Are Women Better Directors in the Boards?

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Abstract

We investigate how including more women in the top-level management affects the firms. The proportion of women on boards in Norway substantially increased with the implementation gender balance law stipulation for public companies. We find that the companies whose organizational form change from public to private coincide with the introduction of Gender Balance Law in Norway, are mostly firms with concentrated ownerships. Further empirical findings reveal that female directors in the board are effective monitors. That is, they are efficient in curbing the executive compensation. They are also effective in protecting shareholder interests, by facilitating the return of more value to them. Moreover, female directors are associated with higher value, similar to women on boards. We empirically show that women contribute positively to the value creation in companies.

JEL classification: G34, G38, J16, J78, L25

Keywords: Director gender, corporate governance, regulation, boards

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1 Introduction

This study examines how including more females to corporate boards affects the company fundamentals. We look at two distinct dimensions. First, impact of their monitoring and advisory role at the boards for the companies that complied with policy change to include more women and shuffled their boards. Second, we comparatively scrutinize what has become different for companies that have managed to bypass the gender balance legislation.

We use the passing of gender balance law in Norway that forced some public firms to change their organizational form (from public-ASA to private-AS) as our experiment. Norwegian Parliament passed a gender balance law (GBL) in 2005, this legislation went into effect in January 2006. It gave a two-year compliance period to all public (Allmennaksjeselskap - ASA) companies. However, reorganizing the board may be costly [1] and it may have further implications. For companies with a controlling majority shareholder, or for family companies where ownership is concentrated, changing the board structure may imply diluting their power, or delegating some of their control and say in decisions. Indeed, following GBL, nearly half of public-ASA companies became private limited company (AS).[2] Transition from public to private changes the corporate governance structure. This change is not endogenously driven by firm specific factors since the aim of the GBL was increasing women in board rooms.

We utilize Norwegian administrative database for private and public firms. Our data set covers the entire universe of companies. We have the financial information for private firms of which we make use in selecting our control. In addition to financial data, we see board composition and ownership structure. The ability to see financial information for private companies along with their board and ownership data gives us a unique edge for empirical examination. Thus, we are able to address various concerns in selecting the control group.

For comparative cross-examination, we create a control group of private-AS firms selected from industries (captured with same 3-digit NACE codes) with sizes close to the corresponding

[1] Bøhren and Staubo (2014)

[2] 141 of 309 ASA firms in 2002 became AS by the end of 2007

public-ASA companies. We analyze the companies that complied with the GBL, the ones that change their organizational form from public to private (ASA-to-AS) before 2008, and we compare with the group of companies that changed organizational form after 2008 and selected subsample of private companies. We examine how companies with boards that include more female directors differ in performance and value as compared to males. We further see how the difference is reflected on the short and long term.

The role of a board of directors on firm performance and operations is a contemporary and controversial issue.[3] Regulators aim to promote equal representation in the top level. The Gender Balance Law (GBL), that is utilized in this work, is a policy change that forced public firm (ASA) boards to have a minimum of 40% share of each gender within two years from the day it went into effect on 1 January 2006. This code mainly aimed to solve under-representation of women on business world. We use this treatment to public firms' corporate boards as a "natural experiment". And we evaluate whether female monitors have an impact of firm value measured by Tobin's Q, firms' sales, and CEO compensation. Seierstad and Opsahl (2011) show that a substantial increase in the proportion of women on boards in Norway occurred only during the implementation period of the gender representation law, and especially towards the end of that period.

2 Literature Review

Despite the long-standing policy debate on the gender equality in business life, the corresponding academic literature is only recently gaining pace. Fields and Keys (2003) provide a review on the emerging literature on the impact of board diversity.

The pioneering paper by Carter et al. (2003) examine the relationship between board diversity and firm value for Fortune 1000 firms. They find that the proportion of women on boards increases with firm size and board size.

[3] See Women on boards: Are quotas really the answer?, FORTUNE article by Weisul (2014)

Boone et al. (2007) show that personal characteristics of the CEO are related to board structure. Lehn et al. (2009) underline the necessity of controlling for the determinants of board size and structure, and urge future studies to take the endogeneity issue seriously. Ferris et al. (2003) and Harris and Raviv (2008) provide a discussion on the board control.

Levi et al. (2014), Adams and Ferreira (2009), Ahern and Dittmar (2012), Matsa and Miller (2012) are some recent papers that investigate the impact of female directors on corporate boards.

Levi et al. (2014) underline the new and growing body of literature documenting gender differences in corporate leadership. They ask whether director gender influences CEO empire building. They associate each additional female director with fewer acquisition bids and lower bid premiums.

Adams and Ferreira (2009) show that female directors have better board attendance records than male directors, and are more likely to join monitoring committees. Using responses to mandated changes in Norwegian boards, Ahern and Dittmar (2012) find that the quota requiring greater female representation on corporate boards is negatively associated with firm performance. Matsa and Miller (2012) show that the presence of more female directors on Norwegian corporate boards is associated with fewer employee layoffs, higher labor costs, and lower profits.

