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Board dynamics and board tasks empowered by women on boards: evidence from Italy

Board
dynamics and
board tasks

Agnieszka Slomka-Golebiowska

*Department of International Comparative Studies, SGH Warsaw School of Economics,
Warsaw, Poland, and*

Sara De Masi and Andrea Paci

Department of Economics and Management, University of Florence, Florence, Italy

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Abstract

Purpose – This study aims to examine the effects of board dynamics produced by reaching a certain proportion of women on board tasks (monitoring, strategy and advisory).

Design/methodology/approach – Using a panel of 35 listed companies belonging to FTSE-MIB index, for the years 2008–2015, the hypotheses can be tested by applying random effect regressions. The introduction of gender board quota law in Italy has created a quasi-natural experiment that is applied in the study.

Findings – This research provides evidence that reaching 33% women on boards, which is the threshold mandated by the Italian gender board quota law, makes a difference for strategy tasks but not for monitoring tasks. This proportion of women on boards creates the board dynamics necessary to empower all board members, allowing the varied knowledge, skills, backgrounds and personal qualities to be leveraged and used in strategy tasks. For monitoring tasks, obtaining a proportion of 20% women on boards, as a first threshold enforced by the law, is enough to voice their opinion during board meetings and challenge management.

Originality/value – The results show that each set of board tasks requires different dynamics triggered by a specific proportion between a minority (women) and a dominant subgroup (men). To enhance monitoring tasks performance, it is enough to reach a proportion between men and women which makes the women less isolated and more inclined to speak up during the board meetings. In the case of strategy tasks, the improved performance is achieved when the dominant group enticed to hear women's opinions and responsive to various perspectives. This paper expands the debates going beyond monitoring tasks, showing the importance of board dynamics for engagement in strategy and advisory tasks.

Keywords Corporate governance, Women on boards, Board dynamics, Board tasks, Theory of proportion, Board of directors

Paper type Research paper

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1. Introduction

For many years, researchers have emphasized that boards should engage more in strategy and advisory tasks and balance them with their conventional set of tasks: monitoring (Hendry *et al.*, 2010). In an effort to better understand board task performance, the literature has advocated exploring board dynamics and behaviour as an intermediate step (Pye and Pettigrew, 2005; Pugliese *et al.*, 2014; Åberg *et al.*, 2019). The behavioural perspective has been used to study board dynamics and has gained recognition in management and organizational studies. The emerging stream of research on board dynamics has applied theories from other fields, such as social dynamics (Westphal, 1999), power theories (Hambrick *et al.*, 2015) and social categorization (Hillman *et al.*, 2008). These theories contribute by expanding and refining our understanding of board dynamics that are impacted directly by individual and often demographic characteristics; indirectly by demographic characteristics operating through board processes; and directly and independently through additional board processes (Forbes and Milliken, 1999; Pye and Pettigrew, 2005).

The purpose of this study is to examine the effects of board dynamics on three sets of board tasks: monitoring, strategy and advisory. Our research approach offers an analysis of board tasks and group dynamics determined indirectly by demographic characteristics operating through board processes. We use an application of the theory of proportions to test the effects of group dynamics in boards produced by reaching certain proportion of women on board task performance. A board is seen as a group consisting of varying proportions between men and women that generate specific interactions and behaviour, impacting board tasks. A quantitative analysis is used to provide precise documentation of the proportions of women on boards at which interaction in the boardroom shifts. These specific proportions of women on boards are called tipping points. Exact tipping points should be investigated along with how they influence the board behaviour inside and outside the boardroom. When a tipping point is reached, the minority can affect the dynamics of the group, its culture and its behaviour. Not only does the minority group begin to become individually differentiated, but its presence also changes the behaviour of the dominant group. We go beyond the concept of the critical mass (Gong *et al.*, 2021; Dobija *et al.*, 2021; Torchia *et al.*, 2011) by showing that different board tasks requires different board dynamics triggered by different proportion of men and women.

In exploring the case of the Italian gender board quota regulation, we use a quasi-natural experiment of two proportional representation of women on boards, 20% and 33%, which were enforced by the regulation. Several governments across Europe have introduced hard laws adopting quotas to increase the number of women on corporate boards (Seierstad *et al.*, 2017). Italy was one of the European countries that introduced gender board quota early on. The regulation setting thresholds of the percentage of women on boards makes Italian context particularly interesting. Starting from very low female board representation, Italian public companies reached in 2015 one of the highest proportion of women on boards in Europe (European Commission, 2018). Italy enacted for listed companies the gender quota law in 2011 that was binding since 2012. Before 2012, the majority of listed companies had no women directors. Since 2012, every listed company had to reach the intermediate threshold of 20% of female directors on the board for the first post-law board term and then 33% for subsequent board terms. The law has been effectively enforced, as the sanctions for noncompliance are severe, and all listed companies complied with this new board requirement. Reaching at least 33% of women on boards has been seen as the main political argument in favour of introducing gender-based quota regulations on boards (Seierstad *et al.*, 2017). This increase in the number of

women on boards gives us a perfect context to test the effect of the mandated thresholds of women on three sets of board tasks.

We distinguish between the following sets of board tasks (Minichilli *et al.*, 2012) that take place inside the boardroom: strategy tasks and monitoring tasks as well as the set of board tasks that are performed outside the boardroom: advisory tasks. We find that 33% women on boards makes a difference for strategy tasks but not for monitoring tasks. Our results also show a significant positive association between the proportion of 20% women on boards and monitoring tasks. Reaching the proportion 20% commonly translates into group dynamics where women would be capable of voicing their opinions, sharing their views during board meetings and challenging management, thus having a positive influence on monitoring tasks. Additionally, we provide evidence of specific tipping points of women on boards to be reached to create the board dynamics necessary to empower boards in strategy and monitoring tasks that are supportive for the regulatory quota not lower than 33%.

Our contributions are threefold. First, we offer and empirically test an application of the theory of proportions to gender diversity on board dynamics and board task performance. We add to the understanding of board dynamics inside the boardroom for performing different sets of tasks: strategy and monitoring (Pye and Pettigrew, 2005; Hoppmann *et al.*, 2018; Yar Hamidi and Machold, 2020). Second, our research contributes to studies on variations in sets of board tasks and their antecedents (Hendry *et al.*, 2010; Minichilli *et al.*, 2012; Bailey and Peck, 2013; Machold and Farquhar, 2013; Concannon and Nordberg, 2018; Åberg *et al.*, 2019). Third, we give insights to discussions about the business case of women on boards. As suggested in the literature, the discussion on gender diversity should move toward how an increase in women on boards affects board task performance. Thus, we expand the very limited understanding of the effect of gender quotas on board dynamics.

