Governance through Shame and Aspiration: Index Creation and Corporate Behavior

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Motivation

- How can persistent behavior be changed?
  - ↪ Focus on formal contracts and pecuniary rewards
  - ↪ Focus on non-pecuniary strategies like norms and status hierarchy of behaviors (e.g., Guiso, Sapiensa, and Zingales, 2015)

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- Phenomenon: Stock index as an alternative mechanism to influence/shape the standards of corporate behavior
  - ↪ Growth in ESG- or CSR-focused stock indexes worldwide
  - ↪ July 2017: FTSE Russell and S&P Dow Jones exclude multiple-voting-class firms

Research Questions

- RQs: **Whether**, **how effectively**, or **through what incentive channels** stock indexes could influence corporate behavior
  - ↪ Intensify managers' formal incentives by offering capital-market benefits
  - ↪ Provide non-pecuniary incentives by promote certain behaviors as ideals, functioning as a gauge for "virtuous" firms

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- What We Do: Study the index-inclusion incentive effects of the JPX-Nikkei 400 Index aimed at boosting profitability of Japanese firms
  - ↪ Salient example where policy maker deployed index to address longstanding problem
  - ↪ Setting imposes constraints on contracting, allows us to test the potential motivating power of non-pecuniary incentives

Setting: Japan's Low Corporate Capital Efficiency Problem

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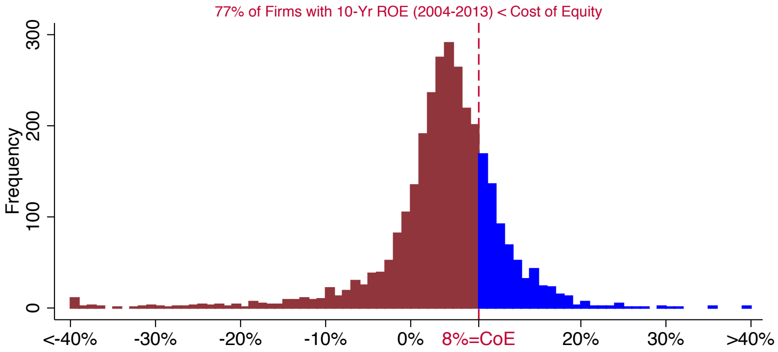

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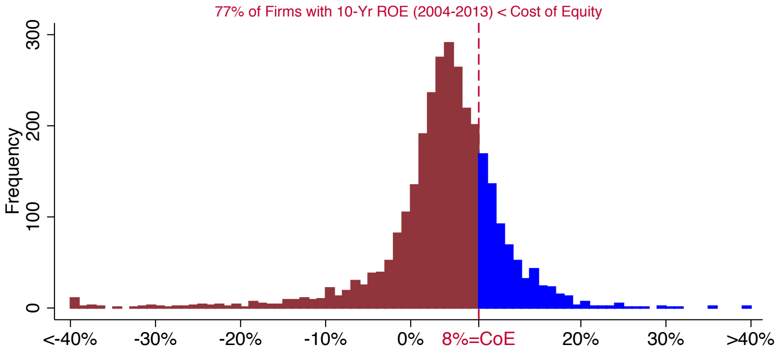

- Ito (2014): 2013 Mean ROE in Japan (5.3%) < Europe (10.5%) < U.S. (22.6%) "ROE improvement can be regarded as the core of the third arrow of Abenomics"
  - ↪ Historical corporate norm of de-prioritizing shareholders interests in lieu of customers, employees, and suppliers
  - ↪ Strong norms against high-powered incentives and large payouts

Setting: JPX-Nikkei 400

- Introduced in 2013, index designed to showcase (among large and liquid firms) Japan's best 400 in terms of profitability, capital efficiency, and good governance
  - ↪ Part of Abe's "third arrow" governance reforms, intended to revive capital markets and economy by strengthening *de facto* shareholder power
  - ↪ Selection for inclusion based on a transparent quantitative (ROE-based) algorithm
- Standard theory $\implies$ no effect
  - ↪ Index offers no direct pecuniary benefits, low pay-performance sensitivity
  - ↪ Improving ROE trades off relational capital with customers, employees, or suppliers
- Alternatively, managers affected via non-pecuniary or implicit incentives channels
  - ↪ Became new "prestige" stock index, as gauge of Japan's "best-run" firms
    a. Formal endorsement by Government Pension Investment Fund (GPIF)
    b. Clever (intentional or accidental) marketing: "the shame index"

    "... by far the shiniest toy in the Abenomics box... Its constituents would be heroes... Its rejects would cringe in shame." (FT, Aug 9, 2017)

JPX400 Selection Criteria

At end of June each year...

1. Identify 1,000 eligible large, liquid, quality firms
   a. Listed on TSE or JASDAQ for ≥ 3 years, with positive book value in all 3 years, at least 1 year of operating profit in last 3 years
   b. Filter for the 1,200 firms by trading volume and then largest 1,000 by market cap

2. Rank 1,000 firms on..
   a. [*ROE rank*] 3-year average ROE
   b. [*OI rank*] 3-year total operating income
   c. [*MCAP rank*] Market capitalization (as of end of June)

3. Select top 400 based on

$$\textit{Total rank} = .4 \text{ x } \textit{ROE rank} + .4 \text{ x } \textit{OI rank} + .2 \text{ x } \textit{MCAP rank}$$

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↪ Selection criteria transparent, with ROE the most controllable parameter for firms

↪ JPX publishes actual membership each year, but not the rankings

Empirical Approach

Question: How do firms' JPX400 index-inclusion incentives affect their behavior?

