



**THE EFFECT OF COMPOSITION OF  
TOP-MANAGEMENT AND BOARD OF  
DIRECTORS ON FIRM'S  
PERFORMANCE  
A STUDY ON EGYPTIAN LISTED  
COMPANIES**

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## Abstract

This paper shows the effect of top management (TM) and board of directors (independent variables) on firm's performance (dependent variable) applied on Egyptian listed companies. The composition of both TM and board of directors are investigated through the study of culture, age, tenure and gender diversity in board and TM.

The developed hypotheses are tested on Egyptian listed companies. Full Data have been collected from the financial statements in the annual reports of 197 companies for the year 2018 from all Egyptian companies listed on the Egyptian Stock Exchange.

The results show that: first, for board of director's part, it is only the diversity of tenure that has a positive effect on performance, while cultural and gender heterogeneity has a negative effect, and age diversity shows no performance effects. Second, for TM part of the study indicates no effects of cultural, age and tenure diversity on firm performance while showing a positive effect of woman top managers' representation on firm performance.

## 1. Introduction

Diversity and group research has a long history in the fields of social psychology and sociology, going back to the important work (Le Bon 2002). Various researchers in psychology and sociology such as (Schutz 1958, Turner 2002, Lewin 2016, McCraty 2017) have tried to contribute to the exploration of the influences of demographic and personality characteristics into group related effects as well as interactions taking place within groups. Researchers in the field of business administration have picked up on the topic years later to discover the diversity effects on the task groups or manufacturing team's performance (Levine and Moreland 1990, Randsley de Moura, Leader et al. 2008, Steyerberg, Moons et al. 2013). The upper levels research has opened itself to diversity in executives groups even later, when (Pfeffer 1983, Wiersema and Bird 1993, Sørensen 2004) put forward the argument that top managers influence organizational results through their decision making, which has its roots in their perceptions streaming from their demographic characteristics. The same can be supposed to hold true for the board of directors, with reservation that board of directors cannot be identified as a team while does constitute a decision making group comprised of individuals that also base their decision on perceptions embedded in their demographic characteristics (Forbes and Milliken 1999). Unexpectedly, there are few studies that try to study the co-influences of the board and top management (TM) on firm's performance, instead trying to contribute to the explanation of the influence of each "power" group's composition on performance in separation. Thus, this study tries to investigate compositional effects of board of directors and TM on firm's performance, where composition of both groups is investigated through the study of culture, age, tenure and gender diversity in board and TM.

This study proceeds with literature review starting with the discussion on the groups diversity studies in organization with the positioning of the diversity research in boards and TM in the structural perspective. Then set of hypotheses after relevant literature concerning board and TM diversity is reviewed. The study then proceeds with method and analysis section and concludes the results.

## **2. Literature review and formation the hypotheses**

The literature presents the group diversity research in organizations followed by the positioning of the diversity research in boards and TM in the organizational perspective. Then follows separate discussion for the two “power” groups’ diversity effects on performance. After presenting relevant literature concerning board and TM diversity a set of hypotheses are formatted.

### **2.1. Groups Diversity and Effects**

Studies of demographic diversity in groups in organizations can be generally divided into two streams: one investigating the relationship between demographic characteristic of the groups and group effects (Tsui, Egan et al. 1991, Carolina 2005, Gonzalez and Denisi 2009) and second, a stream of research trying to investigate demographic composition effects of upper levels of organizations such as TM and the board of directors on firm performance (Carter, Simkins et al. 2003, Erhardt, Werbel et al. 2003, Van der Walt and Ingley 2003, Wellalage and Locke 2013, Ntim 2015, Kılıç and Kuzey 2016, Azmat and Rentschler 2017). Both streams come to mixed results on the diversity influences on both group and organizational performance. Some researchers claim that diversity in groups would result in innovation and creativity effective (Watson, Kumar et al. 1993, Stahl, Mäkelä et al. 2010, Stahl, Maznevski et al. 2010).

Effective problem solving and innovative solutions (Michel and Hambrick 1992) (Levy 2005) and variety of ideas (Buller 1986, Klein, DiazGranados et al. 2009, Christian, Garza et al. 2011) which would in turn lead to positive group and organizational outcomes depending on the level of the group. On the other hand diversity in groups can lead to increased conflict (Amason 1996) (Bobot 2011), communication difficulties and inability to socially integrate which would in turn lead to decreased group and organizational performance (Elron 1997) (Greve, Nielsen et al. 2009).