2. Theoretical background and hypotheses

2.1 Board dynamics and varying proportions of women on boards

Despite the call in the management literature (Hendry *et al.*, 2010; Concannon and Nordberg, 2018) to focus on board dynamics that determine how boards perform their strategy tasks and add value, board dynamics remain largely underresearched and poorly theorized. For this research agenda, the turning point has involved theorizing that board task performance depends on social–psychological processes that occur within the boardroom. There is a need to expand and refine our understanding of board dynamics and usher in a new era of research that considers a board as involving a classic group process where the dynamics of different people working together add value. However, limited access to data to board behaviour does not permit a direct examination of the effects of board dynamics on board tasks. To overcome this issue, we apply the theory of proportions. The theory of proportion builds on the seminal work of Rosabeth M. Kanter (1977). She argues that groups consisting of varying proportions of two social types produce certain patterns of group interactions. Numerical proportion, that is, the relative numbers of socially and culturally different people in a group, shapes interaction dynamics. Specifically, Kanter focuses on the effects of a dominant subgroup on a minority subgroup. Using the case of women in the upper levels of organizations, she discusses how the relative numbers interfere with how men or women can usually behave. She identifies four groups according to the different proportional representations between a minority and a dominant subgroup. First, uniform group – 100:0 – has only one kind of person, one significant social type. Second group is skewed group that is formed when the proportion falls into 85:15. It means that a minority might reach up to 15% (called tokens). In the skewed group, the numerical dominant social type still controls the group and its culture. Next, tilted group, with proportion of 65:35 allows to move toward a less

extreme categorization between a minority and a dominant subgroup. Finally, at about 60:40 and down to 50:50 is the balanced group where a majority and a minority subgroup might not generate actual type-based identifications. Kanter (1977) predicts that any minority group should start to be visible somewhere in the tilted group as tokenism disappears and minority members can ally to influence the group's culture. She did not empirically test her theory nor discuss whether at the proposed proportions group dynamics shifts in any context. Furthermore, Kanter (1977) did not indicate any number or proportion of minority members that would constitute an effective critical mass in the board context. Hence, other scholars looked at the conditions under which the minority becomes visible and able to impact the dominant subgroup. They identified the minimum absolute number from a minority subgroup that is necessary to reach to make the minority not marginalized, but valued in the boardroom (Konrad *et al.*, 2008; Torchia *et al.*, 2011). Testing the case of having one person, two persons and three persons, they show that reaching upon at least three persons within a minority subgroup (called the critical mass) changes the working style of the group, making the minority more comfortable, reducing the sense of isolation within the group.

Our study investigates specific proportions of a minority and a dominant subgroup that trigger shifts in board dynamics. When a specific tipping point is reached, a minority subgroup can affect the board dynamics, its culture and its behaviour. Not only a minority group begins to become individually differentiated, but its presence also changes the behaviour of a dominant subgroup. We argue that not a single tipping point is universally applied to shift board dynamics necessary to enhance the performance of all board tasks. Different proportions are required to use various skills, specific knowledge and attitude within the boardroom depending on sets of board tasks. Various sets of board tasks require different board dynamics.

In search for those proportions, we use the context of an increasing number of women on boards because of board gender quota laws applied in most European Union (EU) countries given women's persistent underrepresentation in the past. Proportions of women in predominantly male-dominated boards are relevant to group processes and to male-female interactions (Hamdan *et al.*, 2021). Thus, using the theory of proportions in the context of an increased number of women on boards – enforced by the gender board quota law – enables the study of board dynamics and direct research processes rather than those used via proxies, as stressed in the literature (Pye and Pettigrew, 2005). To our knowledge, the theory of proportions has never been used to examine board dynamics. Most studies on women on boards focus on individuals in groups and how an individual is affected by being part of a group as a token or as part of a minority or majority. We focus on the question of how reaching different proportions of women affects various sets of board tasks.

2.2 Effects of board dynamics on board tasks

Boards are described by Forbes and Milliken (1999) as “large, elite, decision-making groups that face complex tasks.” Unlike other types of groups, boards meet relatively episodically and yet have considerable power, and their decision-making is considered vital to their organizations. Although many board activities take place behind closed doors, there is a tendency to perform increasingly more board activities outside the boardroom.

Different sets of board tasks can be identified and grouped as internal, performed during board meetings or external, performed outside the boardroom. Zahra and Pearce (1989) provide a taxonomy of various sets of board tasks. The early studies focused mainly on board monitoring tasks. In addition to these tasks, these works also identify firm strategy tasks, demonstrating that a board also engages in developing and selecting creative ideas for a firm's growth. The aforementioned taxonomies also include service or advisory tasks.

These tasks are of varying nature (Machold and Farquhar, 2013). However, as a common characteristic, they usually take place outside the boardroom in contrast to monitoring and strategy tasks. Various board tasks require different individual board members' involvement inside and outside of the boardroom and thus may entail different board dynamics. Although a board consists of defined groups of individuals with unique skills and backgrounds along with their own personal interests and agendas, they must work together interdependently to achieve common goals. Thus, board dynamics are critical for the performance of board tasks.

Monitoring tasks require individual attentiveness during board meetings. Inside the boardroom, directors are expected to show their attentiveness by expressing their opinions, making comments and questioning management decisions. Female board members, when highly underrepresented, may feel under pressure and maintain a low profile. As their numbers increase to a certain tipping point, this pressure begins to lessen, and women feel more accepted in their board roles. They may also view other female peers as allies who will support their comments or questioning of management decisions. Women will also feel more comfortable asking diligent and interrogative questions to the members of the management team. Studies confirm that women on boards are more motivated to fulfil their board duties (Konrad *et al.*, 2008). They ask questions more freely than men, and they promote decisions that are based on research and data (Ben-Amar *et al.*, 2017). More importantly, they are more likely to question the conventional wisdom, raise critical perspective or challenge managerial decisions. Men then tend to alter their board routines and follow women's strategies inside the boardroom. Empirical studies document that the higher women representation on boards, the more likely boards are to become engaged in constant professionalization (Singh and Vinnicombe, 2004). Building on the theory of proportions, we hypothesize the following:

- H1.* Upon reaching proportion of 20%, women shift board dynamics, voice their opinions or challenge management, improving board monitoring tasks.