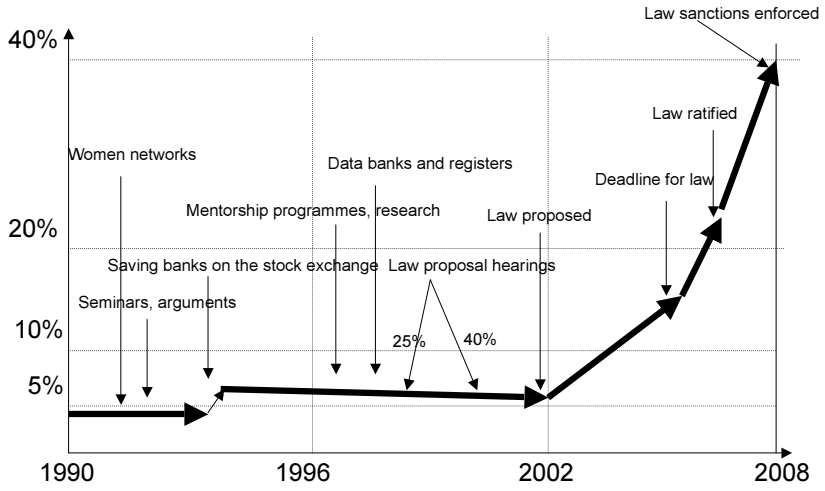
In the same branch as this study, Eckbo et al. (2016) work on Oslo Stock Exchange (OSE) listed companies, and they look whether level of forced board change significantly reduced the market value of firms traded on the OSE. They estimate announcement-induced abnormal stock returns to both domestic and foreign OSE-listed companies, where the latter are not subject to the gender quota. Second, they complement the event-study analysis with panel estimation of Tobin's Q and long-run abnormal stock return and accounting performance, where the latter covers non-listed firms.

3 Data

In order to analyze the impact of the gender balance law, we have constructed a firm-level panel data set covering the period from 2002 until 2012. The foundation of the data set is the merger of three blocks of (encrypted) norwegian administrative register data. The first block contains comprehensive firm-specific information for the whole sample space of Norwegian companies. For limited liability companies we have annual audited accounting data, and we can assess the role and the identities of persons in each board, identities of CEOs and of owners of firms. Based on a second source, employer-employee registers, we can also identify persons that are (fully or part time) employed by each firm and their income in each work relationship. The third block of register data contains detailed tax records and demographic information for all residents in Norway. In this way we for instance have access to variables such as income, wealth, age, gender and education.

4 Empirical Analysis

4.1 Implementation of the Gender Balance Law



Source: Huse and Søland (2009).

Figure 1: Introduction of Gender Quota for ASA companies

Figure 1 is a time line from Norway of introducing the Gender Balance Law in Norway (retrieved from Rasmussen and Huse (2011)). In the graph, horizontal axis is the percentage of women on the boards of companies listed on the Oslo Stock Exchange. The share of women on the boards is almost constant at around 5 percent from 1990 to 2002. No increase took place even after the considerable efforts including two public hearings about law proposals to increase the women share 25% or 40%.[4]

Women share in boards started increasing after 2002. Nonetheless, it was only after 2005 when the law on gender balance had been ratified by the Norwegian parliament that caused the significant jump in the number of female board members.

The law adopted in 2005 and went into effect in January 2006 with a two year deadline for compliance. It has compelled all public limited companies (Allmennaksjeselskap - ASA) in Norway ASA firms to establish gender balance at their boards, otherwise face liquidation. While many public companies have made changes in their boards, a considerable number of them, tried to circumvent the regulation by changing their organization form to private limited (Aksjeselskap - AS).

We use the introduction of Gender Balance law as "natural experiment" that affects the organizational form, thus providing variation in the board composition.

In Figure 2, we can observe the female percentage on boards of three categories, namely i.Public limited (ASA) firms that complied ii. ASA firms that changes their organizational form, and iii. AS firms that were/are not subject to the regulation

4.2 Shifting from Public to Private

As first step, we look at the emergent dynamics within the firms that change their organizational form. Figures 3a 3b reveals the number of firms that a) change their organizational form from public to private, and b) become public.

[4]The only change displayed before 2002 was around 1994. This change was caused by the fact that new types of companies (mainly savings banks) were introduced on the Oslo Stock Exchange.

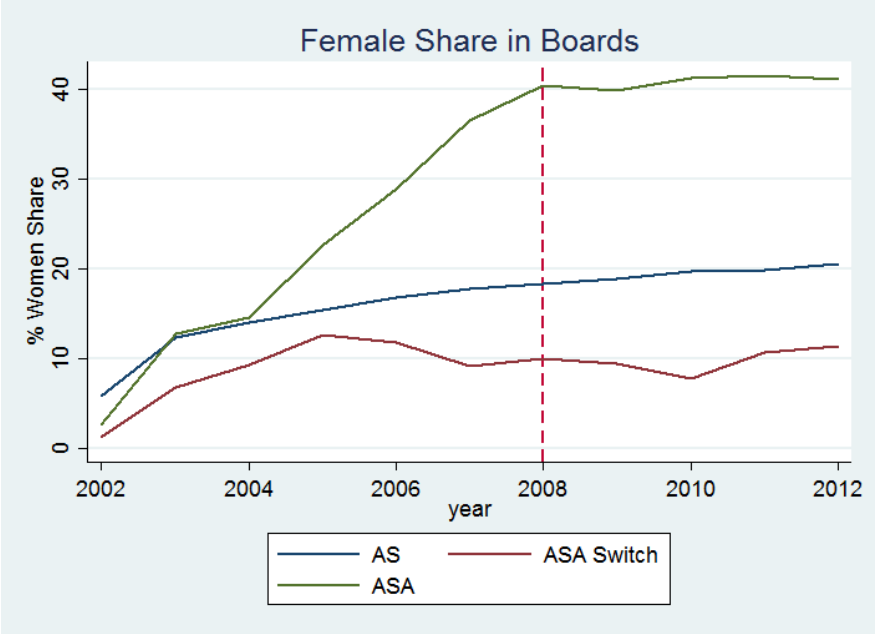


Figure 2: Female Percentage in Boards for i. AS firms ii. ASA Firms that comply with GBL iii. ASA Firms that avoid the Gender Balance Law

We can easily detect the disruption on the rate of going public after 2008. While, some macroeconomic factors might play a role on this, the board stipulation might be a factor considered by the major shareholders in bringing a firm to public offering.

