Presentation of Thesis

THE IMPACT OF FEMALE DIRECTORS ON CORPORATE PERFORMANCE:AN ANALYSIS OF LISTED FIRMS IN JAPAN

FANG Yan
Aoyama Gakuin University

2024-11-27

BACKGROUND

- In recent years, board diversity has increasingly become a focus of research in the field of corporate governance.
- Diversity has been associated with improved performance (Davis Report, 2011).
- Percentage of female directors may contribute to better financial performance (Adams et al., 2009; Campbell & Mínguez-Vera, 2008)
- Percentage of female directors remains low (Catalyst, 2013)
- The percentage of female directors in Japan is lower than the OECD average. In 2022, The percentage of female directors in Japan is 9.1% and OECD average is 29.6%.
  - **Source: Cabinet Office, “Female Directors Information Website” https://www.gender.go.jp/policy/mieruka/company/pdf/yakuin_01.pdf**

RESEARCH PURPOSE

- The purpose of the study is to analyze the impact of increasing the ratio of female directors on the profits and performance of listed companies and to identify their contribution to improving management strategies and performance.

LITERATURE REVIEW 1

- Schwab (1986) studied the impact of **statistical discrimination** on labor market efficiency. The statistical discrimination model assumes that employers are not biased and simply use average characteristics of the group to predict individual worker attributes. The results show that statistical discrimination does not necessarily improve the efficiency of resource allocation and may even exacerbate efficiency losses.
- Fang and Moro (2011) emphasize the importance of **statistical discrimination** theory in explaining group inequality and its persistence in the labor market.

LITERATURE REVIEW 2

- Pirpour （2022) analyzed data from the Dominican Republic, Egypt, Hungary, Peru, the United Kingdom, and Uruguay to measure **taste-based employment discrimination** between women and men by estimating two regression models. The results show that **discrimination based on gender** due to customer, coworker, and employer preferences exists in these countries, and that such discrimination can affect females' participation in the labor market and career advancement.
- According to a study by Kim and Oh (2022), a significant portion of the wage gap between men and women in Korea is due to **taste-based discrimination**, with historically more male-preferring regions having a larger wage gap for females.

LITERATURE REVIEW 3

Tanaka, T. (2019). Gender diversity on Japanese corporate boards. Journal of the Japanese and International Economies, 51, 19-31.

- Tanaka (2019) adopted GMM (Dynamic Panel General Method of Moments) to solve the potential endogeneity problem. In addition, in order to compare the differences in corporate performance with and without female independent directors, PSM method (Propensity Score Matching) is used.
- The study used a sample of Japanese listed firms from 2006 to 2015, found that there was no significant relationship between female inside directors and overall corporate performance, and that female outside directors were beneficial to Japanese firms.

LITERATURE REVIEW 4

Kubo, K., & Nguyen, T. T. P. (2021). Female CEOs on Japanese corporate boards and firm performance. Journal of the Japanese and International Economies, 62, 101163.

- Kubo and Nguyen（2021）studied about 42,000 observations (year x firms) and found that only 0.8% of firms had a female CEO during this period, and only 74 female CEOs led about 77 publicly traded firms. When classifying the types of female CEOs, the relationship between founder female CEOs and Tobin's Q is positive and significant.
- The study used OLS, FER (Fixed Effect Regression) and IV 2sls (Instrumental Variable Two-Stage Least Squares), PSM (Propensity Score Matching) and DiD (Difference-in-Differences) estimation. Combining these methods, the impact of female CEOs on corporate performance can be evaluated from different perspectives, thereby solving potential endogeneity problems.

LITERATURE REVIEW 5

Morikawa, M. (2016). What types of companies have female directors? Evidence from Japan. Japan and the World Economy, 37, 1-7.

- Morikawa (2016) used data from the Survey of Business Management and Economic Policy (SBMP) and matched it with the Basic Survey of Japanese Business Structure and Activities (METI, Ministry of Economy, Trade and Industry). A total of 3,198 firms were matched, of which 1,546 (48.3%) were in the manufacturing industry. The results show that publicly traded firms, well-established firms, subsidiaries of parent firms, and firms with labor unions tend to have no female directors. Younger, growing firms are more likely to appoint women to their boards.
- The study used Probit and Tobit models to analyze the relationship between corporate characteristics and female directors. A Probit model is used to analyze whether there are female directors, and a Tobit model is used to analyze the proportion of female directors. Both models include industry and year fixed effects to control for unobservable heterogeneity. In addition, a propensity score matching (PSM) analysis was conducted to compare the differences between firms with and without female directors.

