# The Effects of Revolving Doors on Financial Regulators' Enforcement Decisions: Evidence from Korea*

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*The views expressed in this paper are those of the authors and should not represent those of Korea Development Institute.

# Motivation

- Financial regulators have strong supervisory authorities to financial companies.
  - The regulators closely monitor how financial firms manage their risks.
  - If necessary, the regulators impose penalties on financial firms for their wrongdoings.
- The regulators' authority may lead to socially undesirable collusion with private firms.
  - The regulated companies may offer side contracts to "capture" the regulators.
    - Laffont and Tirole (1991)
- The "revolving door" is, although controversially, deemed as one of such side contracts.
  - Private companies arguably hire ex-regulators to unduly avoid regulatory actions.
  - Some papers argue that ex-regulators' expertise improves risk management.
    - Che (1995), Bond and Glode (2014);
    - Cornaggia et al. (2016) , Kempf (2017), Shive and Forster (2017)

# What We Do & Find

- We empirically analyze financial firms' motive of hiring ex-regulators ("revolving doors").
  - Do financial firms enhance their risk management by hiring ex-regulators?
  - Or, are the revolving doors an outcome of the regulatory capture?

- To this end, we build a unique dataset of Korean financial sector.
  - tracking whether executives in financial firms have past careers as regulators.
- Using this dataset, we show that:
  - *i.* Newly hired ex-regulators do not immediately enhance firms' prudential management.
    - No improvement in troubled asset ratio and RORWA in the subsequent quarters.
  - *ii.* But, the probability of receiving penalties decreases in the next quarter.

- This result is more consistent with "collusion" hypothesis than "schooling" hypothesis.
  - The current regulators may unduly favor firms hiring ex-regulators.

# Institutional Background of the Financial Sector in Korea

- In Korea, a single agency assumes major practical tasks of financial regulation.
  - Financial regulatory institutions in Korea:
    - Ministry of Strategy and Public Finance (MoSF), Financial Supervisory Committee (FSC), Bank of Korea (BOK), Financial Supervisory Service (FSS).
  - Among them, FSS assumes major tasks of regulating financial firms.
    - Prudential regulation, consumer protection, market discipline, etc.
    - FSS collects information on regulated firms' management and financial health.
    - FSS has an authority to penalize entities violating financial regulations.
- So, we focus on effects of revolving doors for ex-regulators with past careers at FSS.

# Data Description

- Period: Jan 2010 – Jan 2017
- Data of regulated financial companies.
  - Source: Korea Information System (KIS), DART (provided by FSS), Bloomberg, etc.
  - Financial characteristics of regulated firms, such as:
    - Total asset, Tobin's Q, ROE, ROA, Troubled Asset Ratios (TAR), RORWA.
    - regulatory capital ratios, liquidity ratios, etc.
  - Past records of regulatory actions (or penalties) released by FSS.
- Data of executives at regulated companies.
  - Source: KIS-Line (which collects executives' profiles as PDFs)
    - demographics (name, age, education, hometown, etc.);
    - work experience in FSS;
    - work experience in other public sectors, such as BOK, MoSF, or FSC.

# Data Description: Summary Statistics of Firms

| | Asset (Trillion KRW) | Profit (Trillion KRW) | ROA (%) | ROE (%) | Asset Growth* (%) | Tobin Q | TAR (%) | RORWA (%) | Regulatory Actions (= 1 if penalized) |
|---|---|---|---|---|---|---|---|---|---|
| mean | 43.41 | 0.26 | 0.38 | 3.38 | 6.77 | 0.99 | 4.59 | 6.53 | 0.26 |
| std. dev. | 83.76 | 0.49 | 3.85 | 29.60 | 56.58 | 0.38 | 8.90 | 27.69 | 0.44 |
| min. | 0.01 | -0.52 | -68.99 | -976.11 | -71.42 | 0.19 | 0.00 | -394.37 | 0.00 |
| max. | 405.00 | 3.21 | 22.50 | 82.57 | 1774.53 | 9.16 | 94.03 | 149.27 | 1.00 |
| no. obs. | 1520 | 1520 | 1510 | 1510 | 1517 | 1279 | 1518 | 1320 | 1763 |

*Note: Asset Growth is the percent increase in total assets over the past quarter.