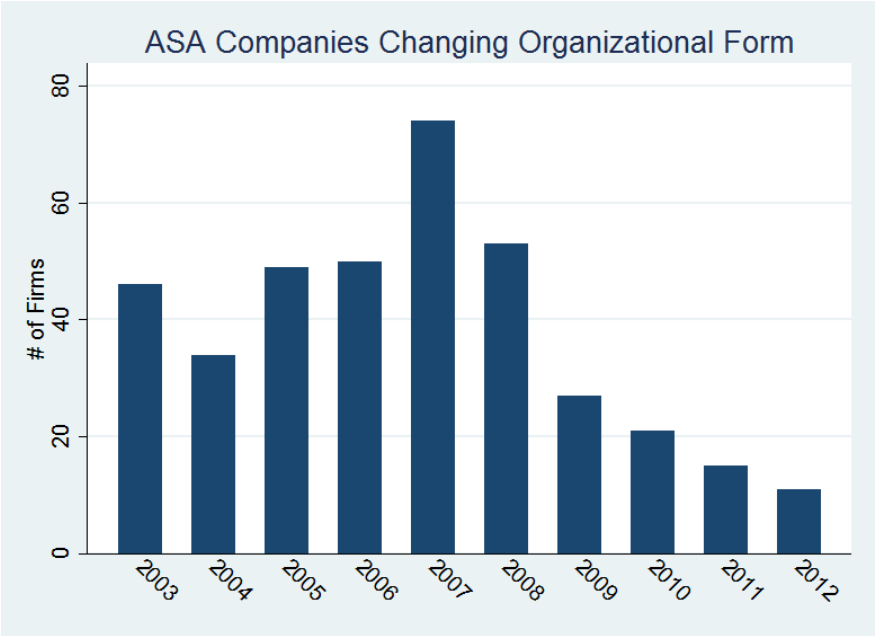
So, there is a significant drop after 2008 in the rate of going public. And, the number of public companies steadily decreases over the this time span.

With these in mind, we have created the following firm categories and investigated the impact of including females in boards with differences-in-differences (DID) estimations. In DID setting, there is a policy change (treatment). There are two groups for which we observe the outcome over the two/or more time periods. The time periods are characterized as a before and an after period. The key assumption in DID is the parallel trends for two groups in the absence of treatment.

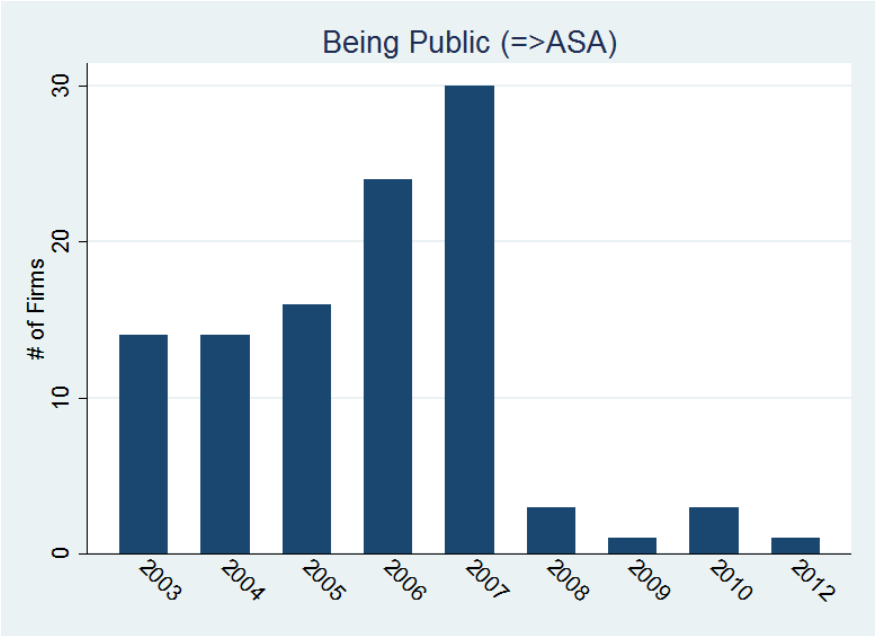
We have a total of 165 firms that change their organizational form to private before 2008.

The second group is the ASA companies that complied with the gender balance regulation. This group consists of 125 firms.

The third group is the ASA companies that switched their organizational form from public



(a) ASA firms that change their organization form



(b) AS firms that become Public

to private after 2008. This means that their fundamental reason for going back to private can be attributed to financial constraints.

In addition, we have selected a group of private firms for each ASA firm. We went to that specific NACE classification, and selected the AS firms that are closest to public firms in terms of size. Our measure of size is median assets. So, we have a group of private firms that match the public firms in size, and that are in the same industry grouping.

Plus, we have constructed two subgroups for private firms that become public. One group for being public before 2008; another, albeit very small one, going public after 2008.

4.3 Emergent Patterns, and Key Ratios Before and After

Table 1: % Shareholdings of Companies affected by the GBL

	Board Holdings	**CEO Holdings**	**Chairman Holdings**
Staypost			
0	7.71	4.41	3.90
1	6.59	3.65	3.65
Total	7.00	3.93	3.75
Switchpost			
0	8.66	4.64	5.25
1	10.82	5.89	5.46
Total	10.10	5.46	5.39
Switchlatepost			
0	7.41	8.58	3.87
1	12.35	11.65	4.05
Total	9.02	9.58	3.93

Explanations: $Staypost$ implies the ASA-public firms that complied with the GBL and did not change their organization form. 0 denotes before 2008, 1 denotes after 2008. $Switchpost$ captures ASA-public firms, 0 denoting when they are in ASA form, 1 denoting after the organizational form change, i.e. when they are a private-AS company. $Switchlatepost$ is the ASA firms that complied with the GBL, but changed their organization form to private after 2008.

