



International Journal of Financial Management and Economics

P-ISSN: 2617-9210
E-ISSN: 2617-9229
IJFME 2021; 4(2): 51-58
Received: 25-04-2021
Accepted: 27-06-2021

Faten Zoghlami
Associate Professor in Finance,
ISCAE, University of
Manouba, Tunisia

Abir Allouchi
Ph.D. Student in Finance,
ESC, University of Manouba,
Tunisia

CEO compensation, firm profitability and risk-taking: Evidence from selected non-financial listed Tunisian companies

Faten Zoghlami and Abir Allouchi

Abstract

This paper examines the impact of CEO compensation on both firm profitability and risk-taking, from a sample of 61 Tunisian non-financial listed companies, during the period 2010-2018. For robustness, we have used three different firm profitability measures; which are the ROA, the ROE, and Tobin's Q. Besides, we have investigated the impact of executive compensation on the firm returns volatility. Moreover, we have controlled for the sector interaction to obtain more pertinent results. Consistent with the agency theory, evidence suggests that an increase in CEO remuneration would improve the firm return on equity, but affects the firm Tobin's Q and increases the firm's risk-taking. Moreover, findings suggest that when we control for the sector, an increase in CEO remuneration would improve the firm ROE, but amends the firm ROA, Tobin's Q, and the risk-taking level. Finding would be useful for the listed Tunisian companies to develop thinking about the most effective governance practices able to ensure a more transparent executive compensation policy, reassure investors, and improve the firm stock-market value.

Keywords: CEO compensation, stock-market performance, firm profitability, risk-taking, agency theory

1. Introduction

Based on the theoretical relevance of CEO compensation in limiting executive opportunistic behavior, several boards decide on significant, sometimes exorbitant, incentive executive compensation to align the interests of executives with those of shareholders, limiting, therefore, the associated agency costs to the shareholder-manager relationship. By offering high and incentive executive compensation, especially indexed on firm performance, the board members often think that the executive will be more able to achieve the shareholders' goals, to improve the shares' value, and especially the firms' accounting and stock-market performances.

Nevertheless, because of many worldwide scandals ^[1] related to revelations of some excessive CEO pay, the executive compensation is at the heart of the debate of an extensive empirical literature. Nevertheless, findings seem to be widely mixed. Some studies have found a strong positive relationship between executive compensation and firm performance (For example Jensen and Murphy (1990) ^[41], Ntim *et al.* (2015) ^[60]; Raithatha and Komera (2016) ^[65], Smirnova and Zavertiaeva (2017) ^[68], Sheikh *et al.* (2018) ^[67], and Hall and Liebman (1998) ^[33], while others have found either a weak relationship (As examples: Chen *et al.* (2011) ^[12], Haron (2018) ^[35], or non-significant relationship (For example Conyon and He (2011) ^[14], Fernandes (2008) ^[27], and Kazan (2016) ^[43]).

According to the agency theory, compensation contracts should be designed to align the interests of managers with those of shareholders. Especially, many academics argue that a CEO compensation linked to the firm performance may be able to align the interests of executives with those of shareholders, allowing so, a significant reduction in agency costs, and better involvement of managers in maximizing the firm value (Holmstrom (1979) ^[38]).

Corresponding Author:
Faten Zoghlami
Associate professor in finance,
ISCAE, University of
Manouba, Tunisia

¹ Such as "fat-cat" controversy surrounding Cedric Brown's compensation at British Gas on 1990's; later in 2003, shareholders revolt at GlaxoSmithKline directed by Jean-Pierre Garner's compensation package, in 2008 the quarrel related to the disclosure that Fred Goodwin, chief executive of the failed fizzle Royal Bank of Scotland walk away with benefits of £30m, and not forgetting especially the last case of Carlos Ghosn, the chief executive of Renault, in 2016; (bubshuck and Neeman 2010, Erkens, Hung and Matos (2012)

Grossman and Hart (1983)^[32], and Jensen and Murphy (1990)^[41], and Hall and Liebman (1998)^[33]. Otherwise, Gompers *et al.* (2003)^[30] have suggested that companies with stronger shareholder rights have higher firm value, higher performance, and higher sales growth than companies with weak shareholder rights. Also, Jensen *et al.* (2004)^[42] have argued that any viable incentive provided to a manager tends to moderate the agency problem and improve the firm profitability.

Also, according to the optimal contracting theory, satisfactory CEO compensation may enhance the firm performance level. Monem and Ng (2013)^[58] and Perry and Zenner (2001)^[63] have found that changes in CEO pay would be associated with changes in the firm stock-market value, and in the firm economic performance. Moreover, A performance-based CEO compensation may also lessen adverse selection problems inherent to the manager selection and the retention of the more productive executives since these abilities are difficult to detect (Arya and Mittendorf (2005)^[3], Darrough and Melumad (1995))^[17]. Recently, Elsayed and Elbardan (2018)^[22] have documented a strong significant impact of CEO compensation on firm performance. Nevertheless, authors have referred this positive relationship to the tournament theory, which was initially established by Lazear and Rosen (1981)^[48], and which supports the existence of a positive relationship between intra-firm wage dispersion and the level of effort made by workers.

Differently, other authors have pointed out that executive pay may impact positively the firm corporate governance quality and effectiveness. For example, Chen *et al.* (2011)^[12] and Javid and Iqbal (2010)^[40] have found that poor corporate governance practices are shown by low-paid executive firms. In the same vein, Doucouliagos *et al.* (2007)^[19] have suggested that the executive is a qualified, competent, and experienced person who uses his skills to achieve the shareholders' objectives; therefore they deserve each perceived dollar.