# Data Description: Summary Statistics of Executives

| | No. Executives | From Public Sectors | FSS | FSS ratio* |
|---|---|---|---|---|
| mean | 23.92 | 4.18 | 0.77 | 0.19 |
| std. dev. | 18.23 | 3.14 | 0.86 | 0.22 |
| min. | 4.00 | 0.00 | 0.00 | 0.00 |
| max. | 106.00 | 21.00 | 4.00 | 1.00 |
| no. obs. | 1763 | 1763 | 1763 | 1643 |

*Note: FSS ratio is the ratio of executives from FSS in regulated firms.

# Testing "Schooling" Hypothesis

- We first study whether the revolving door enhances firms' risk management.
  - If schooling effects exist, firms hiring ex-regulators will be more financially sound.

- We test schooling hypothesis by estimating the following model:

$$Y_{i,t} = \alpha + \beta NewHire_{i,t-1} + \gamma \cdot X_{i,t} + \delta_i + \theta_t + \varepsilon_{i,t}$$

  - $Y_{i,t}$ : measures of financial soundness (e.g. TAR, RORWA, Capital Ratios, etc.),
  - $NewHire_{i,t-1}$: a dummy variable of new hiring of ex-regulators in the past quarter,
  - $X_{i,t}$: control variables (lagged No. of executives, total asset, asset growth, Tobin Q).

- The result reveals no effect of the revolving door on financial soundness in the next quarter.
  - No improvement in either troubled asset ratios (TAR) or RORWA
  - This result is robust to $NewHire_{i,t-2}$, $NewHire_{i,t-3}$, and $NewHire_{i,t-4}$.

# Testing "Schooling" Hypothesis

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Variables | TAR | RORWA | TAR | RORWA |
| lag FSS Hire | 0.0585 | -3.389* | 0.0532 | -2.864* |
| | (0.199) | (1.704) | (0.232) | (1.706) |
| lag FSC Hire | | | 0.0950 | -3.618 |
| | | | (0.248) | (4.815) |
| lag MoSF Hire | | | 0.0825 | -2.186 |
| | | | (0.320) | (2.151) |
| lag BOK Hire | | | -0.251 | -3.505 |
| | | | (0.191) | (2.638) |
| lag No. Executives | 0.0198 | 0.294 | 0.0357 | 0.581 |
| | (0.0328) | (0.466) | (0.0394) | (0.604) |
| Log Assets | -1.055 | 25.69 | -1.150 | 23.83 |
| | (1.788) | (18.42) | (1.786) | (16.52) |
| Asset Growth | 5.46e-05 | -0.113* | 2.86e-04 | -0.105** |
| | (0.00380) | (0.0557) | (0.00370) | (0.0485) |
| Tobin Q | -2.328** | 14.43 | -2.372** | 14.87 |
| | (0.968) | (9.697) | (0.995) | (9.898) |
| Obs. | 1,036 | 873 | 1,036 | 873 |
| $R^2$ (within) | 0.092 | 0.095 | 0.094 | 0.107 |

Notes: 1) Robust s.e. in parentheses
2) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
3) Firm f.e. and year dummies are included.

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  - We estimate changes in the probability of receiving penalties after hiring ex-regulators.

- We first find what the most correlated variable with the probability of penalties is.
- We estimate the following panel-logit model:

$$\log\left(\frac{\pi_{it}}{1-\pi_{it}}\right) = \gamma \cdot X_{i,t} + \delta_i + \theta_t$$

  - $\pi_{it}$: the probability that firm $i$ is subject to regulatory actions.

- We find that TAR is the key variable to explain the characteristics of the penalized firms.
  - The higher TAR, the more likely the firms are to be subject to regulatory actions.