The first prominent observation is about the shareholdings of the chairman, board

members and the CEO. Table 1 demonstrates the shareholdings of CEO, Chairman and the overall board before and after the implementation of the board shuffle. For the companies that have complied with the GBL, holdings have significantly dropped. In contrast, for companies that switched to private, the share holdings have increased. The holdings presented include differential holdings via other corporations as well. From this contrasting pattern, we can deduct that the issue of control can be attributed as decisive in shaping the boards. We also see that ownership concentration is higher for companies that have changed their organizational form to private.

Table 2: Income and Wealth of the Chairman, Board and CEO (in million *NOK*)

	Chairman Income	**Chairman Wealth**	**BoD Income**	**BoD Wealth**	**CEO Income**	**CEO Wealth**
Staypost						
0	1.750	53.304	0.065	10.906	1.770	12.101
1	1.928	202.719	0.071	19.750	3.192	33.481
Total	1.861	145.145	0.068	16.501	2.678	25.388
Switchpost						
0	1.044	25.918	0.075	5.075	1.469	6.616
1	1.349	59.457	0.111	15.241	2.069	16.261
Total	1.276	47.442	0.099	11.876	1.839	12.884
Switchlatepost						
0	0.901	38.575	0.104	9.469	1.487	10.919
1	1.225	20.183	0.202	33.973	2.043	11.449
Total	1.023	32.926	0.136	17.438	1.656	11.093

Explanations: $Staypost$ implies the ASA-public firms that complied with the GBL and did not change their organization form. 0 denotes before 2008, 1 denotes after 2008. $Switchpost$ captures ASA-public firms, 0 denoting when they are in ASA form, 1 denoting after the organizational form change, i.e. when they are a private-AS company. $Switchlatepost$ is the ASA firms that complied with the GBL, but changed their organization form to private after 2008.

Secondly, we look at how the income of the top people in corporates have changed for all these three groups. Table 2 gives the mean income and wealth for each group of companies. For the Board of Directors (BoD) the values are also the average, i.e. sum of the total income and wealth of the board members divided by the number of board members. The board

compensation for the companies that switched has significantly increased after they become private firms. For companies that have switched their organizational form, Chairman wealth appears to have increased for switchers whose change coincide with the implementation of the GBL, whereas for late switchers Chairman wealth appears to have almost dropped to half.

Table 3: Payment Policy of the firms

	Dividend Share	**Payout Ratio**	**Retention Ratio**
ASA firms complying with GBL			
2002	2.22	0.19	0.81
2006	2.93	0.18	0.82
2009	3.14	0.25	0.75
Total	2.74	0.21	0.79
ASA firms bypassing the GBL			
2002	1.89	0.12	0.88
2006	2.05	0.07	0.93
2009	1.48	0.06	0.94
Total	1.79	0.08	0.92
ASA firms that switch to private after 2008			
2002	2.85	0.16	0.84
2006	2.21	0.11	0.89
2009	2.86	0.11	0.89
Total	2.67	0.13	0.87

Explanations: Mean values for each group. Retention Ratio indicates the share that is kept back in business as retained earnings. Payout ratio is the proportion of earnings returned to the shareholders. Payout and Retention Ratio are in percent earnings. Dividend share is the dividend paid over assets for each company.

The payment policies of the three groups may differ. If controlling shareholders have consolidated their power by deciding to change the organizational form, they may have decide to share less with the minority shareholders, thus reducing the dividend payments. In Table 3, we look at the mean dividend share, i.e. dividends scaled by assets, as well as payout and retention ratios. Payout ratio is the percentage of net income that is returned to the shareholders. We see that companies bypassing the GBL have significantly reduced their payout ratios, and started keeping more as retained earnings.

Another dimension might be the investment patterns. We are able to see the amount of investments companies made to financial assets, to associate companies and to their

Table 4: Investment Patterns

	Investment in Financial Assets	**Investment in Subsidiaries**	**Investment in Associates**
ASA firms complying with GBL			
2002	1.90	31.14	3.44
2006	1.42	32.38	4.43
2009	0.72	38.48	3.15
Total	1.14	35.19	3.69
ASA firms bypassing the GBL			
2002	0.99	23.92	1.52
2006	1.57	20.71	2.71
2009	1.81	21.28	2.86
Total	1.62	21.36	2.64
ASA firms switching after 2008			
2002	1.48	25.53	0.13
2006	1.33	30.04	0.40
2009	0.31	29.12	0.28
Total	0.84	29.09	0.31

Explanations: Investment in each category is scaled by total assets for each group.

subsidiaries. In Table 4, it is seen that for companies that bypassed the GBL, there is a significant increase in investments to the financial assets and associates. On the other hand, ASA companies that stayed appear to increase their investment to their subsidiary companies.

With respect to capital assets and labor, Table 5 reveal a couple of interesting facts. First, we see a relative increase in the salary costs, i.e. salary costs scaled by assets, for ASA companies that complied with the law. This finding corroborates Matsa and Miller (2012) results stating that companies that complied with the gender balance law are associated with higher labor costs. On the other hand, we see a reduction in salary costs and employees for the companies that have become private and consolidated power in controlling shareholders' hands. Furthermore, interestingly we observe a reduction in the capital assets of the public firms that complied. However, the companies that shifted appear to increase their capital assets in the post-GBL period.

