

Regulating for gender equality in business: the law on gender quotas and the network of interlocking directorates in Norway, 2008–2016

Trond Løyning

To cite this article: Trond Løyning (2021): Regulating for gender equality in business: the law on gender quotas and the network of interlocking directorates in Norway, 2008–2016, Review of Social Economy, DOI: [10.1080/00346764.2021.1901139](https://doi.org/10.1080/00346764.2021.1901139)

To link to this article: <https://doi.org/10.1080/00346764.2021.1901139>



© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 21 Mar 2021.



Submit your article to this journal [↗](#)



Article views: 26



View related articles [↗](#)



View Crossmark data [↗](#)



Regulating for gender equality in business: the law on gender quotas and the network of interlocking directorates in Norway, 2008–2016

Trond Løyning

Department of Business, History and Social Sciences, University of South-Eastern Norway, Kongsberg, Norway

ABSTRACT


This article analyses effects of the law of gender quotas for company boards in Norway on the network of interlocking directorates in the period 2008–2016. It is argued that these networks are important regarding gender equality and diversity. Analysis of the regulated corporations (Public Limited Companies – PLCs) shows that female directors get and keep central positions in the networks during this period. Exploring possible impact on networks among non-regulated Private Limited Companies (Ltds) shows no similar effects. Thus, although the justification for the law is general, there are no notable spillover effects. However, women are central in the overall network (based on both PLCs and Ltds), since most of the network ties are among PLCs. Thus, the quota law seems effective in challenging the male-dominated networks in business, but several caveats to such a conclusion are discussed.

ARTICLE HISTORY Received 1 April 2019; Accepted 23 February 2021

KEYWORDS Centrality; interlocks; public limited companies; private limited companies

Introduction

Gender equality in business has been an important issue in many nations for some time, in politics, in business communities, and as a research topic. This is typically framed as either an issue of corporate governance and diversity, or an issue of basic rights, i.e. gender equality and gender justice (see, e.g. Seierstad, 2016; Storvik & Teigen, 2010; Szydło, 2015). How to increase the proportion of female leaders in business in general and female directors in corporate boards in particular, has been a primary concern. Regarding the latter, an overview of the global situation in 2016 shows a wide disparity, from a proportion of female directors as low as 5–6% in large economies like Japan and Brazil, to

CONTACT Trond Løyning  trond.loyning@usn.no

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

a proportion close to or above 30% in several Nordic countries (d'Hoop-Azar et al., 2017).

This article analyses the nation with the highest share of women on company boards, Norway. Although gender inequality regarding access of such positions is not specifically a Norwegian issue (cf. Catalyst, 2017; Cook & Glass, 2014; Kirsch, 2018; Lépinard & Rubio-Marín, 2018; Mensi-Klarbach & Seierstad, 2020; Schäfer et al., 2012; Sealy et al., 2016), it is perhaps even more striking in a context of the relatively high degree of gender equality archived in other spheres of Norwegian society (Teigen, 2012). It certainly is contrary to the image of Norway as a gender-equal society. Thus, an amendment to The Norwegian Companies Act was passed in 2003, introducing a mandatory quota of minimum 40% of each gender on corporate boards in PLCs.¹ The law was fully implemented from 2008, giving existing companies a grace period. In their characterization of the debates and justification of this amendment, Storvik and Teigen (2010, pp. 6–7) highlight arguments concerning gender justice, skills and utility, and the importance for democracy of a more gender-equal participation in decisions making bodies like corporate boards.²

Norway was the first nation to introduce such mandatory quotas, and being an exceptional case, often highlighted in comparative studies of gender parity on company boards, and arguably having strong 'mimetic force' in other nations (Teigen, 2012; Terjesen et al., 2015), it is worthwhile to investigate in more detail the effects of the law in Norway. The law was proposed and passed because the government did not think voluntary mechanisms or appeals were sufficiently effective in increasing the share of female directors. The government's justification particularly emphasized the positive effects regarding corporate performance when increasing the share of female directors (based on arguments of skills and competence of female leaders, and of increasing diversity in boards), and arguments regarding the democratic value of a more equal participation in important decision-making processes (Proposition to parliament No. 97, 2002/2003). The government carefully discussed the legal forms of corporations to regulate, and argued that among privately owned companies, the law should apply to PLCs. Private limited corporations (Ltds) should not be subject to the law, on the grounds that many these are small, with few owners, and with owners often being directors. Thus, it was argued, such a law for these corporations would unduly infringe on property rights of these owners.

¹ There are exceptions to the 40 % rule depending on the size of the board, see Storvik and Teigen (2010, p. 4) for the specifics. Moreover, the law also covers publically owned companies and cooperatives. PLCs are the only major form of privately owned company that is subject to this statutory law, and is the only form of company subject to the law included in this study.

² There were counter arguments concerning all these issues, but obviously, the arguments for the mandatory gender quotas prevailed (see Storvik & Teigen, 2010).

This is a very important delineation as Ltds is one of the most common legal form of privately owned companies, not only among small companies but also among the largest, as I will show below.

In this article, the attention is not on the share of female directors as such, which unsurprisingly (because of threats of strict sanctions for noncompliance) is around 40% during the whole period. Using a social network analysis approach, I examine the effects on networks of interlocking directorates, i.e. networks based on directors having two or more board positions. Such networks are generally considered important for the issues the law seek to amend, such as recruitment, communication, power and status, and, consequently, gender equality. Thus, the first main question is whether female directors attain and keep central positions in this type of networks during the period investigated. Since the quota law can be seen as an external shock to the 'board system', in particular the mechanisms and factors determining how and why boards of directors are recruited, it is important to analyse the effects over a sufficient time period, including the period where one expect a possible shock effect to wane. Accordingly, this article extends the time period to 2016. In addition, the article investigates this using arguably a more robust methodology compared with previous studies.

Second, effects on corporations not covered by the law are analysed. This has not been done previously. When analysing effects of the law in Norway, it is necessary to take into account the relatively small (and declining) number of corporations covered by the law. Stated differently, the law is narrow in specifically targeting one legal form of privately owned corporations while the issue the law seeks to amend, i.e. gender inequality in business is more general. Thus, the other main type of private corporations, Ltds are investigated: Do female directors get and keep a central position in the network based on Ltds during this period? Moreover, do female directors attain a central position in the *overall* network of *both* PLCs and Ltds?

A note on terminology: Centrality is a key concept in the article. In social network analysis (SNA), centrality has precise technical definitions, for example degree, i.e. the number of ties an actor has to other actors. These measures (i.e. degree, betweenness, and eigenvector) are explained below. More generally, centrality refers to characteristics like *access* (e.g. access to information), *importance* (e.g. knowing key actors within a field) or *power* (e.g. being able, through knowing the right people, to get things done). Thus, a central director has more of such characteristics than a peripheral one. In SNA, the technical measures are indicators of such characteristics. For example, the more links a director has to corporations, the more power the director presumable has (all other variables held constant). In this article, the concept of centrality is used in a precise technical manner, unless otherwise stated.

The article is organized in the following way. First, interlocking directorates and their relevance to the law of gender quotas are discussed, previous

research on network effects of the law is presented, and the research questions are developed. In subsequent sections, the data and methodological issues are discussed, before findings are presented and discussed. The final section includes considerations on the more general lessons to be drawn from the Norwegian case.

The law of gender quotas and interlocking directorates

The implementation of a law of gender quota raises many questions, some of which have been extensively studied. For example, questions concerning company profits (see, e.g. Ahern & Dittmar, 2012; Dale-Olsen et al., 2012; Eckbo et al., 2020); the work dynamic within the board (Nielsen & Huse, 2010; Storvik, 2010); whether or not women directors differ compared with men in attributes such as age or level of education (Heidenreich & Storvik, 2010; Storvik, 2010); and whether companies react to the law by changing legal status to avoid it (Bøhren & Staubo, 2014). In this article, the law is analysed from a network perspective, exploring its consequences on the network of interlocking directors.

It has long been argued that networks created through directorships are important, in terms of fundamental issues such as communication, coordination, elites, class and power (see, e.g. Burris, 2005; Burris & Staples, 2012; Carroll, 2009; Gabrielsen et al., 2011; Heemskerk, 2013; Heemskerk & Fennema, 2014; Mizruchi, 1994; Stokman et al., 1985; Useem, 1984; Windolf, 2002); or regarding specific decisions in business, such as the adaption of the 'poison pill' strategy (Davis, 1991), investment strategies (Mizruchi & Davis, 2004), or political donations (Burris, 2005). Hence, if the goal of the law is to achieve greater gender balance in business, gender balance in this kind of network is arguably crucial.

