations)
- Unique and hand-collected dataset of executive turnovers:
 - permits testing the efficacy of market discipline for small U.S. banks not subject to public scrutiny or public bail-out
 - sampling period (1990-2007) covers range of regulatory changes, including FDICIA/PCA framework



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Methodology

- We model the relationship between executive turnover and bank soundness, using a conditional logit model where turnover = 1 if “forced” and 0 otherwise:

$$\text{Turnover} = f(\text{discipline}, \text{losses}, \text{bank characteristics})$$

- Explanatory variables are lagged by one period to avoid contemporaneous correlations and focus on causal linkages.



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Key explanatory variables:

- ***Debtholder Discipline***
 - *Subordinate debt to total assets (+)*
 - *Core deposits to total assets (i.e., insured deposits up to \$100,000) (+/-)*
- ***Shareholder Discipline***
 - *Relative profits (i.e., difference between the ROE of the bank and the median ROE in the industry) (-)*
 - *Bank Holding Company Dummy (i.e., takes on value one if the bank is a member of a bank holding company) (+)*
- ***Supervisory Discipline***
 - *Supervisory Intervention Dummy (i.e., takes on the value of one if the bank's total equity ratio falls below 6 percent) (+)*
- ***Losses*** (i.e., zero if profits or the log of losses) (+)
- ***Risk*** (measured by a Z-Score) (+)



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Measuring Bank Soundness :

- **Z-score:**
$$Z = \frac{(ROA + E/A)}{\sigma ROA}$$

where ROA is the bank's return on assets, E/A denotes its equity to asset ratio and σROA is the standard deviation of return on assets computed for a three-year rolling time window.

- A higher Z-score implies a lower probability of insolvency.
- Number of standard deviations away from exhausting banks' capital buffers



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- **Turnover Data** - LEXIS/NEXIS for info on executive turnovers in U.S. banks (1990 – 2007).
 - Key-word searches to differentiate between “forced” and “voluntary” turnovers
 - Broad definition of the term “executive” defined as any individual that holds the position of president, chairperson, CEO, CFO, or COO as executive.
 - Initial search yields 661 articles.
 - We follow the corporate finance literature in the differentiation between forced and voluntary turnovers.



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Distribution of turnovers by type of turnover

| Presidents | CEOs | Chairpersons | CFOs | COOs | Total |
|------------|------|--------------|------|------|-------|
| 48 | 27 | 8 | 2 | 5 | 90 |

- In instances where an individual holds more than one role, e.g., CEO and chairman ('duality'), departure is counted as one turnover. This procedure reduces our initial set of 90 turnovers to 65 forced turnovers.
- Not appropriate to compare 65 banks with all banks operating in the U.S., given the heterogeneity across the different size groups of banks.



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Matching Procedure

- For each bank for which we observe a turnover, we identify at least one matched bank that is located in the same state, and is of similar size in the same period.
 - A matching bank is similar if its total assets are between 80 and 120 percent of the bank for which we observe a turnover.
 - We restrict the number of matches to the four banks that are closest in terms of their asset size.
- We drop six banks from our original turnover sample for which we do not find a matching bank.
- The final sample consists of 59 banks with turnovers, and a group of 219 matched banks.



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Conditional Logit Models

| Dependent variable | (1) Turnover | (2) Turnover | (3) Turnover | (4) Turnover |
|--|-------------------|------------------|-------------------|-------------------|
| Total assets (log) | 1.0545 | 1.3388 | 1.0414 | 1.4816 |
| Z-Score | -0.0150*** | -0.0242** | -0.0149*** | -0.0259*** |
| Subordinated debt/Total assets | 0.1494** | 0.0417 | 0.1487** | 0.0457 |
| Losses (log) | 0.2278** | 0.2372** | 0.2254** | 0.2656** |
| BHC member | 0.384 | 0.1747 | 0.3779 | 0.2475 |
| Relative profits | -0.0003 | 0.0186 | -0.0003 | 0.021 |
| Core deposits/Total assets | 1.4079 | 1.4183 | 1.4062 | 1.4534 |
| Total assets (log) * Z-Score | | 0.0121** | | 0.0129** |
| BHC member * Z-Score | | -0.0069 | | -0.0071 |
| Subordinated debt/Total assets * Z-Score | | -5.5336 | | -5.6712 |
| Core deposits/Total assets * Z-Score | | 0.0011 | | 0.0018 |
| Relative profits * Z-Score | | 0.0003 | | 0.0004 |
| SI dummy | | | 0.0624 | -0.4964 |
| SI dummy * Z-Score | | | | 0.0021 |
| Observations | 278 | 278 | 278 | 278 |