Strategy tasks are performed when a board engages in long-term discussions and decision-making on how the firm should compete in the marketplace, controlling its implementation (McNulty and Pettigrew, 1999; Hendry *et al.*, 2010). The value added by these discussions within the boardroom depends on the utilization of board members' knowledge and expertise shaped by a diversity of skills, experience and backgrounds. The collective knowledge tapped from each individual board member may determine the performance of strategy tasks. Individual board members do not possess all the relevant knowledge and information needed from a board. Therefore, working as a group has a stronger impact on board task performance than the efforts of individual board members.

Because decisions about strategy are influenced by the knowledge and expertise of board members (Rindova, 1999; Hamdan, 2018), women's contributions to strategy-related decisions seem relevant. Being outside the dominant group, women may give an original approach to the strategic decision-making process. Research shows that women's presence on boards can lead to better decisions, as they provide unique perspectives on strategic issues (Westphal and Milton, 2000) that are not obscured by group thinking (Harrison *et al.*, 1998; Buallay *et al.*, 2022). Furthermore, they can help other board members and they are more likely to consider a wider range of potential solutions (Nemeth, 1986). Women engage easily in debate despite differences in viewpoints and thus invigorate discussions in the boardroom (Pearce and Zahra, 1991). Boards with women thus adopt a broader perspective when making strategic decisions. In feeling strongly about their viewpoints, women on boards become engaged not only in processes related to strategy development but also in the strategy implementation.

Studies show that women on boards can change or expand the criteria used to evaluate strategic alternatives and scenarios (Hitt and Tyler, 1991). Boards with women identify criteria for measuring strategies, monitoring and implementation more often than all-male boards (Nielsen and Huse, 2010).

These findings are in line with the theory of proportions, which states that minorities consider the overall diversity of a group when choosing a strategy for involvement in group tasks. We used the threshold identified by the gender quota law in Italy that mandates 33% of women on boards. The main idea was based on the reasoning that once 33% female representation on boards is reached, women, as a minority group, no longer suffer any more from being isolated or from a loss of identity, which inspires more engagement from them as well as confidence that they can shape group behaviour. Women on boards feel more comfortable contesting ideas raised during strategic discussions and feel empowered to present their own points of view and to persistently stand up for their own ideas until implementation. With diversified and multiple viewpoints, boards better perform their strategy tasks, and thus, we hypothesize the following:

H2. Upon reaching proportion 33%, women present openly their various perspectives, making boards engaged in debates and improving board strategy tasks.

The third set of board tasks refers to advisory tasks, which include all tasks that active boards perform in addition to sets of monitoring and strategy tasks and which involve serving as a sounding board for management decisions and providing advice and counselling for top management. A condition needed to fulfil board advisory tasks is the presence of specific knowledge and skills (Forbes and Milliken, 1999). Each board member possesses different competencies, abilities, personal traits and qualities, experiences, reputations and professional networks (Khanna *et al.*, 2014). It is possible to tap into the collective knowledge of a board. On the contrary, a management team's search for advice usually calls for very specific knowledge with a limited timeframe to acquire it. Thus, knowledge from different board members is obtained without waiting for a board meeting by taking initiative outside the boardroom. Advisory tasks usually take place outside the boardroom as they do not require group efforts but rather individual efforts. Given that women have limited established networks and are perceived as having less specific business expertise and experience, they are not likely to be asked for advice from management on an individual basis. Thus, we hypothesize the following:

H3. Reaching certain proportions of women on boards does not improve board advisory tasks.

Figure 1 summarizes and graphically shows our hypotheses.

3. Methodology

3.1 Data and sample

Our sample consists of a panel of 35 companies listed in the FTSE-MIB index in Italy and includes 238 years observations for 2008 to 2015. The firms in the sample accounts for 80% of domestic market capitalization. The choice of the sample and the time is crucial to test our research question. In 2011, Italy enacted a law requiring public- and state-owned companies to have a certain percentage of female board directors. The law was binding as of 2012. In the first board term following the enforcement of the law, boards were required to reach 20% intermediate female representation on boards. In the subsequent board term, 33% of

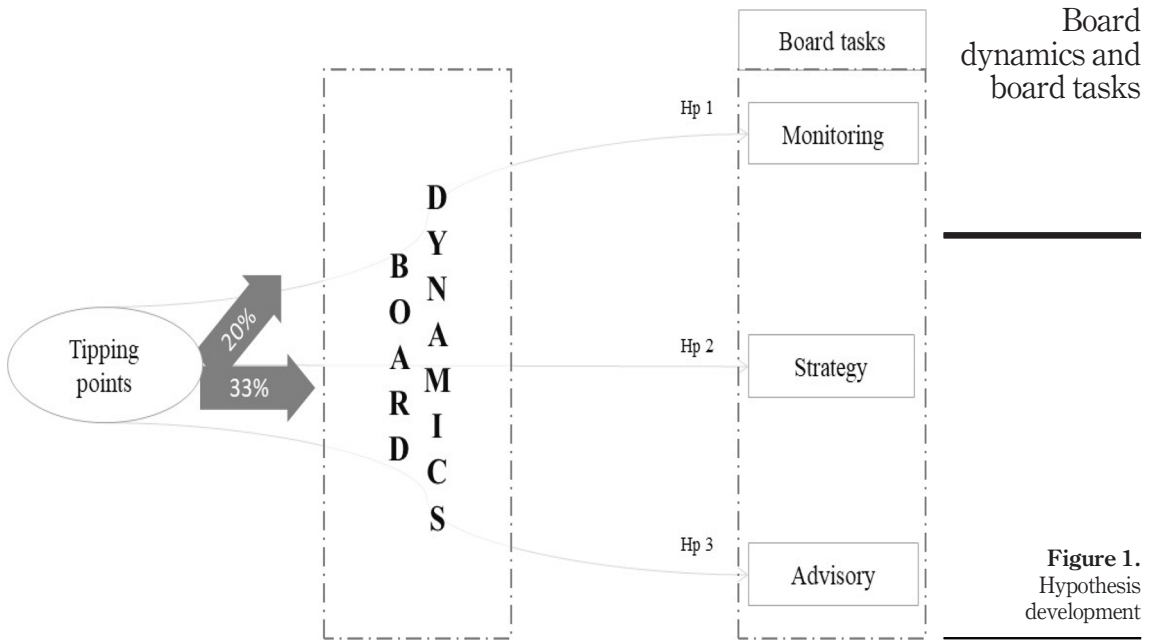


Figure 1.
Hypothesis development

board seats needed to be held by women. The law is well enforced with a wide range of sanctions such as warnings, fines and board member dismissal [1].