Moreover, the concept of the old boys' network has often been used in discussions regarding male predominance on company boards and in management positions in business more generally. It was also widely used in public debates on the law of gender quotas in Norway. This term describes not only the gender imbalance but also the limited pool of candidates from which leaders and directors are recruited (i.e. men with connections), as well as the recruitment mechanism (informal and network-based). Debates on good corporate governance, with calls for greater board diversity, are relevant here: The old boys' network limits diversity. Hence, this is a potential problem regarding not only gender equality and justice but also corporate governance (cf. Dobbin & Jung, 2011; Ferreira, 2010).

In SNA, the mechanism of social homophily is often used to explain such patterns, i.e. the tendency for people to know, be friends with, and share a liking for, people with similar social characteristics as themselves (cf. Elliott & Smith, 2004; McPherson et al., 2001). Because of the male predominance within business networks, including interlocking directorates, and given the

finding that such networks are important in recruiting directors, this mechanism implies that gender inequality is reproduced – homosocial reproduction to borrow Moss Kanter (1977) terminology. Previous research indicates that the proximity of female directors in the network of interlocking directors leads to the recruitment of more female directors (Hillman et al., 2007; Kogut et al., 2014). The flipside of this is the situation of few female directors, making the recruitment of female directors through such networks ineffective in increasing the share of female directors on boards (cf. Bohman et al., 2012). Thus, attaining such positions is significant not only with respect to leadership positions as such, but also to get access to this network of interlocking directors.

Thus, there are several aspects of positions on corporate boards that should be considered. The first, of course, is that these positions are decisive in themselves, as crucial positions of corporate management. Additionally, there are network-effects to consider. This is an arena in which leaders are introduced to each other, get to know each other, and are part of large intercorporate networks of directors through which information on many relevant aspects of corporations flow, including information on potential candidates for leadership positions (Bohman et al., 2012; Edling et al., 2012; Heidenreich, 2010; Hetland, 2008; Hillman et al., 2007).

While there are reasons to believe that major changes in the gender composition of the boards, would change gender imbalances in network of interlocking directorates, this is not a necessary consequence. If female directors gain only one board position, they would continue to be peripheral in the network. Only if a sufficient number of female directors attain *several* directorships can gender balance in these networks be attained.

Previous research and new questions

Previous studies show not only that the requirements of the law were met soon after the statute was implemented (see, e.g. Seierstad & Opsahl, 2011; Storvik & Teigen, 2010), but also that there were major network effects of the law (Løyning, 2011; Seierstad & Opsahl, 2011). The implementation of the law of gender quotas can be seen as an external shock to ‘the board system’, completely transforming its gender composition. Previously, the corporate elite, defined as board members with three or more positions, consisted almost exclusively of men. In contrast, after the law was implemented in 2008, female directors had on average more board positions than male directors, and a majority among the most central board members were women (Løyning, 2011; Seierstad & Opsahl, 2011).

This is the backdrop for the first question in this article: Do women attain and keep their central position in the network of interlocking directorates over time? Based on previous research (and confirmed below) the first part of the

question can be answered in the affirmative – female directors attained central positions in these networks after the implementation of the law. Therefore, it is the second part of the question, on the development over time, which is emphasized in this article. The time needed for the necessary adjustment process is crucial in relation to this question. When companies are required to recruit a large number of female directors, it is reasonable to expect that a few female directors became popular, perhaps because of their previous experience as directors. However, after a process of adjustment and adaption, it is possible that this effect becomes weaker, as an increasing number of women acquire what is perceived as relevant experience as directors.³ Stated differently: there are more women with relevant experience competing for the same available positions.

Moreover, as Table 1 shows, there has been a substantial decrease in the number of PLCs during the years subsequent to 2008, which implies a reduction in the demand for directors, including female directors, among the regulated corporations. Consequently, the expectation would be that as more women gain relevant experience, and as fewer positions are available fewer women would hold many directorships.

Alternatively, it is plausible that the relatively few women with many directorships in the beginning of the period would keep their central positions, because of their experience and due to their large network (or social capital). Thus, the network effect of being above the glass ceiling, meeting the right people, could be decisive (cf. Heidenreich, 2010; Hillman et al., 2007).

Previous research supports the latter hypothesis; women seem to keep their central position in the network over time (Løyning, 2014). In this study, the time frame is extended to include 2016. Moreover, this study uses a wider set of centrality measures compared with the previous longitudinal study (Løyning, 2014), thus making the conclusions regarding centrality more robust.

The next main question addresses the discrepancy between, on the one hand, the narrowness of the law in the sense that only one legal form of corporation is regulated and, on the other hand, the more general nature of the issues that the law seeks to rectify, namely gender imbalance in leadership positions in business. In such a context, the law can be seen as part of a broader political process of reducing gender inequality, making changes in other forms of corporations as important as changes among PLCs.

Of particular importance are *private limited companies (Ltds)*. Together with PLCs, these are the main types of privately owned companies in Norway. The

³ This process might be reinforced by a change in what is seen as a relevant background (cf. Seierstad et al., 2020).

Table 1. Descriptive statistics of corporations, boards and directors, 2008–2016. All PLCs in Norway and Ltds among 500 largest corporations in Norway are included.

	PLC									Ltd.			
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2010	2012	2014	2016
Corp.	452	373	363	312	281	257	238	222	219	320	351	336	340
Board positions	2366	1955	1810	1716	1548	1423	1317	1242	1227	1966	2187	1999	2031
Directors	1926	1639	1517	1426	1317	1224	1130	1075	1059	1871	2099	1895	1953
Dir. with min. two directorships	281	231	206	193	164	146	136	127	123	63	82	97	72
Dir. with min. three directorships	97	86	55	62	43	36	30	30	31	8	6	7	5
Dir. with min. four directorships	37	34	20	22	14	10	13	8	9	2	0	0	1
Average board size	5.2	5.2	5.0	5.5	5.5	5.5	5.5	5.6	5.6	6.1	6.2	5.9	6.0
Prop. female dir.	39.7	39.6	40.5	41.1	40.8	41.0	41.0	41.3	41.8	21.7	21.2	20.9	20.4
Ave. no. of directorships, female dir.	1.30	1.27	1.26	1.30	1.25	1.22	1.22	1.20	1.21	1.04	1.03	1.07	1.03
Ave. no. of directorships, male dir.	1.19	1.14	1.15	1.14	1.13	1.13	1.13	1.12	1.12	1.05	1.04	1.05	1.04
Mean difference	0.11*	0.13**	0.11**	0.16**	0.12**	0.09*	0.09*	0.08*	0.09*	0.01	0.01	0.02	0.01

Note: The table shows descriptive statics for all PLCs for all years from 2008 through 2016 and for large Ltds from 2010 through 2016. In addition to the number of corporations, the table shows the total number of board positions, the number of unique directors, the number of directors with multiple directorships, average board size, proportion of female directors, average no. of directorships for female and male directors, as well as test statistics for the difference between these averages.

*Significant with $p > 0.01$.

**significant with $p > 0.001$.

distinction between public limited corporations and private limited corporations is of less sociological importance regarding issues like gender, equality, power and democracy; i.e. the fundamental issues that the law addresses.⁴ This is the backdrop for the second research question: Do female directors get and keep a central position in the network based on Ltds during this period? This issue is not addressed in any previous study on the law on gender quotas and networks of interlocking directorates.

There are plausible reasons why the law could influence Ltds. One could expect a diffusion effect, because the law on gender quotas is part of, and perhaps reinforces, a general trend towards enhancing gender equality, and increasing diversity in company boards more broadly (cf. Tricker, 2012). After all, diversity, including gender diversity, is something that leaders of large corporations see as important (cf. Krawiec et al., 2013). More specifically, one could expect a process of institutional isomorphism (Beckert, 2010; DiMaggio & Powell, 1983). Many of the largest, most respected and profitable companies in Norway are PLCs, and some of the Ltds could try to emulate these corporations in various respects, including the composition of boards. Although the law of gender quotas was highly controversial when implemented, business leaders seemed to accept it readily (Storvik & Teigen, 2010). Furthermore, increasing professionalization seems to be a key word describing how the recruitment process to boards of PLC has changed during recent years (Heidenreich, 2010; Huse & Sølund, 2009); this could be applicable to large Ltds as well. DiMaggio and Powell (1983) emphasize professional networks as a key mechanism for institutional isomorphism (DiMaggio & Powell, 1983); this mechanism could be relevant in this case too.