The TM and board of directors research is placed within the field of group studies, however there are distinct differences of the roles these power groups play. According to (Hambrick, Cho et al. 1996, Zimmerman 2008), that base their argument on the strategic leadership theory, the board of directors is important for the company in two distinct ways. Firstly they monitor and discipline the top managers of the firm, and secondly, they are involved in the strategy formation. The TM is a group that is responsible for the implementation of various processes (Hambrick, Cho et al. 1996, Van Gils 2005, Zimmerman 2008, Hul 2014) and serves an important role in strategy implementation as well as in some situation emergent strategy formulation (Fama and Jensen 1983, Badertscher, Katz et al. 2013).

## ***2.2. Diversity in the Board of Directors***

Diversity among the directors of boards has become a major issue within corporate governance and a number of studies aim at investigating the impact of diversity on firm performance. A common interest has been gender diversity, but also culture, (Hillman 2015, Rao and Tilt 2016) and age of director can be noticed (Smith, 2001). Composition diversity of the board of directors has been directly linked to performance and several authors arrive at both positive and negative effects of diversity on organizational effects, leading some to call diversity research a double-edged sword (Milliken and Martins 1996, Siciliano 1996, Erhardt, Werbel et al. 2003, Rose 2007, Harris 2014, Boehm and Dwertmann 2015, Gordini and Rancati 2017, Chen, Leung et al. 2018).

The question of gender in the boardroom has over the years become a growing area of study (Burke 2000, Fondas 2000, Burgess and Fallon 2003, Huse and Solberg 2006, Burke and Mattis 2013, Rao and Tilt 2016, Sila, Gonzalez et al. 2016, Nadeem, De Silva et al. 2017). Even though it generally is considered a competitive advantage to include more women to corporate boards, women directors tend to be under-represented (Hyland and Marcellino 2002, Burke 2003, Singh and Vinnicombe 2004, Singh, Point et al. 2015, Grosvold, Rayton et al. 2016, Rao and Tilt 2016).

Also, (Ezzard 2002, Carter, Simkins et al. 2003, Glass, Cook et al. 2016, Hassan and Marimuthu 2016) emphasize the benefits of having women on boards as they tend to present different views. Van der Walt and Ingley (2003) State those woman directors often provide much needed links. Daily and Dalton (2003), (Mathisen, Ogaard et al. 2013) claim that women provide unique perspectives, experiences and work styles, and those women's communication styles tend to be more participative and process-oriented, which may encourage directors' decision-making processes by encouraging the board to consider a wider range of strategic options. Burke (2000), (Burke and Mattis 2013) argue for example that "increasing women's board presence improves board information, perspective, debate and decision making". Results on gender composition and firm performance differ: (Carter, Simkins et al. 2003, Hassan and Marimuthu 2016) found in their study significant positive relation between share of women and firm performance, while (Post and Byron 2015) found negative significant relations.

On other hand,(Rose 2007, Chen, Crossland et al. 2016, Chen, Leung et al. 2018) make study on gender composition of Danish boards for a longer time period reports, they found that no significant influence on performance when including more women to the boards.

Diversity concerning origin has also been the focus of studies, (Carter, Simkins et al. 2003) found in their study, significant positive relation between share of minorities and firm performance. While, (Zahra and Stanton 1988, Bear, Rahman et al. 2010) found no support for their hypothesis between ethnic minority directors and firm performance. In a Danish study there is no support for a relation between increasing number of foreigners and performance (Rose 2007).

Other compositional aspects of boards are the directors' age and tenure. The perception of middle to retirement aged directors is now changing to instead refer to a diverse age composition aiming at getting impressions from all age groups(Gilpatrick 2000) . A mix concerning age is valuable since the older directors provide wisdom, experience and often economic resources, whereas the young provides energy and a drive to succeed. Also a diversity concerning tenure in the specific organization at hand could stimulate a presence of different opinions and preferences. Thus, both tenure and age diversity must to have a stimulating influence on firm performance.

Boards of today are to employ directors who can add value to the board processes and governance function. Taking into account the "creative" function of the board in formulating strategy one can assume that the "law of requisite variety" would require that in order to create a well-functioning strategy the member of the board shall be as diverse as possible.