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Results

- Bank managers are more likely to get fired in
 - banks with deteriorating bank risk
 - banks that incur losses
 - banks with a higher share of subordinated debt (not robust result across specifications)
- This effect is stronger in smaller banks.
- Other forms of discipline have limited impact at best.
 - **Supervisory discipline:** Supervisory dummy and interaction terms remain insignificant
 - **Shareholder discipline:**
 - The BHC dummy is not significant
 - Relative profits do not affect probability of turnover
 - **Depositor discipline:** Core deposits not significant



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Robustness tests:

- Alternative definitions: **Top executives only**
- Alternative samples (1): **Removing failed banks**
- Alternative samples (2): **BHC members only**
- Alternative samples (3): **Removing mergers**
- Alternative model: **Ordered logit model.**

Our findings remain largely unaffected!



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What happens to risk after turnover?

- Recall that market discipline has two distinct dimensions!
- We want to know whether market discipline is sufficient to reduce bank risk (2nd dimension).
- The current financial crisis suggests that disciplining effects left much to be desired.

We use two ways of looking at this issue:

- Descriptive statistics following turnovers
- Matching methods based on propensity scores



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Post Turnover Performance

a) Descriptive statistics

| | t+1 | | | | t+2 | | | | t+3 | | | |
|-------------------------|-----------|---------------|------------------|-------------------|-----------|---------------|------------------|-------------------|-----------|---------------|------------------|-------------------|
| | Treatment | Control group | Mean | Median | Treatment | Control group | Mean | Median | Treatment | Control group | Mean | Median |
| Z-Score | 44.06 | 82.12 | 3.8738*** | 11.2561*** | 41.92 | 83.31 | 4.0304*** | 12.0645*** | 45.95 | 87.08 | 3.5901*** | 12.3367*** |
| ROE | -0.06 | 0.01 | 1.43 | 0.02 | 0.00 | 0.02 | 1.28 | 0.25 | 0.01 | 0.02 | 1.34 | 0.00 |
| Relative Profits | -0.09 | -0.02 | 1.43 | 0.02 | 0.00 | -0.01 | 1.28 | 0.03 | -0.01 | 0.00 | 1.33 | 0.12 |
| Losses | 295.75 | 96.49 | 1.8008* | 3.0286* | 58.48 | 79.06 | 0.39 | 0.14 | 114.63 | 246.70 | 0.47 | 6.056** |

- Mean/median z-scores are significantly different across samples but do not improve over time, suggesting that turnover does not improve risk profile
- Mean/median losses are also significantly different across the two groups in t+1 but not consistent
- Why?
 - Forced turnovers may come too late; or
 - It takes longer to alter investment strategy/business model



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Post Turnover Performance

b) Propensity scores (Dehejia and Wahba, 2002)

| Matching model | (1) | (2) | (3) | (4) | (5) | (6) |
|--|--------------------|--------------------|--------------------|------------------|----------|----------|
| Period | $t+1$ | $t+2$ | $t+3$ | $t+1$ | $t+2$ | $t+3$ |
| Dependent variable | Z-Score | Z-Score | Z-Score | Losses | Losses | Losses |
| Banks that experience turnovers versus those that do not (n=4) | -38.6522*** | -43.5511*** | -39.9761*** | 203.9531* | -14.2010 | -94.8414 |
| z-statistic | (-4.28) | (-5.25) | (-3.94) | (1.76) | (-0.32) | (-0.44) |
| Observations | 241 | 224 | 196 | 241 | 224 | 196 |

- We compare banks that have the same probability of having a turnover, but one of them experienced one and the others did not. The difference between Z-Scores and losses are attributed to the effect of a turnover.
- Even at $t+3$, banks with turnovers still operate at lower Z-Scores!

Summary:

- Turnovers have a lasting negative effect on bank risk.
- New executives restructure unsound banks in the sense of “cleaning up the house”.
- Increase in risk may be due to greater uncertainty about the future prospects of the bank.



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- Study gives some insight into micro-mechanism of market discipline in a ‘laboratory setting’.
- Novel evidence that executives are more likely to be removed if their bank is financially weak, and if the bank incurs losses.
- Lack of strong effect of shareholder discipline indicates that prevailing corporate governance regime does not appear to be appropriate for small and medium-sized institutions.
- Our analysis sheds some light on which channels may be most effective as a means for strengthening market discipline.