Moreover, the law creates a larger pool of female directors with relevant experience. These female candidates for directorships should be attractive to Ltds as well. This could lead to an increase in the share of female directors of Ltds. In addition, this could establish ties between PLCs and Ltds, depending on whether these directors keep their positions in PLCs or not. Thus, a hypothesis of emulation can be formulated: the law on gender quotas causes the proportion of women in the boards of Ltds to increase (and possibly creates an increasing number of ties between PLCs and Ltds).

However, one might also propose a hypothesis of competition. A limited number of female directors are considered qualified (this was one of the primary arguments against the law of gender quotes before it was passed, cf. Storvik & Teigen, 2010). Although the number increases because of the law, it is still small compared with the number of male directors. Moreover, the mechanism of homophily is relevant: If male recruiters are the ones who decide whether the candidates are qualified or not, this may influence the number of

⁴ Although one might argue that it is more problematic to regulate Ltds in this way; the public nature of PLCs makes them more susceptible to public regulation designed to achieve broader societal goals (cf. Engelstad, 2012).

female candidates deemed suitable. In a situation like this, one might expect that as the proportion of women increased sharply in the PLCs, the proportion would decrease in the Ltds. However, because the declining number of PLCs, one would expect such a mechanism to weaken during the period, since there are fewer board positions in PLCs.

A hypothesis of divergence should also be considered. PLCs by definition are oriented towards the broader (share-holding) public. Ltds, however, are not, and one could argue that these companies are somewhat independent (at least compared with PLCs) of norms of good corporate governance, since the dominant model of corporate governance has been developed to deal with governance issues in corporations listed on stock exchanges, and since stock exchanges (like Oslo Børs) often have requirements concerning codes of conduct for its listed companies (Ingley & Karoui, 2010; Tricker, 2012; Voordeckers et al., 2007). In other words, PLCs and Ltds could differ over issues such as diversity in corporate boards in general, and gender balance in particular. If the recruitment mechanisms to the boards of the two categories of corporation diverge, reflecting such differences, this may result in independent developments regarding the proportion of women in PLCs and Ltds, as well as few ties between PLCs and Ltds. In other words, this argument suggests that there are no (isomorphic) effects from the changes among PLCs on the Ltds.

Up to this point, questions concerning the development in the two different categories of corporations have been raised. However, as mentioned, the law addresses issues that are general in nature, irrespective of legal type of corporation. Thus, it is important to explore the network positions of female directors irrespective of legal form of corporation, leading to the third research question: do female directors attain and keep a central position in the *overall* network of both PLCs and Ltds? A central position in this broader corporate network could be achieved in two ways: First, if the centrality of female directors in PLCs were replicated in Ltds, this would result in overall central positions for women, and second, if the PLCs are more connected and more central than Ltds, in the overall network. In the latter case, women gain a central position in the overall network by holding many directorships in the most central and connected corporations. In such a case, Ltds are less crucial in a network perspective than PLCs.

On the other hand, if Ltds are more central than PLCs, and if male directors are central in Ltds, a central position of female directors in PLCs could be cancelled out in the overall PLC-Ltd network. From a network perspective, this would entail that regulating PLCs is less effective in achieving the goal of gender balance.

Before exploring these questions, I will present an overview of the data, and discuss some methodological issues.

Data and methods

The data consist of all PLCs for each year, and a subset of the largest Ltds. Only Ltds among the 500 largest corporations in Norway are included, for the years 2010, 2012, 2014 and 2016. The main reason for only including this subset of Ltds is the issue of comparability. Most of the PLCs are large corporations while the large majority of Ltds are small corporations. Furthermore, regarding the central issues that the quota law seeks to address, like gender justice, democracy and power, this subset of Ltds is arguably more consequential, in terms of both importance of directorships (their decisions involve more capital and more employees), and visibility and symbolic significance of top leaderships positions in business. Figure 1 provides an overview of the data. The data were obtained from the *Brønnøysund Register Centre*, to which the companies are required by law to report.

Table 1 shows a strong reduction in the number of PLCs during this period. The proportion of female directors is around 40%, contrasting sharply with the much lower rate among Ltds. Moreover, unlike the situation in Ltds, female directors in PLCs have a significantly higher average number of directorships compared with male directors throughout the period. The observed number of directors is small in some subcategories. This is a limitation for example when calculation proportions of female directors with many directorships (small changes in the observed number of directors could alter the conclusions). The relevant counts are reported, and the reader should take this into account.

In technical terms, the networks are *two-mode* networks, meaning that there are two types of actors involved: individuals and (boards of) corporations. In formal terms, individuals have ties to corporations, and vice versa. Of course, directors meet other individuals in corporate boards, and often such networks are transposed to *one-mode* networks, a network of corporations or a network of directors. This could create problems of artificial clustering, since many links between directors, those in the same company board, are present by construction. The size of the board would then determine the number of links (cf. Opsahl, 2013). In this article, unlike previous studies of these networks (Løyning, 2011; 2014; Opsahl, 2013), centrality is measured directly on the two-mode network, not on the transposed one-mode networks. This is arguably the methodological more sound approach (Agneessens & Everett, 2013; Borgatti & Everett, 1997). The exemption is the degree of corporations (cf. Figure 5 below): in this case, two-mode degree summarizes the number of directors the corporations has links too, i.e. the size of its board. When seeking to measure the connectedness of firms is more useful in this instance to measure the number of direct links to other firms. Thus, the transposed one-mode network of corporations is analysed.

Some analysis is restricted to the main component. In a component, all actors are directly or indirectly connected to each other. Typically, the main (i.e. the largest) component of these networks consists of the large proportion of the actors.

Directors are identified by their names and unique postal address. The gender variable was coded manually based on the name of the directors, occasionally supplemented by searches on the internet.

In SNA, centrality can be defined as having a favourable or important position in a social network. However, what counts as favourable or important positions may differ, depending on which social mechanisms is emphasized. Thus, there are several standard indicators of centrality used in this article, which covers several relevant social mechanisms (cf. Freeman, 1978; Wasserman & Faust, 1994). As mentioned, *degree* counts the number of direct ties of the focal actor to all other actors. In sociological terms, this is an indicator of direct access to positions and people with power. Here, the degree of a director is equal to the number of directorships. (To be precise, this is the two-mode degree, since it is measured directly on the two-mode network. The corresponding one-mode degree of directors is the number of other directors the focal director has ties to, based on memberships on boards.) In some analysis, degree is normalized, i.e. expressed as a percentage of possible connections (e.g. number of other actors) in the network.

A second indicator is *betweenness*. This measure counts the number of shortest paths between other pairs of actors that pass through the focal actor. It varies from 1, when the focal actor ties together all other pairs of actors, and 0, when the focal actor is on no such paths. In sociological terms, this indicates the extent to which an actor is a gatekeeper or broker between actors (e.g. of information). Lastly, *eigenvector*-centrality takes into account not only the number of other actors the focal actor is connected to, but also the number of ties these actors have. It aims to measure not only the number of ties (i.e. degree), but also the importance of these connections. Presumably, it is more valuable to know someone with a large network, than someone with no connections aside from you (cf. Borgatti & Everett, 1997).

A difference between these measures is that while degree is a *local* measure of centrality, only taking account of direct connections, both betweenness and eigenvector are *global* measures, in the sense that larger parts of the network are taken into account.

While these indicators measures different aspects of importance or power, they are often highly correlated. For example, when actors have a large degree, this usually implies a high betweenness score as well. Obviously, this is not necessarily the case.

All positions are treated symmetrically, i.e. are not given a weight according to size of the corporation or other characteristics of the firm (apart from its legal form – PLC vs. Ltd). In addition to availability of data, this is due to the focus

on networks in this article: a smaller firm can be more important than a larger in network terms, for example if it links otherwise unconnected parts of the network. In other words, the sole emphasis in this article is on corporate boards as institutional settings, and conduits, of connections.