DATA

- Seven years of data from 2016 to 2022 for the listed firms in the Nikkei 300 Index.
- “NEEDS-Financial QUEST” by Nikkei Inc.
  - **https://finquest.nikkeidb.or.jp/ver2/ip_aoyama/**
- “Female Directors Information Website” by Cabinet Office.
  - **https://www.gender.go.jp/policy/mieruka/company/yakuin.html**

ESTIMATION METHOD

$$ROA_{i,t} = \beta_0 + \beta_1 \cdot female\_ratio_{i,t} + \beta_2 \cdot Board\_Size_{i,t} + \beta_3 \cdot HighDebt_{i,t} + \alpha_i + \delta_{year} + \varepsilon_{i,t}$$

- i is the firm and t is the year.
- Outcome variable: ROA (Return On Assets).
- Treatment variable: Female_Ratio is the percentage of female directors.
- Covariates:
  - Board_Size is board size
  - High_Debt is a dummy variable, 1 if the debt ratio is above 50% and 0 if it is below 50%.
- Fixed effects :
  - α_i is the firm fixed effects
  - δ_{year} is the year fixed effects

OLS (Panel Fixed Effects Model)

- OLS analysis of the relationship between ROA as a dependent variable and the ratio of female directors has already been conducted (6/11).
  - Issue: “Because the ratio of female directors is high, ROA is high” *OR* “Because ROA is high, the ratio of female directors is high”; it is unclear which is the case with the current simple regression analysis.

```
                          model 1            model 2
Dependent Var.:         ROA_mean           ROA_mean

female_ratio       1.102 (1.600)      1.323 (1.586)
Board_Size                          -0.0092 (0.0299)
HighDebt                          -2.381*** (0.3237)
Fixed-Effects:     ------------- ------------------
StockCode                   Yes                Yes
year                        Yes                Yes
_________________  _____________ __________________
S.E.: Clustered by: Stoc. & year   by: Stoc. & year
Observations               16,788             16,788
R2                        0.69527            0.69850
Within R2                 5.61e-5            0.01066
---
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

DID

1. It is better to use DiD analysis to identify causal relationships. DiD analysis by creating a dummy variable for the presence or absence of women.
2. Preparation for DiD analysis:

- Let the treatment group be the number of female directors members >=1.
- First, identify the first year in which the number of female directors members >=1.
- Panel data for 7 years from 2016 to 2022. first_year is distributed from 2017, 2018, 2019, 2020, 2021, and 2022.
- The number of Before and After years is more than 2 years when first_year is 2018, 2019, 2020.
- If first_year=2019, the years before are 2016, 2017, and 2018; the years after are 2020, 2021, and 2022.

ANALYTICAL ISSUES

- Expand outcome variables beyond ROA
- Identify differences by industry
- Propensity score matching (PSM): controlling for the firm-specific factor of the propensity to appoint female executives

RESEARCH HYPOTHESIS

- H1: The proportion of female directors exerts a positive influence on the performance of firms with low debt ratios.
- H2: The proportion of female directors has no impact on the performance of firms with high debt ratios.
- H3: The influence of the proportion of female directors on firms' performance varies among industries.

FUTURE CHALLENGES

- Examine the relevance of the two theoretical hypotheses (statistical discrimination hypothesis and taste-based discrimination hypothesis) to empirical research.
- Further research by classifying female director types.
- Study the impact of international trade on the percentage of female directors in firms. For example, studying the impact of multinational enterprises trading abroad during the epidemic.

REFERENCES

- Kubo, K., & Nguyen, T. T. P. (2021). Female CEOs on Japanese corporate boards and firm performance. Journal of the Japanese and International Economies, 62, 101163. **https://doi.org/10.1016/j.jjie.2021.101163**
- Morikawa, M. (2016). What types of companies have female directors? Evidence from Japan. Japan and the World Economy, 37, 1-7. **https://doi.org/10.1016/j.japwor.2015.09.001**
- Tanaka, T. (2019). Gender diversity on Japanese corporate boards. Journal of the Japanese and International Economies, 51, 19-31. **https://doi.org/10.1016/j.jjie.2018.08.003**
- Schwab, S. (1986). Is statistical discrimination efficient?. The American Economic Review, 76(1), 228-234.
- Fang, H., & Moro, A. (2011). Theories of statistical discrimination and affirmative action: A survey. Handbook of social economics, 1, 133-200.**https://doi.org/10.1016/B978-0-444-53187-2.00005-X**

REFERENCES

- Pirpour, H. (2022). Measuring taste-based employment discrimination between females and males. The Indian Journal of Labour Economics, 65(3), 729-745.**https://doi.org/10.1007/s41027-022-00394-6**
- Kim, C., & Oh, B. (2022). Taste-based gender discrimination in South Korea. Social Science Research, 104, 102671.**https://doi.org/10.1016/j.ssresearch.2021.102671**