Table 6 summarized before and after period average financial ratios. We see an increase in

Table 5: Firm Fundamentals: Capital Assets and Labor Policy

	Capital Assets	Log Employees	Salary Costs
ASA firms complying with GBL			
2002	8.99	3.10	0.65
2006	6.14	3.10	0.84
2009	5.13	2.99	0.77
Total	6.84	3.06	0.75
ASA firms bypassing the GBL			
2002	11.75	2.45	0.58
2006	8.81	2.32	0.46
2009	12.99	2.19	0.42
Total	11.33	2.32	0.49
ASA firms that switch to private after 2008			
2002	8.41	2.45	0.64
2006	7.56	2.63	0.58
2009	7.15	2.54	0.62
Total	7.73	2.53	0.61

Explanations: Capital Assets are mean capital asset size scaled by total assets. Employee numbers are in log terms. Salary Costs are denoted in % revenues.

the financial leverage and debt ratios of the companies. The debt ratio appears to increase for the ASA companies that complied and for those that switched to private organizational form. However, we see that debt ratio for the companies that bypassed the GBL have approximately the same debt ratio as before. Furthermore, they lover their long-term debt-to-equity ratios, while it has increased for other ASA firms. Quick ratio indicates the financial solvency of the company. The higher it is, the higher liquidity the company has in meeting short-term obligations. We see that current ratio for the public companies that have stayed as public is reduced from 2.58 to 2.49 and it has reduced from 2.72 to 2.48, whereas for the companies that bypassed the GBL it has increased from 2.28 to 2.44. Another observation is that, public companies that adopted the law and that bypassed have survived the financial crisis period by an increase in their quick ratios. However, the late switchers appear to have lower quick ratios. These figures corroborate that late switchers from public to private organizational form are mostly associated with financial problems as the primary motive. Further, late switchers are

Table 6: Key Financial Ratios

	Financial Leverage	Debt Ratio	Long-term Debt-to-Equity Ratio	Quick Ratio	Return on Equity	Net Profit Margin
Staying ASA						
2002	1.98	0.98	0.41	2.58	0.95	2.66
2006	1.99	0.99	0.44	2.88	7.08	9.61
2009	2.08	1.08	0.45	2.49	2.13	8.45
Total	2.02	1.02	0.43	2.63	3.09	6.66
Switching ASA before 2008						
2002	2.16	1.16	0.39	2.28	0.90	0.58
2006	2.30	1.30	0.41	2.67	5.96	4.94
2009	2.18	1.18	0.37	2.43	6.28	4.05
Total	2.21	1.21	0.39	2.44	4.19	2.96
Late Switchers						
2002	2.03	1.03	0.36	2.72	-1.75	1.20
2006	2.22	1.22	0.45	2.35	-1.68	3.43
2009	2.37	1.37	0.42	2.48	3.78	5.38
Total	2.20	1.20	0.40	2.53	0.21	3.28

Explanations: Financial Leverage is assets over equity. Long term debt-to-equity ratio equals long term debt over shareholders' equity. Quick ratio is current assets minus inventory over short-term debt. Equity ratio is equity over total capital. Net profit margin is net income over total revenue.

associated with negative return on equity numbers. Lastly, profit margin of the companies appear to have increased in the post crisis period.

5 Difference-in-differences Estimations & Tables

The aforementioned groups are dominated with different financial patterns. In the second part of analysis, with these groups in setting, we run a series of Difference-in-differences (DiD) regressions. First, we look at the firm value, measured by Tobin's Q, then we look at the CEO compensation. In the last part, we run a series of DiD regressions to comparatively analyze the emergent dynamics between the groups.

5.1 Tobin's Q

In the investment literature, Tobin introduced the Q theory as an alternative to the neoclassical theory originated from Jorgenson. Tobin postulated that the rate of investment is a function of q, the ratio of the market value of new additional investment goods to their replacement cost. As noted by Hayashi (1982) the Q theory, or equivalently the modified neoclassical theory, is not operational as long as q is not observable. and, marginal q and average q may differ. More explicitly, if the firm is a price-taker with constant returns to scale in both production and installation, then marginal q is equal to average q. If the firm is a price-maker, then average q is higher than marginal q by what is legitimately called the monopoly rent.

Q, which is call marginal q, is the ratio of the market value of an additional unit of capital to its replacement cost. What is observable in general is the ratio of the market value of existing capital to its replacement cost. And for publicly traded companies, the tobin Q is estimated as the ratio of their market value over their book value of total assets.

In our dataset, we have the book values and current values of capital assets, i.e. buildings, facilities, and fixed assets of the companies. Our measure of the tobin Q is as follows;

$$\text{Tobin Q} = \frac{\text{(Current Value of Buildings and Facilities+Current Value of Fixed Assets}}{\text{Book Value of Buildings and Facilities+Book Value of Fixed Assets}}$$

It is relatively more robust in estimating the installed cost of capital and its replacement cost as compared to general estimation. In this part, we calculate the tobin Q values for available firms, then we investigate the Tobins Q as the dependent variable, and evaluate the factors affecting it. We run the following form regressions to estimate the female effect on the Tobin's Q values;

$$\begin{aligned}\text{Tobins Q}_i = {} & \beta_0 + \delta_0 * post_i + \beta_1 * T_i + \delta_1 * (post_i \times T_i) \\ & + \beta_2 * \text{Female CEO}_i + \beta_3 * \text{Women Share in Board}_i + \\ & + \beta_4 * \text{Board Size}_i + \beta_5 * \text{Board Ownership}_i + \beta_6 * \text{CEO Network}_i + \beta_7 * \text{Busy Board}_i + \\ & + \beta_7 * \text{Female CEO Network}_i + \varepsilon_i\end{aligned}$$

The indicator variable Female CEO is binary with the value of 1 for female CEO's. Models in Table 7 include two dimensions, namely the effect of female CEOs and the share of women in the boardrooms. CEO (F) Network is the network estimate for female directors. It includes all active public and private firm roles. $BusyBoard_i$ denotes all the top-level associations of board members. Board Ownership$_i$ is the total ownership share of the board.