Findings

Public limited companies (PLCs)

Female directors attained 40% of the board positions in PLCs in 2008, thus meeting the requirements of the law. One could perhaps expect an increasing proportion of female directors during the following years, as more women gained experience, and as the number of PLCs declined. However, this has not been the case; the proportion is 40% or 41% during the period until 2016. A reasonable interpretation is that the proportion of female directors continues to be determined by the minimum requirement of the law; hence, if the law were to be repealed one would expect this rate to decline.

In Figure 1, the degree of directors is presented, included overall average, average among interlockers (i.e. directors with at least two directorships), and maximum number of directorships each year. As mentioned above, there were few female directors of large Norwegian companies until the 1990s. Figure 1 shows the large changes that occurred because of the law of gender quotas. For most of the years, female directors have higher average and maximum degree than males.

Calculating the proportion of women among different subsets of directors, defined by number of directorships (what Seierstad and Opsahl (2011) call the reverse cumulative perspective), provides further insight into the centrality of women. While the overall proportion of women is below 40%, the proportion rises when considering interlockers, i.e. directors with several directorships: More than 50% of the directors with three or more directorships, and 70% or more for several years of the directors with at least four directorships are female.⁵

Thus, Figures 1 and 2 provide evidence of the continuing centrality of female directors. Whether this type of concentration of power is positive is debatable, but it certainly represents an important change regarding female access to this type of power. So far, degree centrality has been used. In Figure 3, betweenness centrality is presented (see Freeman, 1978; Wasserman & Faust, 1994). The findings are consistent with the degree-analysis; women are more central than men, having a larger overall average betweenness-score, as well as a higher average among the subset of the ten most central directors. However, starting in 2014, male directors are equally central, or more central (in 2015) than female

⁵ However, there are few directors holding these numbers of directorships: between 58 (in 2008) and 15 (in 2014) held three directorships; between 34 (in 2008) and 10 (in 2013) held four or more directorships.

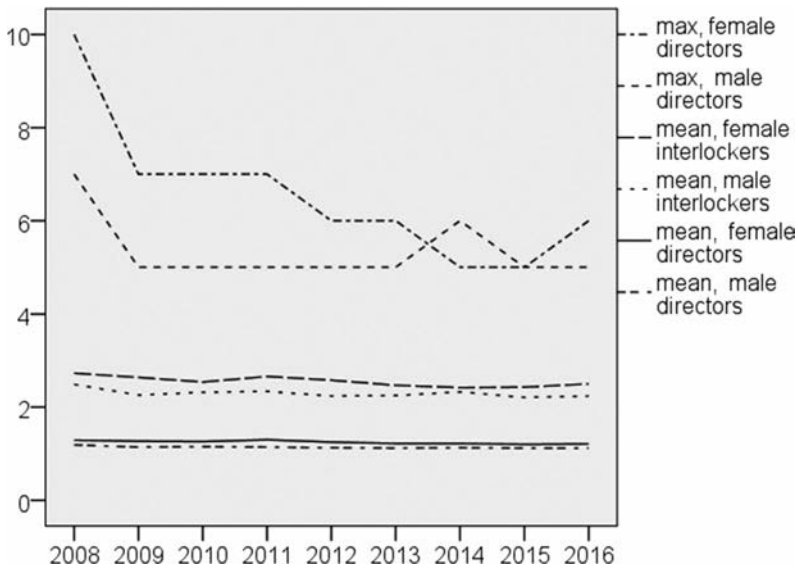


Figure 1. Average and maximum two-mode degree, female and male directors, in the PLC network, 2008–2016.

Note: Figure 1 shows the maximum number of directorships for female and male directors, mean number of directorships for female and male interlockers, and mean number of directorships for all female and all male directors. Cf. table 1 for the number of directors each year.

directors. This could suggest a ‘re-balancing’ where male directors regain some of their centrality, after the initial shock to the board system.

There is a strong correlation between the standard indicators of centrality for most of the years investigated in this article, particularly between degree and betweenness (r ranges from a minimum of 0.64 to maximum 0.83, $p < 0.01$) However, the correlation between eigenvector centrality and the other measures is somewhat lower, between eigenvector and betweenness r varies from 0.02 (in 2016) to 0.46 (in 2011). It tends to be smaller in the second half of the period. It is significant for all years except 2012 and 2016 ($p < 0.01$). Correlations between eigenvector and degree are quite similar, r ranges from 0.06 (in 2012) to 0.36 (in 2008). The correlations are significant for all years, except 2012 ($p < 0.01$). To complete the centrality analysis of these directors, Figure 4 includes a comparison of the proportion of women among central directors, measured by both betweenness and eigenvector. In this analysis, only the most central directors are included. Arguably, these central directors are of particular importance with regard to access to positions of power. Moreover, a large number of directors have a score of zero on both indicators, and thus can be considered peripheral in the networks.

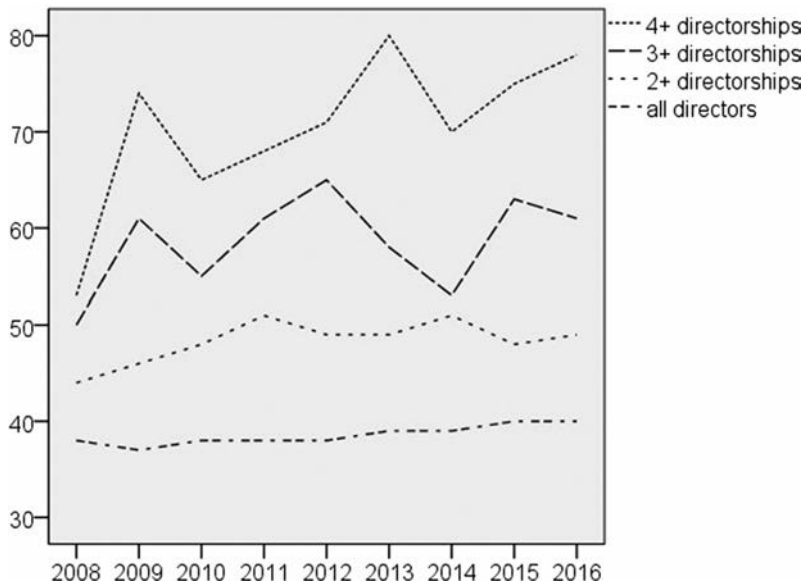


Figure 2. Proportion of women in subsets of directors, defined by two-mode degree, in the PLC network, 2008–2016.

Note: Figure 2 shows the proportion of female directors among directors with at least four directorships, at least three directorships, at least two directorships, and all directors, from 2008 through 2016. Cf. table 1 for the total number within each subset of directors. Note that some of these numbers are very small.

When restricting the analysis to a subset of central directors, these peripheral directors are excluded.⁶

While the proportion of women is large irrespective of which indicator is used, there are noteworthy variations. The proportion of women is higher when using the betweenness indicator, compared with the eigenvector-measure. The difference is especially large when looking at the ten most central directors. Among the 50 most central directors, defined by betweenness, the proportion of women is approximately 50% or more for most of the period, although it drops to 44% in 2013 and 46% in 2016. This can be interpreted as an early indication that as the number of female directors with relevant experience *increase* over time, and as the number of positions as directors decrease (because of the declining number PLCs), the number of female directors with a high centrality score decrease.

According to the eigenvector analysis, the proportion of women is below 40% for most of the period, although it increases in the last few years, reaching 44% in 2014. The comparatively low eigenvector score can be interpreted

⁶ As mentioned in Note 4, due to the small component in 2015 only 45 directors had a betweenness-score greater than zero. Accordingly, the betweenness-analysis is restricted to these 45 directors in 2015.