Strategy: Exploit variation in index-inclusion incentives (treatment intensity)

- Idea: Firms closer to threshold of inclusion/exclusion have greater incentives
  - ↪ Those closer to cutoff have higher marginal benefit of effort, cet. par.
  - ↪ Competition to attain membership more intense near threshold, driving up effort
  - ↪ JPX400 ranks are not disclosed, but managers (or their shareholders and we the researchers) can identify marginal benefit due to transparent selection algorithm

- Execution: To identify relative incentive intensity, replicate JPX400's rankings
  - ↪ Critical component of research design that we first validate before using
  - ↪ Table 1: Synthetic JPX400 rankings predict index inclusion and variation in inclusion likelihood to high degree of accuracy

Identification Strategy

D1: Compare 2014-2016 financial performance (ROE, its drivers, multiples) between...

Treat $= 1$: Firms that happen to be near threshold (ranked 301–500) and have strongest incentives

Treat $= 0$: Firms with lower ranks (ranked 501–800) who have weaker incentives

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DiD: $$ROE_{i,t+1} = \alpha + \underbrace{\beta_1}_{D1-D2} Treat_{i,t} \times Post_t + \beta_2 Treat_{i,t} + \gamma X_{i,t} + f_t + \epsilon_{i,t}$$

↪ Treatment status—not fully controllable by managers—varies over time: firm's ranking and distance from threshold varies year by year

↪ In effect combines multiple "experiments" in the post-JPX400 period with multiple placebo "experiments" in the pre-period to infer the effect of inclusion incentives

Key: Baseline differences in future ROE between treated and control (conditional on firm characteristics) are stable over time and accounted for by pre-period placebo differences

DID Estimates of Average Effect on Forward ROE (T3)

	(1)	(2)	(3)	(4)	(5)
Treat × *Post*	0.028***	0.028***	0.025***	0.025***	0.024***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Treat	-0.006	-0.006	-0.005	0.007	-0.005
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Post	0.018***				
	(0.01)				
ROE					0.384**
					(0.15)
Time FE	No	Yes	Yes	Yes	Yes
Industry FE	No	No	Yes	Yes	No
Firm Controls	No	No	No	Yes	Yes
Observations	2,783	2,783	2,783	2,783	2,783
R^2	0.0221	0.0219	0.0514	0.2472	0.3031

Note: Firm controls include *Log Market Cap*, *Log Book to Market*, *Sales Growth*, *LT Debt to Equity*, and *Cash to Equity*.

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Represents 41% proportional increase relative to pre-period mean for *Treat*

Robustness

To establish that these results reflect index-inclusion incentive effects (Table 4) ...

1. Reject differential historical trends between treatment and control
   ↪ Time-series placebo tests using pre-JPX400 data
2. Reject that differential trends could have applied *after* JPX400 introduced (e.g., omitted variable correlated with JPX400 ranking *and* future ROE)
   ↪ Using contemporaneous placebo tests, including a holdout sample of JPX400-eligible firms and a holdout sample of JPX400-ineligible firms
3. Reject that our findings are an *ex post* consequence of index inclusion
   ↪ Show that the effect is no different for treated firms in and out of the index
   ↪ Using "fuzzy" RD design, find no effect on ROE from JPX400 inclusion *per se*
4. Show that ROE improvement is increasing in closeness to threshold
   ↪ Using the broad sample of 1,000 JPX400-eligible firms

Consequences of Index Inclusion

- Table 5, Figures 2-4: Using a "fuzzy" regression discontinuity design, we find that inclusion in the index *per se* does not yield significant effects in:
  - ↪ ROE, Sales Growth, Executive Compensation, Liquidity, Book to Market

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- Table 5, Figures 2-4: Using a "fuzzy" regression discontinuity design, we find that inclusion in the index *per se* does not yield significant effects in:
  - ↪ ROE, Sales Growth, Executive Compensation, Liquidity, Book to Market
- What explains lack of capital-market benefits?
  - ↪ Despite its fame, demand for tracking JPX400 very small relative to TOPIX and Nikkei225 (e.g., 4% of BOJ's portfolio and 6% of GPIF's domestic equity portfolio)
  - ↪ Relative to the near-tripling in demand for *all* equity from BOJ (quantitative easing) and GPIF (increase in equity allocation) since 2013, incremental demand from inclusion in JPX400 small
  - ↪ Increased ownership due to ETFs may not necessarily produce capital market benefits (Hamm, 2014; Ben-David et al., 2018; Israeli et al., 2015; Da and Shive, 2018)

Alternative Explanations

Why did managers want to be included in JPX400?