The current scarcity of research on board behaviour and tasks results not only from theoretical ambiguity but also from difficulties of obtaining data on board tasks. Existing empirical studies on board dynamics measured by proxied board processes are limited, as data are difficult to obtain (Zattoni and Pugliese, 2020). All prior research has been based on primary data most often reliant on a single organizational respondent, typically a chief executive officer (CEO) (Pearce and Zahra, 1991; Nielsen and Huse, 2010; Torchia *et al.*, 2011). We use secondary data to capture board dynamics without the necessity of gathering direct evidence on board processes. Data are collected from two main sources: the Thomson Reuters – Datastream ASSET4 ESG database and Thomson Datastream Advance database sourced from companies’ annual reports on corporate governance, financial statements or other publicly available documents related to companies’ corporate governance. The measures of board tasks are based on detailed textual information about each firm regarding corporate board policies guiding the behaviour of its members and descriptions of routines and then transform these data into scores, generating contextualized data on board behaviour (Kirsch, 2017). Scores are calculated by equally weighting and z-scoring all underlying data points and comparing them against all companies in the dataset.

3.2 Variable description and econometric model

We test the effects of board dynamics produced by reaching a certain proportional representation of women on boards, on sets of board tasks using panel data models. Those specific proportions indicating shifts in board dynamics affect board tasks. We verify the specific proportions of women on boards for the firm j . The general specification of the model takes the following form:

$$\text{BOARD TASKS}_{jt} = \alpha + \beta \text{ PROPORTION POINT}_{jt} + X_{jt} + \varepsilon_{jt}$$

where α is the constant, β is the coefficient, ε is the residual term and $t = 2005, 2006, \dots, 2015$. BOARD TASKS_{jt} is a dependent variable measuring a set of board tasks at the firm level: monitoring; strategy; and advisory. PROPORTION POINT is an independent variable, X_{jt} is a vector of firm-level control variables, ε_{jt} is an error term and indices j and t define the firm and time dimensions, respectively.

The set of monitoring tasks is proxied for board commitment toward the monitoring of management through the application of legal rules and best practices of corporate governance principles. This includes a set of items that assesses whether:

- the board has a policy that ensures effective monitoring and how the policy is implemented;
- the board has internal information tools for the monitoring of top management and CEO personnel;
- the board exercises monitoring tasks through the establishment of board committees; and
- the board has financial experts within its auditing committee, the percentage of independent directors on board committees, the number of board meetings held and average board attendance (De Masi *et al.*, 2021).

According to Zattoni (2020), strategy tasks include defining corporate mission and vision, the analysis, the approval and the evaluation of strategic plans. The strategy tasks are proxied by the score that measures the board's capacity for defining a mission and a vision, creating, communicating and monitoring the strategy of the company. This score covers a set of Datastream items that assess whether:

- the board has a policy for maintaining an overarching vision and strategy that integrates financial and extra-financial aspects of its business into its day-to-day decision-making processes;
- the board describes the implementation of its strategy through a public commitment;
- the board monitors its strategy through ratings or an external committee; and
- the board reports the challenges or the opportunities linked to the strategy.

Advisory tasks are evaluated by a Datastream score as a measure of the board's capacity to perform advising by leveraging the board members' various experiences. It includes a set of items that assess whether:

- the board has a policy for maintaining a well-balanced membership of the board, in terms of cultural, experience, knowledge and gender diversity;
- the board has the internal tools to develop and implement the abovementioned policy; and
- the board monitors and periodically assess the competences and the experiences of its board members.

PROPORTION POINT is a set of dummy variables indicating the proportion of women on boards required to change board dynamics for a specific set of board tasks. Those proportions come from the Italian gender board quota regulation: 20% and 33%. Women on

boards is a dummy that assumes a value of 1 if proportion of women on boards is equal to or greater than the proportion set in gender board quota regulation and 0 otherwise.

We include control variables related to board characteristics that affect the capacity for board members to complete their tasks (Minichilli *et al.*, 2009). These include INDEPENDENT DIRECTORS, which is measured as the percentage of independent directors reported by the company. CEO DUALITY is a dummy variable that is equal to 1 if the CEO is also the chairman and 0 otherwise. BOARD SIZE is calculated as the number of members on the board. As a proxy of firm size, we use the logarithmic transformation of total assets. All variables are defined in Table 1. For our estimation method, we use panel data, which controls for omitted variable bias and unobservable heterogeneity (Verbeek, 2008). We perform a Durbin and Wu–Hausman test (Durbin, 1954; Wu, 1973; Hausman, 1978) to identify the most appropriate method of estimation. Those tests suggest using random effects method as the estimation method. To have more robust results, standard errors are clustered at the firm level.

3.3 Analysis and results

Table 2 presents descriptive statistics. The mean values of the scores for the variables representing the sets of monitoring, strategy and advisory tasks amount to 60.14, 68.98 and 37.76, respectively. All three measures of board tasks are valued by scores that range from 0 to 100 (Datastream, 2017). A high score indicates a high level of board task engagement. In terms of industries, 35% of the companies are banks, 25% are manufacturing firms, 15% are public utilities, 12% are high-tech firms and 12% of the firms belong to the service sector.

Regarding the control variables, the average board size has approximately 12 members, and board independence applies to over 55% of board directors, showing that in most of the largest listed companies, most directors are independent. CEO duality occurs in 19% of the companies.