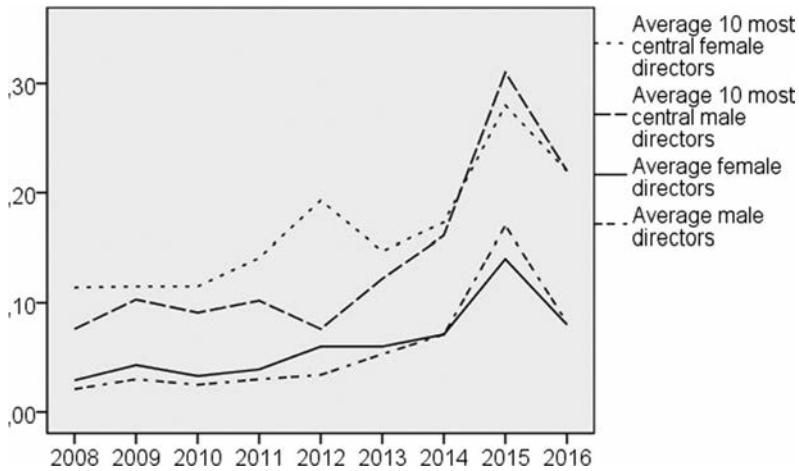


Figure 3. Average betweenness, female and male directors, in the PLC network, 2008–2016.

Note: Figure 3 shows the average betweenness-score of the ten most central female and male directors, and for all female and male directors. Only the main component is analysed, and the number of directors included (those with betweenness-score larger than zero) decrease from 215 in 2008 to 80 in 2016. The year 2015 is an exception; this year there is no significant difference between the largest and second largest component, with the two components being approximately half the size of both the large component in 2014 and 2016. Thus, in 2015 only 45 directors are included.

as a possible gender-based barrier, where women to a lesser extent than men have ties to well-connected leaders in business. Because of the law of gender quotas, however, female directors to a larger extent than male directors, may gain access to otherwise unconnected corporate boards, leading to high betweenness scores. Such variations notwithstanding, the main finding is the centrality of women *regardless* of measure, compared with the situation a few years before the introduction of the law of gender quotas. In this sense, the centrality of female directors is a robust finding.

Private limited companies (Ltd)

Turning to the next major question pertaining to directorships in Ltds, it is a well-established fact that the proportion of women among these directors is much smaller than in the PLCs. Statistics Norway (2016) showed that the proportion of women directors in Ltds increased from 15% to 18% in the period from 2004 to 2016, a modest change compared with the increase in PLCs.

In the subset of *large* Ltds analysed in this article, the proportion of women among all directors is somewhat larger, although it *decreases* marginally, from

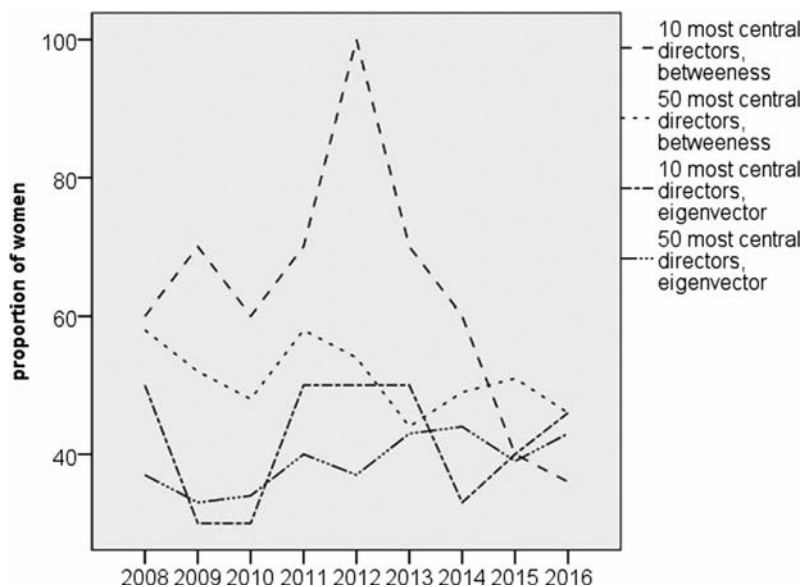


Figure 4. Proportion of women among central directors, in the PLC network, 2008–2016. Note: Figure 4 shows the proportion of female directors among the 10 and 50 most central directors using the betweenness measure, and the eigenvector measure.

22% in 2010 to 20% in 2016. This supports the hypothesis of independent trajectories suggested above; in other words, Ltds do not appear to be influenced by the changes in PLCs.

The network of interlocking directorates among these Ltds is sparse and fragmented. The size of the largest component is very small; it decreases from 13 corporations in 2010 to 7 in 2016. The number of interlockers reaches a maximum of 97 in 2014. Subsequently, it decreases to 72 in 2016. Among these interlockers, the proportion of women reaches a maximum of 24% in 2014; and decreases to 18% in 2016.⁷ In other words, there are few female directors in Ltds, and there are few female interlockers as well. There is no clear indication that the development in PLC has had much effect on Ltds.

One important development is the reduction of the number of PLCs (cf. Table 1); many of these corporations change legal form from PLC to Ltd. This implies first, that the corporations change legal form from one with a large proportion of female directors to one with a much smaller proportion, and second, that the impact of the law in terms of how many corporations in Norway are regulated, is reduced each year. Some authors argue that the law is a *cause* for the change in legal form (Bøhren & Staubo, 2014). A prerequisite for such a causal connection is that there are fewer female directors in Ltds, and perhaps

⁷ There are almost no directors with three or more directorships in Ltds – ranging from eight in 2010 to six in 2012.

Table 2. Directors in PLC and Ltds, 2010–2016.

	2010	2012	2014	2016
PLC-directors with directorships in Ltds	107	120	108	111
Proportion of women	27%	28%	32%	37%
Male PLC-directors with several directorships in Ltds	29	13	14	13
Female PLC-directors with several directorships in Ltds	12	3	2	4
Directors with multiple directorships in both PLCs and Ltds	6	7	2	4

that there is no strong norm in the business community to increase this proportion, leading to the expectation that the proportion in Ltds will not rise in the near future. Based on the numbers presented above, there are undoubtedly fewer female directors in Ltds, and based on the development so far, if there are any norms regarding the proportion of female directors in Ltds, they are ineffective.⁸

The analysis so far suggests that while the PLCs are relatively integrated, in the sense that a large proportion of these corporations have network ties to each other (i.e. embedded in a network), this is not the case among Ltds (i.e. few of these corporations have network ties to each other). As previously mentioned, the different legal form of these firms is not necessarily crucial in relation to issues like equality, democracy and power. Thus, the integration *between* these two categories of corporations should be explored: Are there many ties between PLC and Ltds, and are female interlockers important in connecting these types of firms?

Between 107 (in 2010) and 120 (in 2012) of the directors of PLCs are board members of large Ltds as well (cf. Table 2). Between 27% and 37% of these are women, which means that the proportion of women in this group of PLC-directors is less than the overall proportion of female PLC-directors. A small number of directors in PLCs hold multiple directorships in Ltds, this number decrease from 12 women and 29 men in 2010 to four women and 13 men in 2016. In other words, there are generally few directors with several ties to Ltds, and particularly few female directors.

An examination of the most central subset of directors, i.e. directors with three or more board positions in PLCs (which I below call the elite), reveals that few of these have directorships in Ltds. In 2010, nine directors in the elite had board positions in large Ltds, five men and four women. They each had one directorship in Ltds. In 2016, 12 directors in the elite had directorships in Ltds, including six women. One woman and one man had two directorships in Ltds; the others had one directorship each. Thus, generally, the members of the elite

⁸ I do not include analysis of betweenness or eigenvector centrality based on the network among Ltds. Both betweenness and eigenvector take into account the larger network in which the nodes are embedded (as opposed to degree, which only takes into account the immediate surroundings). Given the highly sparse and fragmented nature of the networks among Ltds, these measures are not particularly useful (the large majority of companies have a score of zero on these measures).

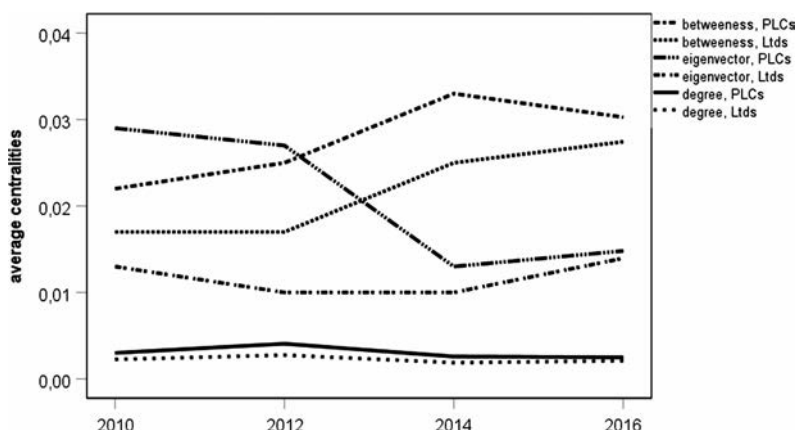


Figure 5. Average centralities, PLCs and Ltds, 2010–2016.