A1 Firms *expected* capital market benefits

- ↪ *Incremental* capital-market benefits of inclusion likely more important for non-Nikkei225 firms
- ↪ Nikkei225 firms already enjoys greatest visibility and liquidity in the market

A2 Firms motivated by status associated with JPX400 (i.e., a "best-run" firm)

- ↪ Likely more important for Nikkei225 firms, as exclusion implies a loss of status as a "leading" firm in Japan
- ↪ As gauge of "best-run" firms, JPX400 disrupted the status hierarchy among Japanese indexes

Status vs. Expected Capital Market Incentives (T6)

	Splitting Treatment		Triple Diffs	
	(1) *Forward ROE*	(2) *Forward ROE*	(3) *Forward ROE*	(4) *Forward ROE*
Treat × *Nikkei225* × *Post*	0.066***		0.050**	
	(0.02)		(0.02)	
Treat × *non-Nikkei225* × *Post*	0.011**			
	(0.01)			
Quintile(Closeness) × *Nikkei225* × *Post*		0.013***		0.015*
		(0.00)		(0.01)
Quintile(Closeness) × *non-Nikkei225* × *Post*		0.004		
		(0.00)		
ROE	0.373***	0.367***	0.373***	0.366***
	(0.05)	(0.05)	(0.05)	(0.05)
Time FE	Yes	Yes	Yes	Yes
Firm Controls	Yes	Yes	Yes	Yes
Main Effects	Yes	Yes	Yes	Yes
Interaction Effects	Yes	Yes	Yes	Yes
Observations	5,546	5,546	5,546	5,546
R^2	0.2657	0.2661	0.2656	0.2663
p-value of F-stat	0.012	0.011		

Note: Sample consists of firms ranked 1-1,000, on which the more continuous treatment variable—*Quintile(Closeness)*—is defined.

Supplemental Findings

1. T7-T9: Increase in ROE driven by profit margins, asset turnover, and shareholder payouts, depending on where firms had slack
   - $\hookrightarrow$ No accrual-based EM, cuts in capital investments, employment, pay
   - $\hookrightarrow$ Firms cut R&D intensity by 7%, small part of the overall effect

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2. T10: Although we do not find index inclusion *per se* resulted in capital market benefits, we find evidence that the ROE improvement resulting from JPX400-inclusion incentives led to a (4%) improvement in book-to-market ratio

Impact on Overall Earnings and Market Capitalization

1. JPX400-inclusion incentives increased aggregate earnings by **JPY1.2 tn/yr**
   $\Longrightarrow$ 8.9% increase from pre-period average aggregate income (JPY13.6 tn/yr)
   $\Longrightarrow$ 16% of change in average aggregate net income from the pre- to post-period

   nb: Apply DID-estimate of effect on forward net income (untabulated) and multiply by 200 firms in treatment group

2. JPX400-inclusion incentives added **JPY32.5 tn** in market cap over 3 years
   $\Longrightarrow$ 6.9% increase relative to June 2014 market capitalization
   $\Longrightarrow$ 20% of increase in total market capitalization from June 2014 to June 2017

   nb: Apply incremental earnings generated by JPX400 to mid-point of a range of (cash-adjusted) P/E multiples, bounded on the left by 1 and on the right by 17.07 (post-period mean for treated firms)

Conclusions

- In a setting with constraints on formal incentives, changing the status hierarchy of desired behaviors effective in motivating significant changes in persistent behavior
  - ↪ Validated by GPIF and media as gauge of "best-run" firms, JPX400 disrupted the status hierarchy among Japanese indexes

- External Validity
  - ↪ Using a prestigious index as mechanism for improving ROE applicable to other East Asian economies, with similar capital-efficiency issues and cultural contexts
  - ↪ That managers are concerned about status/prestige applies generally
  - ↪ Evidence could support the theory that changes in social norms tend to be precipitated by a shift in the behavior of a small group of respected elites (Goode, 1978) who can "lead by example" (Guiso et al., 2015).
    - ex. By incentivizing some of the most established and respected firms in the Japanese market (e.g., in the Nikkei225) to change their behavior, the JPX400 index could promote a broader shift in corporate norms

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  ↪**Index-inclusion literature**, which has focused on the *ex-post* index-inclusion effects

  ↪**Policy discussions** and **growing interest** in governance role of stock indexes

Contributions

- Evaluate effects of an important/novel policy for world's third largest economy
- New evidence on *ex-ante* incentive effect of indexes—desire to acquire (avoid losing) membership—on corporate behavior
  - ↪ **Index-inclusion literature**, which has focused on the *ex-post* index-inclusion effects
  - ↪ **Policy discussions** and **growing interest** in governance role of stock indexes
- Large-sample evidence on prestige/status incentives in economic context
  - ↪ **Incentives literature** which, despite a significant body of theoretical work on status incentives, has relatively little empirical evidence of their motivating power in economic contexts (recent field studies include, Markham et al, 2002; Kosfeld and Neckerman, 2011)
  - ↪ **Governance literature**, which has focused primarily on formal incentives, but there is growing evidence on the role of status incentives for execs and directors (Avery et al, 1998; Masulis and Mobbs, 2014; Raff and Simming, 2017; Focke et al, 2017)

Thank You!