The average proportion of women on boards in our sample is 13% (mean value). Over the investigated period of 2008–2015, the minimum representation of women on boards falls to zero, and the maximum representation reaches 50%. The introduction of the gender quota law in Italy in 2012 changed board compositions, increasing the proportion of women on boards while decreasing the proportion of men. For this reason, we also provide descriptive statistics by year (Table 3). In 2005, the average proportion of women on boards was 3.25%, and in 2017, it was 26.50%. The descriptive statistics by year indicates that in 2005, 25% of the companies reached the first proportion required by the law (i.e. 20% women on boards) and 22% of the companies reached the second proportion required by the law (i.e. 33% women on boards). After the introduction of the board gender quota law, the average percentage of companies with at least 20% women on boards increases moving from 38% in 2012 to 92% in 2015. The average percentage of companies with at least 33% women on boards is 23% in 2012 and 38% in 2015.

Appendix 1 reports the correlations of all the variables. Intercorrelations among the variables are generally low. In some cases (such as women on board dummies), correlations are moderately high, but because these dummies are used separately in the regressions, multicollinearity is not an issue here. To further investigate the possibility of multicollinearity, we list variance inflation factor (VIF) tests in Appendix 2. The tests suggest that multicollinearity does not affect the results because no variable has a VIF of greater than 10, and the tolerance $1/VF$ is below 0.2.

The regression results show that reaching the proportion of 20% women on boards matters for monitoring tasks (Table 4). The effect of board dynamics produced by achieving a proportional representation of women on boards of 20%, which typically translates into

Table 1.
Description of
variables

Variable	Description
<i>Monitoring tasks</i>	This score measures a board's capacity to perform monitoring functions. The capacity is assessed whether the board has a policy that ensures effective monitoring and how the policy is implemented; the board has internal information tools for the monitoring of top management and CEO personnel; the board exercises monitoring tasks through the establishment of board committees; and the board has financial experts within its auditing committee, the percentage of independent directors on board committees, the number of board meetings held and average board attendance
<i>Strategy tasks</i>	This score measures a board's capacity to create, communicate and monitor a company's strategy. The capacity is assessed whether the board has a policy for maintaining an overarching vision and strategy that integrates financial and extra-financial aspects of its business into its day-to-day decision-making processes; the board describes the implementation of its strategy through a public commitment; the board monitors its strategy through ratings or an external committee; and the board reports the challenges or the opportunities linked to the strategy
<i>Advisory tasks</i>	This score measures a board's capacity to perform advising tasks by leveraging varied board members experiences. It includes a set of items that assess whether the board has a policy for maintaining a well-balanced membership of the board, in terms of cultural, experience, knowledge and gender diversity; the board has the internal tools to develop and implement the above-mentioned policy; and the board monitors and periodically assess the competences and the experiences of its board members
<i>Women on boards</i>	The percentage of women on boards
<i>Proportion point of 20%</i>	A dummy equal to 1 if the proportion of women on a board is equal to or greater than 20% and equal to 0 otherwise
<i>Proportion point of 33%</i>	A dummy equal to 1 if the proportion of women on a board is equal to or greater than 33% and equal to 0 otherwise
<i>Independent directors %</i>	The percentage of independent board members as reported by the company
<i>CEO duality</i>	A dummy equal to 1 if the CEO is also the chairman and equal to 0 otherwise
<i>Board size</i>	The total number of board members at the end of the fiscal year
<i>Firm size</i>	Total assets as reported by the company

Notes: The scores are calculated by equally weighting and z-scoring all underlying data points and comparing them against all companies included in Datastream. The resulting percentage is therefore a relative measure of performance that is z-scored and normalized to better distinguish values and position scores at 0 to 100%. A z-score, or "standard score," expresses the value in units of standard deviation of the value from the mean value for all companies

Board dynamics and board tasks

Variable	Obs	Mean	SD	Min	Max
Monitoring tasks	256	60.14	24.63	03.15	93.76
Strategy tasks	256	68.09	32.42	8.72	94.75
Advisory tasks	256	37.76	22.40	02.57	88.96
Women on boards %	256	13.48	11.75	0	50
Proportion point 20%	320	0.45	0.50	0	1
Proportion point 33%	329	0.28	0.49	0	1
Independent directors %	238	55.09	22.58	0	100
Board size	284	12.89	2.65	4	25
CEO duality	256	0.19	0.40	0	1
Firm size (total assets)	307	9.45×10^{07}	1.81×10^{08}	63,404	1.04×10^{09}
<i>Industry</i>					
Utility	320	0.15	0.36	0	1
Banking	320	0.35	0.47	0	1
Manufacturing	320	0.25	0.43	0	1
High tech	320	0.12	0.33	0	1
Service	320	0.12	0.33	0	1

Table 2.
Descriptive statistics

Note: For the definition of the variables, see [Table 1](#)

Variable	Women on boards %	20% proportion	33% proportion
2008	3.25	0.25	0.22
2009	3.65	0.25	0.22
2010	7.74	0.25	0.20
2011	8.47	0.26	0.20
2012	13.45	0.38	0.23
2013	19.31	0.58	0.30
2014	24.34	0.75	0.38
2015	26.50	0.92	0.38

Table 3.
Proportion of women on boards by year (average values)

two women, on board monitoring tasks is positive and statistically significant (column 1, [Table 4](#)). Specifically, when board dynamics shift due to reaching the proportion of 20% women on boards, the score for monitoring tasks improves (coeff. 5.81, p -value < 0.05). This effect is not statistically significant for the proportion of 33% women on boards. This lack of statistically significant change in the effects of board dynamics on monitoring tasks when moving from the proportion of 20% to 33% implies that the presence of two women is an important driver of board dynamics that encourage active discussion and challenging of managers' decisions and behaviours. The results provide support for *H1*.

In [Table 4](#), column 4 reports regression results for the effect of board dynamics produced by achieving a proportional representation of women on boards of 33% on strategy tasks. The findings provide support for *H2*. Board dynamics, which are shifted when the proportion of 33% women on boards is reached, positively and statistically significantly influence strategy tasks (coeff. 3.35, p -value < 0.05). These results confirm the importance of board dynamics inside the boardroom with regard to the performance of board strategy tasks.