Table 7: Women Impact on Tobin's Q

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Post	-0.0171	-0.0197	-0.0186	-0.0162	-0.0129	-0.0136
	(-1.42)	(-1.65)	(-1.51)	(-1.30)	(-1.12)	(-1.12)
Switching	-0.0614***	-0.0629***	-0.0587***	-0.0571***	-0.0563***	-0.0558***
	(-6.82)	(-7.06)	(-6.52)	(-6.27)	(-5.89)	(-6.10)
DID	0.0754***	0.0785***	0.0765***	0.0735***	0.0715***	0.0701***
	(4.04)	(4.24)	(4.07)	(3.87)	(3.87)	(3.77)
Female CEO	0.0370***			0.0359**	0.0347**	0.0445**
	(3.31)			(3.26)	(3.12)	(3.18)
Women in Board	0.000407**	0.000543***	0.000527***	0.000391**	0.000378**	0.000392**
	(3.25)	(4.48)	(4.36)	(3.11)	(2.99)	(3.11)
Board Size	0.00553***	0.00515***	0.00618***	0.00657***	0.00907***	0.00873***
	(6.01)	(5.81)	(6.77)	(6.93)	(8.07)	(7.70)
Board Ownership			0.000170**	0.000178**	0.000182***	0.000192***
			(3.22)	(3.29)	(3.33)	(3.53)
CEO Network					0.00274**	
					(2.96)	
Busy Board					-0.00107***	-0.000782**
					(-4.37)	(-3.19)
CEO (F) Network						-0.00489
						(-1.04)
Constant	1.064***	1.067***	1.057***	1.054***	1.048***	1.054***
	(238.76)	(252.89)	(222.37)	(210.82)	(200.65)	(211.92)
N	3509	3637	3637	3509	3509	3509
r2_a	0.0267	0.0206	0.0232	0.0295	0.0336	0.0316

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7 provides us interesting results. First, we see that female CEOs are associated with higher value, similar to women in boards. We also see the differentiation of the network effect. That is, the CEO network affect in general appears to be positive and significant, whereas network effect seems insignificant for female CEOs.

Briefly, it appears that women CEOs and Women directors in the board are effective in protecting shareholder interests. They appear to be effective agents in mitigating the agency

problem in the boardrooms, and contribute positively to the value creation in companies.

5.2 CEO Compensation

In the second part, we look at CEO compensation as a variable of interest. Our first variable of interest is the CEO compensation. We would like to see whether females are effective in curbing the executive compensation. We run the following form of equations in our experimental setting;

$$\begin{aligned}\text{CEO Income}_i = {} & \beta_0 + \delta_0 * post_i + \beta_1 * T_i + \delta_1 * (post_i \times T_i) \\ & + \beta_2 * \text{Women Share in Board}_i + \beta_3 * \text{Board Size}_i \\ & + \beta_4 * \text{CEO education}_i + \beta_5 * \text{Board Ownership}_i + \beta_5 * \text{CEO Network}_i + \varepsilon_i\end{aligned}$$

Here the dependent variable CEO Income is the total compensation by the company to the CEO.

In this setting, $post_i$ indicates the post treatment period. It is a dummy variable to indicate the time when the treatment was is effect. Gender Balance treatment started in 2005. In this case, years before 2005 will have a value of 0 and 2005+ a 1. The variable T_i corresponds to a dummy variable used to identify the group exposed to the treatment, i.e. change of organizational form. $post_i$ and T_i are indicator variables. $post_i \times T_i$ is the $interaction$ variable. The coefficient on the interaction term δ_1 is our variable of interest, since it captures the effect of treatment on the organizational form.

The variable Women Share in Board$_i$ captures the women share in board of directors. Table 8 summarizes the results under different models.

Empirical results show that CEO compensation is negatively affected by the Women Share in Board in all models. In addition, when we include other controls, we see that CEO compensation is negatively affected by the Board's ownership share.

Table 8: Women Impact on CEO Compensation

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Post	0.741***	0.771***	0.631***	0.655***	0.742***	0.655***
	(9.87)	(10.58)	(8.34)	(8.75)	(10.00)	(8.92)
Switching	0.538***	0.520***	0.362***	0.346***	0.526***	0.314***
	(11.10)	(10.54)	(8.00)	(7.51)	(10.79)	(6.79)
DID	-0.739***	-0.762***	-0.560***	-0.571***	-0.742***	-0.572***
	(-7.69)	(-8.02)	(-5.90)	(-6.03)	(-7.78)	(-6.14)
Women in Board	-0.00182**	-0.00186**	-0.00153**	-0.00157**	-0.00181**	-0.00152**
	(-3.18)	(-3.22)	(-2.72)	(-2.74)	(-3.15)	(-2.67)
Board Size	0.215***	0.207***	0.173***	0.170***	0.214***	0.167***
	(39.27)	(35.29)	(32.41)	(30.18)	(38.98)	(29.33)
CEO education		0.0278***		0.0198***		0.0197***
		(5.99)		(4.28)		(4.27)
Board Ownership			-0.00658***	-0.00635***		-0.00655***
			(-18.94)	(-17.93)		(-18.23)
CEO Network					0.0101*	0.0224***
					(2.44)	(5.34)
Constant	12.57***	12.20***	12.96***	12.69***	12.54***	12.64***
	(433.08)	(195.46)	(433.46)	(190.03)	(416.14)	(187.12)
N	13633	13443	13633	13443	13633	13443
r2_a	0.123	0.128	0.156	0.159	0.123	0.160

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5.3 Effects on Corporate Fundamentals

The aforementioned groups are dominated with different financial patterns. In the this part of analysis, with the group settings, we run a series of Difference-in-differences (DiD) regressions. The first set of DiD regression focus on the variation by changing the organizational form from public to private, as such;

Basic and DD2: DiD regressions within norway – variation by Changing the organizational form before 2008:

$$Y_{ijt} = \beta_1(post_{2006} \times ASAswitch_j) + \zeta_j + \tau_t + \varepsilon_{ijt}$$

where $ASAswitch_j$ includes the group of firms that change to private before 2008, ζ_j includes firm fixed effects, and τ_t denotes time fixed effects.