Note: Figure 5 shows average centralities of PLCs and Ltds, using different measures of centrality. The main component of the combined PLC-Ltd network is analysed. Note that degree is measured on the transposed one mode network, measuring direct ties to other corporations.

do not have a 'secondary', or additional, power basis in Ltds. There seems to be no positive connection between the number of directorships in PLC and the number of connections in Ltds. Most of the members of the elite hold only one directorship in Ltds. Correlation analysis confirms this; there was no significant correlation between the number of positions in PLCs and Ltds, with coefficients close to zero.⁹

Next, the centrality of female directors in the overall network among both PLCs and the large Ltds, is explored. In 2010, there were 300 corporations in the main component of the overall network, 224 PLCs and 76 Ltds; similar figures for 2016 were 240 corporations in total, 186 PLC and 54 Ltds. The fact that Ltds are outnumbered by PLCs is not surprising given the small number of interlockers among Ltds. Moreover, as Figure 5 shows, on average the Ltds have a lower score than PLCs on all measures of centrality for all years, although the differences are quite small in the last part of the period.

Because of the centrality of PLCs, the centrality of female directors in the overall network should be closer to the PLC-network than the Ltd-network. In Figure 6, average two-mode degree and betweenness of men and women in the overall network are presented, while Figure 7 includes averages for the 10% most central directors.

Figure 6 shows that female directors on average are more central than male directors for all years. A possible explanation is the above-mentioned majority

⁹ Only directors with board positions in both PLC and Ltds were included in this analysis.

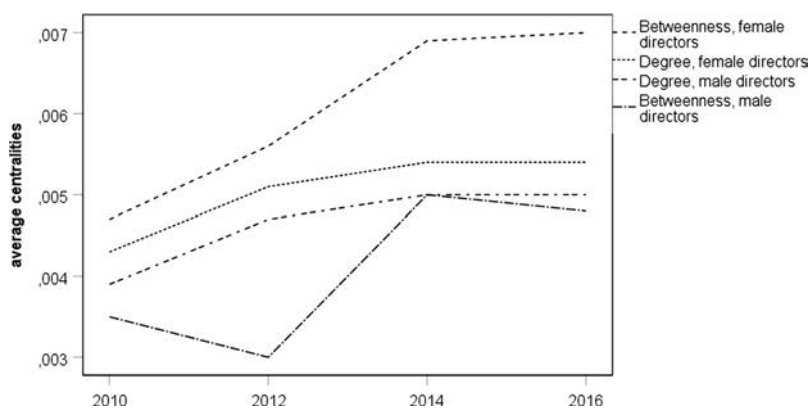


Figure 6. Average degree and betweenness in the overall PLC-Ltd network, female and male directors, 2010–2016.

Note: Figure 6 shows average centralities (degree and betweenness) for female and male directors in the main component of the combined PLC-Ltd network. The number of female directors varies between 486 in 2010 and 381 in 2014. The number of male directors varies between 966 in 2012 and 786 in 2014.

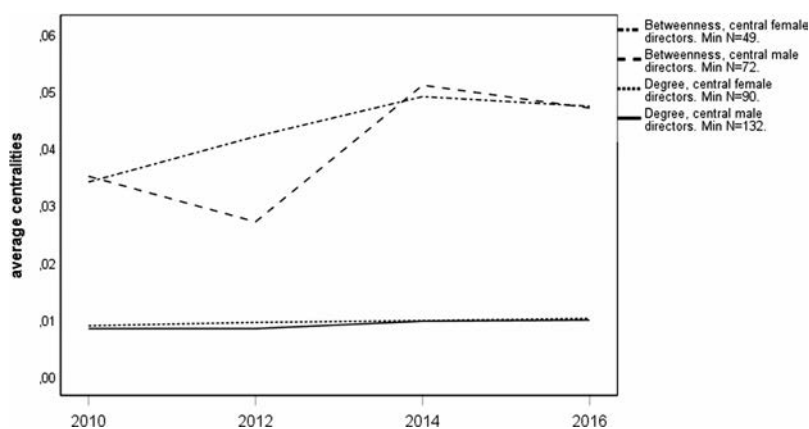


Figure 7. Average degree and betweenness in the overall PLC-Ltd network, central directors, 2010–2016.

Note: Figure 7 shows average degree and betweenness for female and male directors in the main component of the combined PLC-Ltd network. Only the most central decile of the directors is included.

of PLCs in the network, combined with the centrality of women in the PLC-network. However, this is different when focusing on the most central decile (Figure 7). In this subset of directors, male directors are marginally more central than female directors in both 2010 and 2014, according to the betweenness indicator. For some reason, the betweenness score of the central male directors

drops sharply in 2012, resulting in a lower score for men than women this year. This is perhaps due to the continuing effect of the full implementation of the law in 2008. The degree score is quite similar for men and women. An explanation is that while Ltds in general are marginal in these networks, some Ltds have ties to each other and to PLCs, and some of the Ltds are central in the overall network. Male directors have a majority of these ties. While not sufficient to alter the average centrality of directors such that male directors in general are more central than female directors, this has a larger impact when restricting the analysis to the most central directors. There is a higher proportion of male directors in this subset of central directors in the overall network, compared with the PLC network.

These nuances notwithstanding, female directors have high average centrality scores in the overall network. In other words, regulating the composition of PLC-boards is not solely effective regarding the centrality of women in the PLC-network; because of the importance of PLCs in the network of interlocking directors, it strongly influences the centrality of female directors in the overall network as well.

Discussion

It is hardly surprising that corporations comply with the law of gender quotas as of 2008. After all, they faced the most serious of sanctions if they did not, including being dissolved.¹⁰ Beyond this, however, there are effects of the law not explicitly intended. Thus, in this article, it is argued that it is crucial to consider the networks of interlocking directorates when analysing issues like the business elites, democracy, power, and gender, i.e. key issues in the debate leading up to the passing of the law (cf. Storvik & Teigen, 2010). One could even argue that if a large number of women had acquired one directorship each, the requirements of the law would have been met, but perhaps not the *spirit* of the law to its full extent, since female directors would then obtain only peripheral positions in the network of interlocking directorates.

The findings of this paper show that the first question above can be answered in the affirmative: Using two-mode measures of centrality, both degree and betweenness indicators show that women continue to be more central than men are. According to the eigenvector-measure, the proportion of women in the subset of central directors is almost as high as the overall proportion of women directors. It can be concluded that women keep their central position during the whole period investigated, lending support to the hypotheses of the importance of experience and social capital. When women obtained a central position in the network of interlocking directors, they gained

¹⁰ The importance of sanctions seems obvious, cf. Storvik and Teigen (2010).

relevant experience and many potentially useful contacts, which can explain why women keep their central positions.

Thus, female directors became central in the corporate elite (defined as directors with at least three directorships). However, while the elite seemed more important than ever in terms of size in the first years after the law was implemented, its size has diminished considerably during the period, partly reflecting the reduced number of PLCs. While women seem to keep their prominence in this select group of directors throughout the period investigated, the size of the group is reduced.

Regarding the second question, on the impact of the law on corporations not regulated, there seems to be no such effect. There is a small increase in the proportion of female directors in Ltds in general, but a marginal decrease in large Ltds. This lends support to the hypothesis on divergence: the composition of and recruitment to boards of Ltds are relatively independent of PLCs. Furthermore, there are few ties between PLCs and Ltds, and most of the directors in PLCs that hold directorships in Ltds have one such directorship only.

The analysis of the overall network, including both PLCs and Ltds, shows that PLCs dominate this network in terms of numbers and centrality. For this reason, female directors are central in the overall network as well.

Thus, from a network perspective, the law is successful in bringing women into key positions in business; it is successful beyond the legal requirements since the law does not directly regulate the network of interlocking directorates. However, both the fact that the law seem to have little effect beyond the legal form of corporation directly regulated by the law, and the fact that the proportion of women stays at the minimum level required by the law, may indicate possible limitations of the law in influencing the gender balance in business.