Table 4.
Panel regression: the effects of female proportional representation on board tasks

Independent variables	Monitoring tasks			Strategy tasks		Advisory tasks	
	(1)	(2)	(3)	(4)	(5)	(6)	
Proportion of 20%	5.81** (1.93)	6.16 (1.45)	2.49 (1.42)	3.35** (1.75)	-0.70 (-0.25)	-2.21 (-0.72)	
Proportion of 33%	-8.67* (-1.90)	-10.07*** (-2.15)	-3.07 (-1.37)	-3.61 (-1.59)	-7.42*** (-2.22)	-6.79*** (-2.82)	
CEO duality	0.11 (1.05)	0.12 (1.64)	0.08 (1.41)	0.09*** (2.41)	0.27*** (3.17)	0.31*** (3.27)	
Independent directors %	0.53 (0.89)	0.31 (0.65)	-0.13 (-0.26)	-0.21 (-0.89)	-1.37 (-2.67)	-0.76 (-1.57)	
Board size	$4.12 \times 10^{8***}$	$4.12 \times 10^{8***}$	$4.03 \times 10^{8***}$	$3.62 \times 10^{8**}$ (1.77)	$2.11 \times 10^{8***}$ (1.83)	$2.13 \times 10^{8***}$ (1.85)	
Total assets	(3.31)	(2.28)	(2.68)				
Industry	YES	YES	YES	YES	YES	YES	
R-squared (overall)	0.21	0.21	0.35	0.35	0.34	0.34	
N. Obs	237	237	237	237	237	237	
N. Firms	35	35	35	35	35	35	

Notes: *T*-statistics are reported in brackets. *, ** and *** denote significance at 10%, 5% and 1%, respectively. Random effect has been used as the method of estimation. Robust standard errors clustered at the firm-division level. Results are controlled for industry. All tests are two-tailed

The results document no statistically significant effect of board dynamics produced by reaching any of the proportion of women on boards set in gender board quota regulation on advisory tasks, supporting *H3* (columns 5–6, [Table 4](#)). These findings suggest that board advisory tasks take place outside the boardroom on an individual basis between a board member and management, and thus, reaching certain proportion of women on boards does not matter. Advisory tasks do not even need to be conducted inside the boardroom; hence, they do not require group efforts.

3.4 Empirical evidence from searching for tipping points

Having identified the relationships between the proportional representation of women on boards enforced by law and board tasks, we aim to identify a tipping point of women on boards that produces the shift in board dynamics observed in our sample. First, we analyze the graphical relationships between the predicted values of board tasks and the percentage of women on boards. Following [Lindsay et al. \(2014\)](#), we run a locally smoothed regression (LOESS) line to identify the pattern for visualization ([Figures 2–4](#)). Each graph shows that the relationship between women on boards and board tasks presents a certain tipping point. Specifically, there are points at which the slope of the line shifts in steepness, revealing tipping points of women on boards at which board dynamics change. To identify specific values of the proportion of women on boards, we include a set of dummy variables to represent an *n*-group variable. We create the following dummy variables representing a tipping point: 27%, 28%, 31%, 32%, 40% and 41% female representation on boards that assume a value of “1” if boards have more than 27%, 28%, 31%, 32%, 40% and 41% female representation, respectively, and “0” otherwise. The dummy variables enabled us to identify

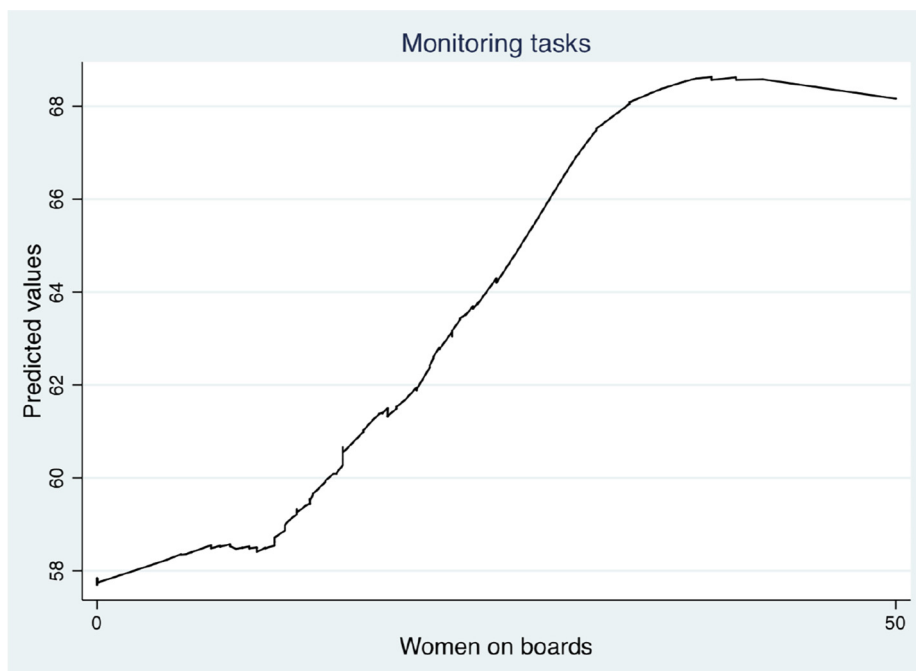


Figure 2.
Relationship between
proportion of women
on boards and
monitoring tasks