In the second group of DiD estimations, we differentiate between the form of switching with the regressions. DD3 and DD4: DiD regressions within ASA – variation by switching before 2008 and after 2008:

$$Y_{ijt} = \beta_2(post_{2006} \times ASAswitch_j) + \beta_3(post_{2006} \times ASAswitchlate_j) + \zeta_j + \tau_t + \psi_{ijt}$$

where $ASAswitchlate_j$ in place of $ASAswitch_j$ consists of companies that change from ASA to AS after 2008.

The third group of DiD regressions look at public vs private variation. DD5 and DD6: DiD regressions within norway – variation by Public/Private

$$Y_{ijt} = \beta_4(post_{2006} \times Public_j) + \zeta_j + \tau_t + \nu_{ijt}$$

where $Public_j$ captures all public firms. Lastly, we look at DDD as we compare the switching and nonswitching an the public and private.

DD7 and DD8: DiDiD regressions ASA-AS switching/nonswitching:

$$Y_{ijt} = \beta_5(post_{2006} \times ASAswitch_j) + \beta_6(post_{2006} \times ASAswitchlate_j) + \beta_7(post_{2006} \times ASAstay_j) + \beta_8(post_{2006} \times Public_j) + \zeta_j + \tau_t + \varphi_{ijt}$$

We run these regressions for key financial variables as dependent variables Y_{ijt} in the log transformations. In addition we add board related factors such as board size as control variables.

Table 9: DID ASSET

	basic	DD2	DD3	DD4	DD5	DD6	DD7	DD8
switchpost	-0.290*	-0.235	-0.850***	-0.656***			-1.752***	-1.624***
	(-2.37)	(-1.92)	(-5.24)	(-4.37)			(-6.27)	(-5.98)
switchlatepost	0.504*	0.502*	-0.0570	0.0633			-1.103***	-0.994**
	(2.35)	(2.42)	(-0.24)	(0.27)			(-3.53)	(-3.23)
n_board		0.0705***		0.158***		0.0583***		0.142***
		(6.87)		(5.13)		(5.83)		(4.66)
Chairman_female		-0.162**						
		(-3.16)						
publicpost					0.524***	0.481***	0.313**	0.210*
					(7.05)	(6.65)	(3.01)	(2.04)
staypost							-1.648***	-1.582***
							(-6.45)	(-6.32)
_cons	18.27***	18.36***	18.23***	18.04***	18.27***	18.20***	18.23***	18.05***
	(770.34)	(715.32)	(183.61)	(178.32)	(769.09)	(725.00)	(189.27)	(186.17)
year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	35686	33576	3917	3917	35686	35686	3917	3917
r2_a	0.0951	0.0972	0.118	0.137	0.0977	0.101	0.153	0.168

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In table 11 we look at the Capital Assets as the dependent variable. In model DD1, we see that the ones switching to private have significantly reduced their capital asset size (with a coefficient of -1.442), whereas we do not see any significance for late switchers.

Table 10: DID Fixed Assets

	basic	DD2	DD3	DD4	DD5	DD6	DD7	DD8
switchpost	-0.633*	-0.471	-1.666***	-1.319***			-2.688***	-2.460***
	(-2.24)	(-1.67)	(-4.45)	(-3.63)			(-3.90)	(-3.67)
switchlatepost	0.543	0.496	-0.491	-0.276			-1.863*	-1.669*
	(1.21)	(1.19)	(-0.96)	(-0.55)			(-2.57)	(-2.36)
n_board		0.138***		0.282***		0.117***		0.252***
		(6.44)		(4.00)		(5.59)		(3.63)
Chairman_female		-0.437**						
		(-3.29)						
publicpost					0.922***	0.838***	0.763**	0.580*
					(5.47)	(5.04)	(2.99)	(2.28)
staypost							-2.382***	-2.265***
							(-3.68)	(-3.56)
_cons	16.77***	16.86***	16.75***	16.41***	16.78***	16.64***	16.75***	16.45***
	(297.50)	(277.92)	(84.94)	(79.80)	(297.10)	(288.25)	(86.07)	(81.47)
year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	35686	33576	3917	3917	35686	35686	3917	3917
r2_a	0.0148	0.0158	0.0394	0.0524	0.0164	0.0186	0.0566	0.0667

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11: DID Capital Assets

	basic	DD2	DD3	DD4	DD5	DD6	DD7	DD8
switchpost	-1.442***	-1.231**	-1.681**	-1.047*			-2.907**	-2.458**
	(-3.39)	(-2.92)	(-3.09)	(-2.00)			(-3.05)	(-2.66)
switchlatepost	-0.215	-0.255	-0.456	-0.0628			-1.939	-1.558
	(-0.37)	(-0.46)	(-0.68)	(-0.10)			(-1.90)	(-1.58)
n_board		0.255***		0.516***		0.244***		0.497***
		(7.78)		(5.50)		(7.95)		(5.43)
Chairman_female		-0.456**						
		(-2.84)						
publicpost					0.356	0.179	0.562	0.200
					(1.37)	(0.71)	(1.40)	(0.52)
staypost							-2.410**	-2.179*
							(-2.62)	(-2.43)
_cons	12.19***	12.24***	12.20***	11.58***	12.19***	11.91***	12.20***	11.60***
	(179.45)	(160.54)	(53.07)	(47.11)	(178.75)	(164.92)	(53.56)	(48.42)
year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	35686	33576	3917	3917	35686	35686	3917	3917
r2_a	0.00377	0.00974	0.0245	0.0464	0.00161	0.00694	0.0323	0.0521