The law can be seen as narrow, in terms of which companies being regulated. Albeit very important, few Norwegian companies are PLCs, and the number has decreased substantially in recent years (cf. Table 1). As mentioned, some authors argue that the quota law caused this reduction, since corporations change legal status from PLC to Ltd to avoid it. Consequently, the law of gender quotas regulates a decreasing segment of business in Norway. Hence, the law gets progressively less effective in changing the gender balance in business in Norway. The finding that there is no effect on the proportion of women directors in Ltds, reinforces such a conclusion.

From a network perspective, however, the analysis in this article shows that the quota law is more effective than the number of PLCs alone indicate. Much of the «network action» among large corporations in Norway occurs among PLCs; the network among Ltds is sparse and fragmented. The central positions of female directors in the PLC-network ensure their central positions in the overall network as well. Thus, in terms of this network dynamic, PLCs seem to be

the right form of corporation to regulate. However, if the number of PLCs continues to drop, it is likely that at some point the effectiveness of the law will diminish.

Furthermore, findings in this article suggest that the male predominance in these networks has ended. This is arguably a crucial development since networks are important in recruiting directors, and because of the mechanism of social homophily causing the gender composition of the network (and boards) to be reproduced. However, although the findings in the article reveal important changes, there are several reasons why one should be careful in concluding that the male predominance has disappeared. First, the network of interlocking directors is of course only one of many networks among business leaders. This study does not say anything about other networks, for example informal networks. One should even consider the possibility that other types of networks have increased in importance, because of the mandatory regulation of board composition. Additionally, it has been suggested that this method of increasing the female proportion (i.e. external pressure) may lead to the gender division being replicated elsewhere, i.e. excluding female directors from serving on important subcommittees (Knippen et al., 2019). Furthermore, as this study shows, the male predominance of the networks among Ltds has not changed much. Finally, the fact that the proportion of women on board does not rise above the minimum requirement, is noteworthy. Female directors may have attained a strong presence in the boardrooms, but this has obviously not been sufficient to cause the proportion of female directors to increase beyond the regulatory minimum. It is the statutory requirement, not informal network mechanisms, that continues to be the determining factor of the proportion of female directors.

Conclusion

In conclusion, the Norwegian «success story» regarding female directors and gender equality in business is more complex than the proportion of female directors alone indicates. On the one hand, the quota law has been highly effective in increasing this proportion to the minimum level of 40%, but interestingly it remains at this level. The mandatory rule, in changing the gender composition of each board has also been highly effective in making female directors central in networks of interlocking directors, even more central than male directors, reversing earlier trends.

Two lessons can be drawn: First, that the network-effects of regulating the compositions of boards should be taken into account; arguably, interlocking networks are important in terms of establishing gender equality. This article shows that female directors are central in the network of interlocking directors among the regulated corporations in Norway, thus enhancing the effectiveness of the law.

Second, when comparing shares of female directors, it is imperative to take into account the number and type of corporations being regulated. A 40% share of women on boards could entail something different from similar figures in other nations, depending on which corporations are regulated. Moreover, the meaning of such a proportion is different in terms of reach in Norwegian business in 2016, compared with 2008. Furthermore, this article shows that much of the network action occurs among the regulated corporations, and that there are few connections between PLCs and Ltds. This suggests that the structure of the network could influence the effectiveness of the law. The lack of integration between the two types of corporations may be a causal factor for the lack of isomorphic force on the Ltds. Thus, when evaluating the effects of mandatory gender quotas on company boards, careful consideration must be given to the types of corporation covered by the law, and how these are embedded in the wider network of interlocking directorates.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

The data that support the findings of this study are available on request through USN Research Data Archive – at <https://doi.org/10.23642/usn.14114120.v1>.

Notes on contributor

Trond Løyning is an associate professor of sociology at University of South-Eastern Norway. He has published books and articles in the areas of economic sociology and social networks.

References

- Agneessens, F., & Everett, M. G. (2013). Introduction to the special issue on advances in two-mode social networks. *Social Networks*, 35(2), 145–147. <https://doi.org/10.1016/j.socnet.2013.03.002>
- Ahern, K. R., & Dittmar, A. K. (2012). The changing of the boards: The impact on firm valuation of mandated female board representation. *The Quarterly Journal of Economics*, 127(1), 137–197. <https://doi.org/10.1093/qje/qjr049>
- Beckert, J. (2010). Institutional isomorphism revisited: Convergence and divergence in institutional change. *Sociological Theory*, 28(2), 150–166. <https://doi.org/10.1111/j.1467-9558.2010.01369.x>
- Bohman, L., Bygren, M., & Edling, C. (2012). Surge under threat: The rapid increase of women on Swedish boards of directors. In: C. Fagan, M.C. González Menéndez, S. Gómez Ansón (Eds.), *Women on Corporate Boards and in Top Management. Work and Welfare in Europe* (pp. 91–108). Palgrave Macmillan, London.
- Borgatti, S. P., & Everett, M. G. (1997). Network analysis of 2-mode data. *Social Networks*, 19(3), 243–269. [https://doi.org/10.1016/S0378-8733\(96\)00301-2](https://doi.org/10.1016/S0378-8733(96)00301-2)

- Bøhren, Ø., & Staubo, S. (2014). Does mandatory gender balance work? Changing organizational form to avoid board upheaval. *Journal of Corporate Finance*, 28, 152–168. <https://doi.org/10.1016/j.jcorpfin.2013.12.005>
- Burris, V. (2005). Interlocking directorates and political cohesion among corporate elites. *American Journal of Sociology*, 111(1), 249–283. <https://doi.org/10.1086/428817>
- Burris, V., & Staples, C. L. (2012). In search of a transnational capitalist class: Alternative methods for comparing director interlocks within and between nations and regions. *International Journal of Comparative Sociology*, 53(4), 323–342. <https://doi.org/10.1177/0020715212460256>
- Carroll, W. K. (2009). Transnationalists and national networkers in the global corporate elite. *Global Networks*, 9(3), 289–314. <https://doi.org/10.1111/j.1471-0374.2008.00255.x>
- Catalyst. (2017). *Pyramid: Women in S&P 500 companies*. March 1.
- Cook, A., & Glass, C. (2014). Above the glass ceiling: When are women and racial/ethnic minorities promoted to CEO? *Strategic Management Journal*, 35(7), 1080–1089. <https://doi.org/10.1002/smj.2161> doi:10.1002/smj.2161
- Dale-Olsen, H., Schøne, P., & Verner, M. (2012). Women on boards of directors and firm performance: Evidence from Denmark and Norway. In F. Engelstad & M. Teigen (Eds.), *Firms, boards and gender quotas: Comparative perspectives* (pp. 211–234). Bingley.
- Davis, G. F. (1991). Agents without principles? The spread of the poison pill through the intercorporate network. *Administrative Science Quarterly*, 36(4), 583–613. <https://doi.org/10.2307/2393275>
- d'Hoop-Azar, A., Martens, K., Papolis, P., & Sancho, E. (2017). Gender parity on boards around the world. <https://corpgov.law.harvard.edu/2017/01/05/gender-parity-on-boards-around-the-world/>, 24. nov., 2017.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160. <https://doi.org/10.2307/2095101>
- Dobbin, F., & Jung, J. (2011). Corporate board gender diversity and stock performance: The competence gap or institutional investor bias? *North Carolina Law Review*, 89(3), 809–838.
- Eckbo, E. B., Nygaard, K., & Thorburn, K. S. (2020). *Valuation effects of Norway's board gender-quota law revisited*. ECGI Working Paper Series in Finance. Working Paper N° 463/2016, European Corporate Governance Institute.
- Edling, C., Hobdari, B., Randoy, T., Stafsudd, A., & Thomsen, S. (2012). Testing the “old boys” network: Diversity and board interlocks in scandinavia. In B. Kogut (Ed.), *The Small Worlds of Corporate governance* (pp. 183–202). The MIT Press.
- Elliott, J. R., & Smith, R. A. (2004). Race, gender, and workplace power. *American Sociological Review*, 69(3), 365–386. <https://doi.org/10.1177/000312240406900303>
- Engelstad, F. (2012). Limits to state intervention into the private sector economy: Aspects of property rights in social democratic societies. In F. Engelstad & M. Teigen (Eds.), *Firms, boards and gender quotas: Comparative perspectives* (pp. 235–265). Bingley.
- Ferreira, D. (2010). Board diversity. In H. K. Baker & R. Anderson (Eds.), *Corporate governance: A synthesis of theory, research, and practice* (pp. 225–242). Wiley.
- Freeman, L. C. (1978). Centrality in social networks conceptual clarification. *Social Networks*, 1(3), 215–239. [https://doi.org/10.1016/0378-8733\(78\)90021-7](https://doi.org/10.1016/0378-8733(78)90021-7)
- Gabrielsen, T. S., Hjelmeng, E., & Sorgard, L. (2011). Rethinking minority share ownership and interlocking directorships – The scope for competition law intervention. *European Law Review*, 36(6), 837–859.