MRR



Figure 3. Relationship between proportion of women on boards and strategy tasks

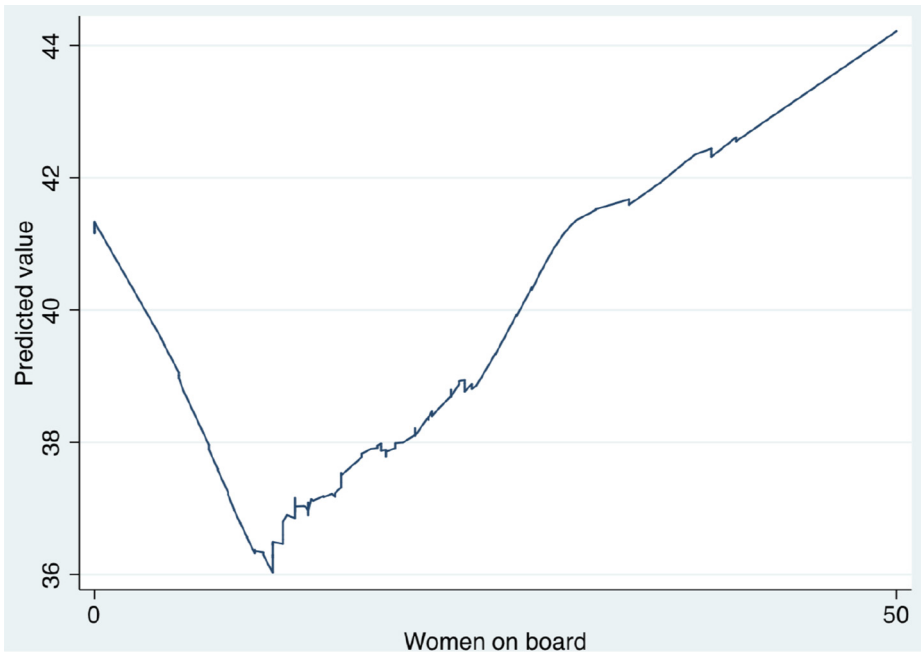


Figure 4. Relationship between proportion of women on boards and advisory tasks

different groups and to interpret the regression coefficient for each dummy variable in terms of how a group compares to the baseline. [Table 5](#) (columns 1 and 2) shows that the tipping point of 27% women on boards is positive and statistically significant for board monitoring tasks (coeff. 7.85; p -value 0.06), whereas that of 28% women on boards is not statistically significant. This shows that at least 27% women on boards is required to create board dynamics that enhance monitoring tasks. We provide further evidence that the proportion of women required on boards to shift board dynamics and improve strategy tasks is 32%, as the effects of a tipping point of 32% on strategy tasks are positive and statistically significant ([Table 5](#), columns 3 and 4). Our tests show that women affect advisory tasks when a board reaches the tipping point of 41% women on boards ([Table 5](#), column 6). Interestingly, the relationship is negative and statistically significant. This can be interpreted that the numerical representation of women on boards does not affect the advisory tasks. Advisory tasks is performed usually in the individual capacity of a board member either during the board meeting or outside the boardroom when the management board is looking for counseling from a specific board member. Thus, advisory tasks require not only specific knowledge but also recognition by the management. Women are often seen as outsider from the “old boys’ network.” In the consequence, increasing their number on boards is not enough to seek for their advisory. In the diversified boards, in terms of gender, women fail to be seen as advisors to management and thus influence the ability of the whole board to give advice to managers.

4. Discussion and conclusions

4.1 *Contribution to the theory of proportion*

Most of these studies, as summarized by [Zattoni and Pugliese \(2020\)](#), share common features: the application of agency theory as a theoretical framework and the use of quantitative board demographic data, mostly for large, listed US companies. To verify these prior empirical findings and better understand board task performance, more research on internal board dynamics is necessary. This study seeks to capture internal board dynamics by applying the theory of proportion. We exploit this theory to develop a conceptual framework that delineates the shift in board dynamics produced by reaching certain tipping points of women on boards. Varying proportions of men and women on boards generate specific interactions and behaviours inside the boardroom. We are aware of no prior publications that have used the theory of proportion to research internal board dynamics using demographic characteristics such as the proportion of women on boards.

Our findings demonstrate that different sets of board tasks require a distinct board dynamic produced by a certain proportion of two subgroups: dominant and minority. Specifically in the context of gender diversity, we provide evidence that the proportion of 33% women on boards is necessary to enhance the performance of strategy tasks. Additionally, we report that reaching the proportion of 20% commonly translates into the presence of two women, who can voice their opinions during board meetings and challenging management, has a positive and significant influence on monitoring tasks. The proportion between women and men on boards does not enhance advisory tasks because the initiatives and activities related to such tasks occur outside of board meetings. Firm management is usually in need of very specific knowledge and is conducted over limited timeframes, which requires meeting with board members between instead of during board meetings. Our study moves the discussion on internal board dynamics forward in focusing on effects of shifts in board dynamics produced by demographic measures on board performance. Thus, this work extends knowledge of how boards perform their tasks and of

Table 5.
Searching for a
tipping point

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
	Monitoring tasks		Strategy tasks		Advisory tasks	
Tipping point (27%)	7.85* (1.86)					
Tipping point (28%)		6.62 (1.43)				
Tipping point (31%)			2.96 (1.56)			
Tipping point (32%)				3.34* (1.75)		
Tipping point (40%)					-6.32 (-1.52)	
Tipping point (41%)						-11.11*** (-14.95)
CEO duality	-8.77*** (-2.01)	-9.76*** (-2.35)	-3.69 (-1.62)	-3.61 (-1.59)	-7.10*** (-2.49)	-7.11*** (-2.49)
Independent directors%	0.12 (1.17)	0.12 (1.18)	0.08*** (2.39)	0.08** (2.41)	0.27*** (3.18)	0.27*** (3.14)
Board size	0.39 (0.60)	0.35 (0.55)	-0.20 (-0.81)	-0.22 (-0.89)	-1.35 (-2.70)	-1.35*** (-2.71)
Total assets	$4.12 \times 10^{8***}$ (3.14)	$4.03 \times 10^{8***}$ (3.17)	$3.58 \times 10^{8*}$ (1.74)	$3.62 \times 10^{8*}$ (1.75)	$2.02 \times 10^{8*}$ (1.78)	$2.11 \times 10^{8*}$ (1.81)
R-sq between	0.36	0.36	0.33	0.33	0.39	0.39
R-sq within	0.06	0.05	0.06	0.07	0.17	0.17
R-sq overall	0.21	0.21	0.35	0.35	0.34	0.35
N, Obs	237	237	237	237	238	238
N, Firms	35	35	35	35	35	35

Notes: *T*-statistics are reported in brackets. *, **, and *** denote significance at 10%, 5% and 1%, respectively. Random effect has been used as the method of estimation. Robust standard errors clustered at the firm-division level. Results are controlled for industry. All tests are two-tailed

how such performance is related to board dynamics (McNulty and Pettigrew, 1999; Rindova, 1999; Stiles, 2001; Concannon and Nordberg, 2018).