Especially, taking into consideration the board not necessarily has the characteristics of a team, but rather as a group of decision makers. They must to benefit from a diverse board composition concerning all dimensions and the study set the first hypothesis:

**Hypotheses 1: There is a significant positive effect of an increasing degree of diverse composed boards in terms of age, gender, tenure and culture on financial performance.**

### **2.3. Diversity in the TM**

The problem of mixed research outcomes on the diversity effects on firm performance is also sitting in the TM diversity research (Hambrick, Cho et al. 1996) (Milliken and Martins 1996). According to, (Krishnan and Park 2005, Krishnan 2009), there are few studies of gender diversity in top management teams especially in large organizations, one reason being absence of women in upper-levels of organizations. Most of the empirical evidence in studies of gender diversity in TM suggests that gender diversity will have a positive effect on organizational performance (Krishnan and Park 2005, Krishnan 2009). Firstly, women are more likely than man to be perceived as leaders by the group members in socially interactive environments, which today's globalized market place represents (Kent and Moss 1994, Türetgen, Unsal et al. 2008). Secondly, women are more likely to adopt "learning" approach when dealing with network strategies, which increases the number of information holder and number of opinions they are dealing with it (Ibarra 1997, LaPierre and Zimmerman 2012). This allows women to base their decisions on variety of viewpoints increasing the comprehensiveness and generating high quality decisions (Miller, Burke et al. 1998, Hiebl 2014, Hassan, Marimuthu et al. 2015, Meissner and Wulf 2017). Thus being a part of a TM and balancing male parallel women could bring in the positive environment and stability feeling to improve organizational performance (Krishnan and Park 2005, Krishnan 2009).

The studies of cultural diversity in TM are relatively rare, and there are few studies that investigate this issue, possibly due to relative homogeneity of upper levels in organizations. However, group research findings as well as general findings of diversity research in TM can be applied. From one side, it is claimed that culturally diverse teams offer diversity of values resulting in effective group discussions which ultimately lead to improved group and organizational performance (Hofstede 1984, McCarrey 1988, Mann-Feder and Savicki 2003, Kirkman, Lowe et al. 2006). From the other side, larger numbers of researchers claim negative effects of cultural diversity on process and outcomes maintaining that cultural diversity in teams results in interpersonal problems and communication difficulties (Burleson and Denton 1992, Barry and Crant 2000, Sommers 2006, Umans, Collin et al. 2008, Díaz-García, González-Moreno et al. 2013, Moreland, Levine et al. 2013) ,and to the threat of misunderstandings and team cohesiveness (Van Der Vegt, Bunderson et al. 2010). According to Heijltjes,

Olie et al. (2003) process and especially social cohesion will negatively affected by cultural diversity in TM which will in turn lead to decrease in organizational performance.

When it comes to age research several researchers (Lam 2004, Zhang 2008, Petković and Lukić 2014) have found the age diversity in TM leads to decreased performance of the company by the means of team process such as increased conflict and reduced unity.

This can be clarified by the fact that age diversity being a visible demographic characteristic can result in division into external and internal groups within TM(Williams and O'Reilly III 1998, Shore, Chung-Herrera et al. 2009) . This in turn has a negative effect on firm performance due to the slower decision making(Carpenter, Geletkanycz et al. 2004, Hiebl 2014) and inability to properly implement strategy, last one being one of the primary functions of the TM(Fama and Jensen 1983, Badertscher, Katz et al. 2013) . On the other hand, Richard and Shelor (2002), (Ping 2007) found that relationship between TM age diversity and firm performance is non-linear nature with the slope positive at low and moderate levels of TM age diversity but negative at high levels of TM age diversity.

Team tenure is a less discussed issue in team demography; generally, researchers agree that it is positively related to firm performance (Pfeffer 1983, Sterman, Henderson et al. 2007). Tenure diversity in TM adds to the perceptible diversity in the team which leads to diversity of values, which in turn stimulate discussions(Abebe 2010, Tulung and Ramdani 2016) . Moreover, tenure differences result in the greater diversity of information sources and perspectives contributing to the creative and innovative decision making(Bantel 1994, Beckman, Burton et al. 2007).