- Heemskerk, E. M. (2013). The rise of the European corporate elite: Evidence from the network of interlocking directorates in 2005 and 2010. *Economy and Society*, 42(1), 74–101. <https://doi.org/10.1080/03085147.2012.686720>
- Heemskerk, E. M., & Fennema, M. (2014). Women on board: Female board membership as a form of elite democratization. *Enterprise & Society*, 15(02), 252–284. <https://doi.org/10.1093/es/kht136> doi:10.1093/es/kht136
- Heidenreich, V. (2010). Rekruttering til ASA-styrer etter innføring av kvoteringsregelen. *Magma*, 13(7).
- Heidenreich, V., & Storvik, A. E. (2010). *Rekrutteringsmønstre, erfaringer og holdninger til styrearbeid blant ASA-selskapenes styrerepresentanter*. Institutt for samfunnsforskning.
- Hetland, A. (2008). Betydningen av kjønn og nettverk ved styrerekruttering. *Søkelys på Arbeidslivet*, 25(3), 343–353.
- Hillman, A. J., Shropshire, C., & Cannella Jr, A. A. (2007). Organizational predictors of women on corporate boards. *Academy of Management Journal*, 50(4), 941–952. <https://doi.org/10.5465/AMJ.2007.26279222>
- Huse, M., & Søland, A. I. (2009). *Styreledelse: Styret som team og prosessorientert styrearbeid*. Fagbokforlaget.
- Inglay, C., & Karoui, L. (2010). Corporate governance and the smaller firm. In A. Tourani-Rad & C. Ingley (Eds.), *Handbook on emerging issues in corporate governance* (pp. 129–154). World Scientific.
- Kirsch, A. (2018). The gender composition of corporate boards: A review and research agenda. *The Leadership Quarterly*, 29(2), 346–364. <https://doi.org/10.1016/j.leaqua.2017.06.001>
- Knippen, J. M., Shen, W., & Zhu, Q. (2019). Limited progress? The effect of external pressure for board gender diversity on the increase of female directors. *Strategic Management Journal*, 40(7), 1123–1150. <https://doi.org/10.1002/smj.3014>
- Kogut, B., Colomer, J., & Belinky, M. (2014). Structural equality at the top of the corporation: Mandated quotas for women directors. *Strategic Management Journal*, 35(6), 891–902. <https://doi.org/10.1002/smj.2123>
- Krawiec, K. D., Conley, J. M., & Broome, L. L. (2013). The danger of difference: Tensions in directors' views of corporate board diversity. *University of Illinois Law Review*, 2013(3), 919–958.
- Lépinard, É, & Rubio-Marín, R. (2018). *Transforming gender citizenship: The irresistible rise of gender quotas in Europe*. Cambridge University Press.
- Løyning, T. (2011). Kjønnskvotering, kvinner og styrenettverk. *Tidsskrift for Kjønnsforskning*, 35(3), 180–198.
- Løyning, T. (2014). Kjønnskvotering, styrekarrierer og makt. *Søkelys på Arbeidslivet*, 31(4), 329–350.
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27(1), 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Mensi-Klarbach, H., & Seierstad, C. (2020). Gender quotas on corporate boards: Similarities and differences in quota scenarios. *European Management Review*, 17(3), 615–631. <https://doi.org/10.1111/emre.12374>
- Mizruchi, M. S. (1994). Social network analysis: Recent achievements and current controversies. *Acta Sociologica*, 37(4), 329–343. <https://doi.org/10.1177/000169939403700403>

- Mizuruchi, M. S., & Davis, G. F. (2004). The globalization of American banking, 1962 to 1981. In F. Dobbin (Ed.), *The sociology of the economy* (pp. 95–126). Russell Sage Foundation.
- Moss Kanter, R. (1977). *Men and women of the corporation*. Basic Books.
- Nielsen, S., & Huse, M. (2010). The contribution of women on boards of directors: Going beyond the surface. *Corporate Governance: An International Review*, 18(2), 136–148. <https://doi.org/10.1111/j.1467-8683.2010.00784.x>
- Opsahl, T. (2013). Triadic closure in two-mode networks: Redefining the global and local clustering coefficients. *Social Networks*, 35(2), 159–167. <https://doi.org/10.1016/j.socnet.2011.07.001>
- Schäfer, A., Tucci, I., & Gottschall, K. (2012). Top down or bottom up? A cross-national study of vertical sex segregation in 12 European countries. In F. Engelstad, & M. Teigen (Eds.), *Firms, boards and gender quotas: Comparative perspectives* (pp. 3–43). Bingley.
- Sealy, R., Doldor, E., & Vinnicombe, S. (2016). *Women on Boards: Taking Stock at Where We Are. The Female FTSE Board Report 2016*: Cranfield University, School of management.
- Seierstad, C. (2016). Beyond the business case: The need for both utility and justice rationales for increasing the share of women on boards. *Corporate Governance: An International Review*, 24(4), 390–405. <https://doi.org/10.1111/corg.12117>
- Seierstad, C., & Opsahl, T. (2011). For the few not the many? The effects of affirmative action on presence, prominence, and social capital of women directors in Norway. *Scandinavian Journal of Management*, 27(1), 44–54. <https://doi.org/10.1016/j.scaman.2010.10.002>
- Seierstad, C., Tatli, A., Aldossari, M., & Huse, M. (2020). Broadening of the field of corporate boards and legitimate capitals: An investigation into the use of gender quotas in corporate boards in Norway. *Work, Employment and Society*, 095001701989283. <https://doi.org/10.1177/0950017019892835>
- Statistics Norway. (2016). *Styre og leiing i aksjeselskap, 1. januar 2016*. <https://www.ssb.no/virksomheter-foretak-og-regnskap/statistikker/styre/aar/2016-03-11>
- Stokman, F. N., Ziegler, R., & Scott, J. (1985). *Networks of corporate power: A comparative analysis of ten countries*. Polity Press.
- Storvik, A. E. (2010). Ikke nok kompetente kvinner? – Kvoteringsreformens konsekvenser for styrearbeid. *Søkelys på Arbeidslivet*, 27(4), 291–309.
- Storvik, A. E., & Teigen, M. (2010). *Women on board. The Norwegian experience*. Friedrich-Ebert-Stiftung.
- Szydło, M. (2015). Gender equality on the boards of EU companies: Between economic efficiency, fundamental rights and democratic legitimisation of economic governance. *European Law Journal*, 21(1), 97–115. <https://doi.org/10.1111/eulj.12074>
- Teigen, M. (2012). Gender quotas on corporate boards: On the diffusion of a distinct national reform. In F. Engelstad & M. Teigen (Eds.), *Firms, boards and gender quotas: Comparative perspectives* (pp. 115–146). Bingley.
- Terjesen, S., Aguilera, R. V., & Lorenz, R. (2015). Legislating a woman's seat on the board: Institutional factors driving gender quotas for boards of directors. *Journal of Business Ethics*, 128(2), 233–251. <https://doi.org/10.1007/s10551-014-2083-1>
- Tricker, B. (2012). *Corporate governance: Principles, policies and practices* (2nd ed). Oxford University Press.
- Useem, M. (1984). *The inner circle: Large corporations and the rise of business political activity in the U.S. and U.K.* Oxford University Press.

- Voordeckers, W., Van Gils, A., & Van den Heuvel, J. (2007). Board composition in small and medium-sized family firms*. *Journal of Small Business Management*, 45(1), 137–156. <https://doi.org/10.1111/j.1540-627X.2007.00204.x>
- Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications*. Cambridge University Press.
- Windolf, P. (2002). *Corporate networks in Europe and the United States*. Oxford University Press.