# Testing "Collusion" Hypothesis

- We study whether the revolving door is a result of collusion between regulators and firms.
  - We estimate changes in the probability of receiving penalties after hiring ex-regulators.

- We next study whether hiring ex-regulators reduces the probability of receiving penalties.
- To this end, we estimate the following panel-logit model:

$$\log\left(\frac{\pi_{it}}{1-\pi_{it}}\right) = \beta \mathit{NewHire}_{i,t-1} + \gamma \cdot X_{i,t} + \delta_i + \theta_t$$

  - $\pi_{it}$: the probability that firm $i$ is subject to regulatory actions.

- We find $\beta < 0$:
  - after hiring ex-regulators, firms can avoid regulatory penalties in the next quarter;
  - but this effect disappears in the next two ($t-2$), three ($t-3$), and four ($t-4$) quarters.

# Testing "Collusion" Hypothesis

- We study whether the revolving door is a result of collusion between regulators and firms.
  - We estimate changes in the probability of receiving penalties after hiring ex-regulators.

- We next study whether hiring ex-regulators reduces the probability of receiving penalties
- We further estimate the following panel-logit model with an interaction term:

$$\log\left(\frac{\pi_{it}}{1-\pi_{it}}\right) = \beta \mathit{NewHire}_{i,t-1} + \lambda \mathit{NewHire}_{i,t-1} \times \mathit{TAR}_{i,t} + \gamma \cdot X_{i,t} + \delta_i + \theta_t$$

  - $\pi_{it}$: the probability that firm *i* is subject to regulatory actions.

- We find $\lambda < 0$ but $\beta = 0$:
  - the revolving door have no distinctive effect on the probability of getting penalties;
  - but, it weakens the link between TAR and the probability of getting penalties;
  - this result supports the collusion hypothesis more than the schooling hypothesis.

# Testing "Collusion" Hypothesis

| Variables | | (1) Benchmark | (2) Basic | (3) Interaction | (4) Basic | (5) Interaction |
|---|---|---|---|---|---|---|
| lag FSS Hire | | | -0.802*** | 0.419 | -0.595* | 0.486 |
| | | | (0.297) | (0.532) | (0.324) | (0.569) |
| | ×TAR | | | -1.552*** | | -1.331** |
| | | | | (0.558) | | (0.595) |
| lag FSC Hire | | | | | -0.189 | -0.650 |
| | | | | | (0.392) | (0.473) |
| | ×TAR | | | | | -0.549 |
| | | | | | | (1.462) |
| lag MoSF Hire | | | | | -0.200 | 0.704 |
| | | | | | (0.397) | (0.609) |
| | ×TAR | | | | | -0.705** |
| | | | | | | (0.282) |
| lag BOK Hire | | | | | -0.753 | 0.036 |
| | | | | | (0.484) | (1.462) |
| | ×TAR | | | | | 0.227*** |
| | | | | | | (0.085) |
| TAR | | 0.0849** | 0.0837** | 0.0826** | 0.0849** | 0.0970** |
| | | (0.0385) | (0.0385) | (0.0394) | (0.0384) | (0.0420) |
| lag No. Exec. | | -0.0406** | -0.0377* | -0.0359* | 0.0365* | -0.0308 |
| | | (0.0204) | (0.0208) | (0.0208) | (0.0208) | (0.0209) |
| | ... | | | ... | | ... |
| Observations | | | 802 | 802 | 802 | 802 |
| Log Likelihood | | | -434.74 | -431.23 | -432.97 | -425.37 |

Notes: 1) Some statistically insignificant estimation results are omitted.
2) Firm f.e. and year dummies are included.

# Concluding Remark

- We analyze financial firms' motives of hiring ex-regulators.
- Our empirical results are more consistent with the collusion hypothesis.
  - Regulatory indices for financial soundness are not improved after hiring ex-regulators.
    - TAR, RORWA, ...
  - The financial firms hiring ex-regulators are less likely to receive regulatory penalties.
- Future works:
  - More robustness checks;
  - Can ex-regulators' contribution to prudential management be unobserved?

# Thank You!