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 12: DID Current Assets

	basic	DD2	DD3	DD4	DD5	DD6	DD7	DD8
switchpost	-0.595**	-0.553**	-1.055***	-0.853***			-2.481***	-2.344***
	(-3.15)	(-2.92)	(-4.42)	(-3.66)			(-6.42)	(-6.20)
switchlatepost	0.242	0.262	-0.220	-0.0943			-1.694***	-1.578***
	(0.91)	(0.98)	(-0.72)	(-0.31)			(-4.04)	(-3.84)
n_board		0.0854***		0.164***		0.0754***		0.152***
		(5.79)		(3.71)		(5.32)		(3.51)
Chairman_female		-0.240**						
		(-3.05)						
publicpost					0.368**	0.313**	0.107	-0.00341
					(3.22)	(2.79)	(0.69)	(-0.02)
staypost							-2.113***	-2.043***
							(-6.23)	(-6.23)
_cons	16.64***	16.73***	16.73***	16.54***	16.64***	16.55***	16.73***	16.55***
	(438.41)	(436.74)	(127.32)	(122.21)	(437.46)	(446.38)	(129.79)	(126.17)
year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	35686	33576	3917	3917	35686	35686	3917	3917
r2_a	0.0281	0.0296	0.0377	0.0456	0.0275	0.0290	0.0585	0.0651

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 13: DID Debt Combined

	debt	DD_l_debt_long	DD_l_debt_short
switchpost	-1.854***	-4.253**	-2.310***
	(-4.96)	(-3.21)	(-6.59)
switchlatepost	-0.611	-1.536	-1.136**
	(-1.42)	(-1.05)	(-2.91)
staypost	-1.296***	-2.755*	-1.813***
	(-3.55)	(-1.99)	(-5.49)
_cons	17.08***	11.09***	16.33***
	(131.38)	(32.86)	(132.52)
r2_a	0.0893	0.0211	0.0748

	debt	DD_cont_l_debt_long	DD_cont_l_debt_short
switchpost	-1.569***	-3.644**	-2.046***
	(-4.26)	(-2.75)	(-5.85)
switchlatepost	-0.414	-1.115	-0.953*
	(-0.95)	(-0.76)	(-2.40)
staypost	-1.222***	-2.597	-1.744***
	(-3.34)	(-1.88)	(-5.28)
n_board	0.189***	0.402**	0.175***
	(4.43)	(3.16)	(4.06)
_cons	16.85***	10.61***	16.12***
	(135.15)	(28.42)	(135.64)
year	Yes	Yes	Yes
N	3917	3917	3917
r2_a	0.103	0.0267	0.0853

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 14: DID investment Combined

	Investment	DD_l_inv_sub	DD_l_inv_asso	DD_l_inv_empire	DD_l_loan_group
switchpost	-2.229*	-5.654***	-2.557*	-6.008***	-3.192*
	(-2.32)	(-5.43)	(-2.27)	(-5.69)	(-2.28)
switchlatepost	-1.144	-5.039***	-1.669	-5.177***	-3.437*
	(-1.05)	(-4.41)	(-1.40)	(-4.36)	(-2.21)
staypost	-0.955	-4.645***	-2.332*	-4.924***	-2.148
	(-0.98)	(-4.35)	(-1.99)	(-4.48)	(-1.42)
_cons	5.843***	13.29***	4.388***	13.77***	8.487***
	(23.00)	(59.22)	(16.48)	(64.09)	(24.65)
year	Yes	Yes	Yes	Yes	Yes
r2_a	0.0154	0.0263	0.00808	0.0335	0.00831
	Investment	DD_cont_l_inv_sub	DD_cont_l_inv_asso	DD_cont_l_inv_empire	DD_cont_l_loan_group
switchpost	-2.139*	-5.021***	-2.228	-5.450***	-2.633
	(-2.20)	(-4.97)	(-1.96)	(-5.27)	(-1.93)
switchlatepost	-1.065	-4.488***	-1.383	-4.691***	-2.951
	(-0.97)	(-4.01)	(-1.15)	(-4.02)	(-1.94)
staypost	-0.913	-4.345***	-2.176	-4.660***	-1.883
	(-0.94)	(-4.15)	(-1.85)	(-4.31)	(-1.26)
n_board	0.0740	0.519***	0.269**	0.457***	0.458**
	(0.61)	(4.17)	(2.59)	(3.94)	(2.94)
_cons	5.449***	10.53***	2.954***	11.33***	6.051***
	(7.66)	(14.84)	(4.63)	(17.16)	(6.84)
year	Yes	Yes	Yes	Yes	Yes
N	2775	2775	2775	2775	2775
r2_a	0.0154	0.0414	0.0112	0.0464	0.0145

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 15: DID Dividend Policy

	basic	DD_l_dividend	DD_l_payout_ratio	DD_l_retention_ratio
switchpost	-0.454	-0.348	0.0418	-0.0588*
	(-0.74)	(-0.77)	(1.73)	(-2.18)
switchlatepost	-0.278	-0.501	0.0363	-0.0428
	(-0.48)	(-1.02)	(1.12)	(-1.19)
staypost	-0.546	1.526*	0.118**	-0.124**
	(-1.57)	(2.45)	(3.03)	(-2.87)
_cons	15.69***	4.574***	0.159***	0.506***
	(155.19)	(48.31)	(16.84)	(50.01)
year	Yes	Yes	Yes	Yes
r2_a	0.0150	0.0330	0.0165	0.0187
	basic	DD_cont_l_dividend	DD_cont_l_payout_ratio	DD_cont_l_retention_ratio
switchpost	-0.428	-0.240	0.0435	-0.0611*
	(-0.70)	(-0.53)	(1.79)	(-2.26)
switchlatepost	-0.281	-0.509	0.0362	-0.0426
	(-0.48)	(-1.05)	(1.12)	(-1.18)
staypost	-0.587	1.362*	0.115**	-0.121**
	(-1.70)	(2.19)	(2.95)	(-2.78)
n_board	0.0604	0.242***	0.00382	-0.00518
	(1.46)	(5.75)	(1.19)	(-1.53)
_cons	15.63***	4.295***	0.155***	0.512***
	(149.62)	(40.96)	(16.75)	(51.69)
year	Yes	Yes	Yes	Yes
N	35686	35686	35466	35466
r2_a	0.0151	0.0348	0.0166	0.0187

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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