However one can assume that since the TM creates a team having more regular communication and more exposure to the strategy and its implementation, than the board of directors, they would have to be more homogeneous in their composition in

terms of age, and culture, however balance in their gender composition and diversity in tenure, the study set the second hypothesize that:

**Hypotheses 2a: there is a significant positive effect of an increasing degree of diverse composed TM in terms of gender and tenure on financial firm performance.**

**Hypotheses 2b: there is a significant negative effect of an increasing degree of diverse composed TM in terms of age and culture on financial firm performance.**

### **3. Research methodology**

#### **3.1. Sample**

The developed hypotheses are tested on Egyptian listed companies. Data have been collected from the consolidated financial statements in the annual reports of 239 companies for the year 2018 from all Egyptian companies listed on the Egyptian Stock Exchange. It was possible to get full data set from 197 companies. The study uses the group accounts since they contain relevant information used by the market actors.

#### **3.2. Variables**

The model includes one dependent variable, 8 independent variables and 1 control variable. The operationalization of them is presented below.

The dependent variable of performance is measured as “return on assets” and calculated as:  $(\text{Profit after financial items} + \text{Financial costs}) / \text{Total capital}$ . Financial costs are not included since it would reflect the financial structure.

**The 8 independent variables are operationalized as follow:**

- Cultural diversity of the TM and cultural diversity of the board is measured as share of Egyptian in TM and boards. Cultural diversity was observed by two raters that each independently inspected half of the sample of corporations, coding the nationality of members belonging to the companies' top- management-teams and board of directors. The coding was based on the impression of the members' names, the pictures and the descriptions of the persons given by the annual report; the Internet was also used in order to search for information. Since it is a subjective observation an inter-reliability measure was conducted implying that a random sample of 10 companies from each original rater's sample was given to two other raters that independently made a similar coding of 10 companies each. The study found that overall inter-rater reliability was 94%., however, a significant negative correlation between inter-rater reliability and share of foreigners in a group, be it the TM or the board, indicating that when the share of foreigners increases in the group, the reliability of observations decreases. When excluding all the TM and the boards that had only Egyptian according to the original raters, thus selecting only those cases where the difficulties of observations were the highest, the inter TM/board including only foreign members would be represented by 0%, and a TM/board that is fully Egyptian would be represented by 100%.

- Gender diversity of the board and gender diversity of the TM has been measured as the share of male versus woman directors and TM-members. A TM/board including only women members would be represented by 0%, and a TM/board including only men would be represented by 100%.
- Age diversity of the board of directors and age diversity of the TM has been measured as the standard deviation of the directors' versus the TM-members' ages stated in the annual report.
- Tenure diversity of the board of directors and tenure diversity of the TM has been measured as the standard deviation of the directors' versus the TM- members' tenure stated in the annual report.

A control variable of firm size has been used and is based on the assumption that higher turnover is related to increased performance (Prevost, Rao et al. 2002, Fu 2009) . Size is measured as turnover and calculated as the logarithm of turnover.

#### **4. RESULTS**

The population of Egyptian listed companies the year of 2018 was 239 companies. Out of these companies, it was possible to get full data set from 197 companies, i.e., a loss of 18%. The analysis of the data has been conducted through Pearson correlation tests and linear regressions.

Table 1 presents the descriptive data of the variables used in the analysis.

**Table 1 Descriptive Statistics and Person Correlation Coefficients**

Variables	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9
Return on Assets	4.39	19.23									
Cultural diversity of the board	0.87	0.20	.038								
Gender diversity of the board	0.86	0.11	-.033	-.018							
Age diversity of the board	7.85	3.10	.080	-.007	-.098						
Tenure diversity of the board	4.44	3.74	.215**	.114	.000	.123†					
Cultural diversity of the TMT	0.82	0.23	-.019	.555**	-.006	-.097	.072				
Gender diversity of the TMT	0.90	0.12	-.071	-.035	.173**	.021	.083	.002			
Age diversity of the TMT	6.49	2.83	.036	.022	-.008	.004	.064	.009	-.083		
Tenure diversity of the TMT	5.84	4.00	.152*	.021	-.015	-.013	.251**	.025	.113	.199†	
Turnover (Log)	6.05	0.99	.435**	-.196*	-.175†	.000	.102	-.205*	.098	-.107	.432**

†  $p < .10$

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

There is a correlation between some of the board variables and the TM, as well as with the control variable of size. The Pearson value of the bivariate correlations does not exceed the recommended cut-off value of 0.7 (Pallant 2013) which allows to conduct a regression analysis retaining the independent variables as well as the control variable.