Our findings also demonstrate that various board tasks have different antecedents. When the number of women on boards increases to the proportion of 20%, pressures on them to conform to the dominant board subgroup's norms decreases. Women then no longer feel isolated, and rather they see themselves as valuable assets; so they voice their opinions and question management decisions. Prior studies show that women also tend to work hard as board members to avoid being stereotyped. Women are more vocal during board meetings, as they have limited access to environments in which relationships with CEOs and other directors are built (Grau *et al.*, 2020; Allemand *et al.*, 2021); thus, they feel less pressure and provide assessments of firm performance that differ from those presented by management. By raising critical questions, women encourage men to engage in discussions. Often, male directors avoid addressing questions raised by women, causing another woman to feel obliged as a board member to obtain answers from management. When women are vocal and persistent in obtaining responses from management, they find allies among male board members. Thus, reaching the tipping points of female representation on boards affects men's behaviour, contributing to shifts in board dynamics. Women's behaviour can push a board toward more diligence and stronger monitoring. Women may prefer to discuss past financial figures that are explicit and leave little room for individual judgments that can be challenged by referring to past board experience. Additionally, women may feel more comfortable challenging management behaviour while the legitimacy of shareholders and stakeholders is leveraged in control tasks usually done on behalf of external actors (Huse, 2005).

Unlike monitoring tasks, strategy tasks rely on individual cognitive inputs (Rindova, 1999) that serve to interpret future trends and develop various alternatives and scenarios during board discussions. When the proportion of 33% is reached, women feel more comfortable contesting ideas brought about by management or other board members during strategic discussions. They feel empowered to present their own points of view and persistently stand up for their own ideas until board consensus is reached, contributing to an increase in cognitive conflict (Torchia *et al.*, 2011; van den Oever and Beerens, 2020). The proportion of 33% women on boards shifts board dynamics, allowing the varied knowledge, skills, backgrounds and personal qualities possessed by board members to be leveraged. To improve the board strategy tasks that address the complexities and uncertainties of a company's internal and external embeddedness, not only various skills and knowledge within a board but also their application during board meetings are necessary (Concannon and Nordberg, 2018).

4.2 Implications for policy, practice and further research

Our findings also have implications for policymakers as it allows them to assess the importance of diversity on boards. The introduction of gender quota laws in many countries has honed the focus on competences of board members and the benefits of having alternative point of views during board meetings. Women on boards have been seen as important asset, able to bring different attitudes, experiences and interests. Women's presence in male-dominated areas would contribute new perspectives and ways of thinking, resulting in higher productivity and a better working environment (Seierstad, 2016). This gender diversity calls for discussions about which competence, experiences and proportions are appropriate on boards.

In line with the public debates on women on boards, our research demonstrates that having women on boards is not only directly related to the value added brought by an individual woman. Female representation on boards and reaching certain tipping points in

male-dominated groups change board behaviour and dynamics, positively affecting board's performance. Thus, we advocate a quota of women on boards as an effective and an enforceable affirmative measure (Seierstad and Opsahl, 2011). We respond to Terjesen and Sealy's call (2016) for examinations of the consequences of gender board quota regulation and of how reaching a quota of women on boards impacts board's functioning.

From a managerial perspective, the research findings are beneficial to practitioners, strategy and advisory involvement are being considered as key responsibilities of a board the face of recent changes in the corporate governance paradigm toward balancing the interests of shareholders, stakeholders and wider society. Additionally, the COVID-19 crisis has placed boards in the spotlight. In dramatically changing macroeconomic environments, boards are expected to be more involved in the strategy and advisory tasks, which requires a strong emphasis on accountability (McNulty *et al.*, 2013; Pugliese *et al.*, 2014). Our results suggest that researchers should continue to examine how women on boards influence the extent to which boards fulfil their responsibilities.

Future research could pair our findings based on quantitative data with insights drawn from interviews with individual board members (Adeosun and Owolabi, 2021; Al Amosh and Khatib, 2021). Qualitative research designs could be applied to understand the interpersonal dynamics of how women on boards, when reaching certain tipping points, contribute to better decision-making processes. Additionally, gender board quota laws are not a norm outside the EU, allowing no quasi-natural experiment to conduct a similar study. Consequently, we acknowledge that this could limit the generalizability of our findings to firms located in EU Member States with gender board quota laws. Future research would benefit from exploring the implications of the effects of board dynamics produced by adding more women to boards through voluntary affirmative measures introduced among others in UK or USA.

Note

1. Specifically, if a company does not comply with the new regulation, it will receive a warning be asked to comply within a period of four months. If the company does not comply within the assigned term, the authority that regulates the Italian Stock Exchange (called CONSOB) has the power to impose a monetary penalty of €100,000 to €1m. In the event of repeated noncompliance, CONSOB can also terminate the appointment of board members (see Law 120/2011 and Law Decree 58/1998 art 147).

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Table A1.
Pearson's correlation
matrix

	1. Monitoring	2. Strategy	3. Advisory	4. Proportion of 20%	5. Proportion of 33%	6. Board size	7. Independent directors %	8. CEO duality	9. Firm size
1.	-/-								
2.	0.24 ^a	-/-							
3.	0.49 ^a	0.26 ^a	-/-						
4.	0.12	0.04	0.13	-/-					
5.	0.10	0.09	0.05	0.68 ^a	-/-				
6.	0.16 ^a	-0.11	-0.26 ^a	-0.10	0.09	-/-			
7.	0.29 ^a	0.30 ^a	0.42 ^a	0.15	0.03	0.15	-/-		
8.	-0.22 ^a	-0.14	-0.30 ^a	-0.23 ^a	-0.16 ^a	0.09	-0.28	-/-	
9.	0.28 ^a	0.24 ^a	0.09	-0.02	-0.16 ^a	0.30 ^a	0.36	-0.08	-/-

Note: ^aCorrelation is significant at the 0.05 level (two-tailed)

Appendix 2

Board
dynamics and
board tasks

Variable	VIF	1/VF
<i>Panel A</i>		
Proportion of 20%	1.09	0.91
Board size	1.41	0.69
Independent directors	1.36	0.73
CEO duality	1.36	0.73
Firm size	1.41	0.70
Industry		
<i>Banking</i>	2.73	0.36
<i>Manufacturing</i>	2.06	0.48
<i>High tech</i>	1.68	0.59
<i>Service</i>	1.27	0.78
Mean VIF	1.60	
<i>Panel B</i>		
Proportion of 33%	1.07	0.93
Board size	1.43	0.70
Independent directors	1.36	0.73
CEO duality	1.35	0.70
Firm size	1.42	0.70
Industry		
<i>Banking</i>	2.71	0.36
<i>Manufacturing</i>	2.05	0.48
<i>High tech</i>	1.67	0.59
<i>Service</i>	1.29	0.77
Mean VIF	1.59	

Table A2.
Variance inflation
factor

Corresponding author

Sara De Masi can be contacted at: sara.demasi@unifi.it

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