Table 2 Results of Regression Analysis for Performance

Variables	Std. B	Std. Error
2. Cultural diversity of the board	0.148*	7.807
3. Gender diversity of the board	0.107†	11.623
4. Age diversity of the board	0.050	0.414
5. Tenure diversity of the board	0.144*	0.392
6. Cultural diversity of the TMT	0.022	6.811
7. Gender diversity of the TMT	-0.152*	10.408
8. Age diversity of the TMT	0.085	0.464
9. Tenure diversity of the TMT	-0.112	0.371
10. Turnover (Log)	.544***	1.501
Constant	-80.270	18.788
Adj. R <sup>2</sup>	.238	
F-value	7.818***	

†  $p < .10$  $p < .05$ \*\*  $p < .01$ \*\*\*  $p < .001$



The regression model has been checked for multicollinearity (tolerance and VIF values). If the tolerance value is very small, less than 0.1, it indicates that multiple correlations with other variables are high, suggesting the possibility of multicollinearity (Pallant 2013). The tolerance values in the data vary between 0.704 and 0.967. VIF values above 10 would indicate multicollinearity (Pallant 2013), our data shows VIF values between 1.034 and 1.421. This would thus indicate that the model passes the test for multicollinearity.

From the model the following observations can be made:

- Three variables related to the board composition are significant; one variable related to the TM composition is significant.
- There is a positive relation between Egyptian in the board of directors and performance.
- There is a positive relation between male board of directors and performance.
- There is a positive relation between the directors' tenure and performance.
- There is a negative relation between male TM and performance.

The majority of the board variables are not significant in the hypothesized direction and H1 "There is positive effect of an increasing degree of diverse composed boards in terms of age, gender, tenure and culture on financial performance" can therefore only be supported for diversity concerning board tenure. A gender- and cultural homogeneity concerning male and Egyptian directors reflects in positive effects on performance. A more tenure diverse board composition has as positive influence on performance.

Only one of the TM variables is significant, i.e. the gender variable, implying that a decreasing proportion of male members decreases performance. This indicates a partly support for H2a: "there is a positive effect of an increasing degree of diverse composed TM in terms of gender and tenure on financial firm performance". The other TM variables show no significance in the model, thus, H2b is rejected.

Thus, the composition of the board of directors indicates more implications on firm performance than composition of TM. Three out of four board measures are significant, whereas only one out of four TM measures is significant.

## 5. CONCLUSIONS

The results of this study are rather mixed as the field of group demography itself. From a board part of the study there are indications that it is only the diversity of tenure that has a positive effect on performance, while cultural and gender heterogeneity has a negative effect, and age diversity shows no performance effects. On the other side the TM part of the study indicates no effects of cultural, age and tenure diversity on firm performance while showing a positive effect of woman top managers' representation on firm performance.

The amazing part of the paper is that while the board demographic dimensions clearly indicate influence on performance, even though in a different directed as expected, the TM demography shows very limited performance effects. One of the reasons to it could be a difference in these two "power" groups. The board is considered to be a stable and formal group with limited interactions. The processes taking place within the board such as communication, social integration and conflict, might not have a big influence on performance, which makes it possible to capture the composition effects on performance and use standard measures of demographics. On the other hand TM is considered to be a team where members are being involved in frequent interactions with each other. TM demography studies of late have been arguing for inclusion and hard measurement of processes taking place in that "power" group. TM is a group of frequent interaction and has much more complex relationship to performance, usually mediated by process variables as well as by factors like organizational learning and culture.

This could be one of the explanations of the lack of TM compositional effects on performance. In other words TM influence on performance has to include process variables as well as re-conceptualized demographic measurements. This in turn could indicate that while the studies on the board of directors could still be performed through avoiding the intervening processes, TM studies need more fine-tuned demography measures as well as process insights.

The gender results in the board are contrary to the mass media and political debate promoting woman directors inclusion. However this should not be interpreted as a one sided statement “less women on the board increases performance” one of the interpretation of this results is that women have not become visible enough and have not been able to show their gender capacity. The gender result in the TM argues instead for “more women the higher performance”, this can have two explanations. Firstly, TM usually serves as a step towards the board appointment, and women started to enter this “power” group earlier then the board, becoming more visible and being able to express their gender capacity. Secondly, TM function is more of an operative- implementing nature, which makes all members regardless gender to participate.

Thus, future research should consider measuring compositional and process variables both in board and especially in TM in different ways, possibly employing diverse methods for the inquiry including but not limited to case studies where a deeper meaning of demographic categories can be unfolded.

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