Empirically, Doucouliagos *et al.* (2007)^[19] and Oviantari (2011)^[61] have found that executive pay is significantly and positively associated with earning per share, as well as with return on assets and return on equity in Australia and Indonesia respectively. Shao *et al.* (2012)^[66] have reported that firm value is positively related to executive compensation in China. Hallock *et al.* (2010) have found that low executive compensation may not be profitable for US firms.

However, Core *et al.* (2006)^[16] have shown that firms with strong shareholder rights do not outperform firms with weak shareholder rights. Also, Girma *et al.* (2007)^[31] and Haron (2018)^[35] have reported a weak relationship between executive pay and firm performance, respectively in the UK and Malaysia. Relying on managerial hegemony theories, Van Essen *et al.* (2012)^[70] have argued for a modest relationship between executive pay and firm performance. According to these theories, the executive may use its high authority to establish higher compensation; so the executive pay may be linked to the management authority rather than the firm performance. However, Bebchuk and Fried (2005)^[8] have noted that management authority increases when corporate governance is weak, and when the firm performance is below the shareholders' targets. Kim *et al.* (2018)^[44] have examined whether the owner CEO affects

the relation between CEO compensation and firm performance. They have found a positive relation between CEO compensation and firm performance in general. However, they have noticed that this positive relation diminishes in the owner CEO firms, specifically when the CEO is the largest owner. The authors have concluded then, that compensation would be an effective tool to establish the convergence-of-interests in the non-owner CEO firms. But this tool becomes less effective when the firm CEO is his owner.

Consistent with the stewardship theory, Fernandes (2008)^[27] has found an insignificant relationship between executive pay and firm performance. According to this theory, the executive does not need incentive compensation to fulfill his or her management mission. In line with classical and neoclassical financial theory, this approach assumes that executives are devoid of any personal interest and act exclusively in the interest of their employer.

Despite the literature on the executive pay-performance relationship is extensive, it has widely focused on Anglo-Saxon economies, and only a few studies have been carried in the context of emerging markets. Especially, and regarding this specific issue, literature seems to be silent in the Tunisian context.

Nevertheless, we argue that investigating the empirical effect of an improvement of CEO compensation on Tunisian firm profitability and risk-taking would be an important topic, at many concerns. First, following several scandals related to the revelation of some excessive COE pay, this topic has long made the front page of several specialized magazines, as well as the focus of social networks debates^[2]. So we address a topical issue that may contribute to the current debate on the Tunisian CEO Compensation optimal package. Second, the government has recently implemented a reform aiming for greater transparency and consistency in the setting of executives' pay (CTGE^[3] (2016) report), so it would be important to highlight the empirical impact of CEO compensation on Tunisian stock-market perception, to implement CEO compensation package able to consolidate investor confidence.

Finally, it would be useful for the firm boards to assess the empirical impact of executive compensation change on firm performance. Such studies may help in solving the trading-off between incentive and excessive executive compensation.

This paper addresses this issue by relying on a sample of 61 listed non-financial-companies on the Tunisian stock market (BVMT). Especially, our paper aims to investigate the effect of an increase in CEO pay on both the sample firm profitability, which is proxied by three indicators: ROA, ROE, and Tobin's Q, and the risk-taking level, which is proxied by the monthly income volatility. To fulfill our objective, we propose to test the two following hypothesis:

Hypothesis 1: An increase in CEO compensation affects firm profitability.

Hypothesis 2: An increase in CEO compensation affects the firm's risk-taking level.

² See for example the following links : Salaires de patrons | Espace Manager ; Tunisie : 4,643.5 MDT de rémunérations aux dirigeants, pour un RN de 23,9 MDT - African Manager ; Etude Africa CEOs Survey: "Les dirigeants africains confiants en l'avenir économique du continent" - Le Manager....

³ Centre tunisien de gouvernance des entreprises.

Our paper contributes to the existing literature in mainly two ways. First, our study addresses the CEO compensation debate in a particular economic context marked by an unexpected social and political revolution that took place in Tunisia in January 2011.

Moreover, since this date, the Tunisian economy is suffering from a persistent economic and financial crisis, which was linked essentially by crisis confidence (Tunisian central bank annual reports from 2013 to 2019^[4], and world bank annual report^[5]). Such a recessionary economic context would give further insight into the CEO compensation-firm performance relationship. For example, Dittrich and Srbeč (2017)^[18] and Antenucci (2018), have found that, during the 2001 recession, the stock of firms with CEOs that had high excess compensation before the recession performed significantly worse than firms with CEOs that had low excess compensation. The authors have concluded then that the managerial power view of CEO compensation provides a better explanation of firm performance under the stress of a recession. Second, and differently to most of the existing literature, our study was elaborated, through a sector analysis. Since the level of executive compensation seems to be linked to the firm sector, we argue that the relationship between executive pay and firm performance might be affected by the sector (Dittrich and Srbeč (2017)^[18], and Chan (2012) among others), so it would be important to control for the sector effect.

Third, while most of the academic work has studied the impact of executive compensation on firm performance measured by returns on equity (ROE), returns on asset (ROA), and stock-market value, our research has moreover, investigated the impact of executive pay on the risk-taking measured by the monthly income volatility. We argue that the incentive compensation may enhance the manager's risk appetite, and so amend the firm stability, Jensen and Murphy (1990)^[41], and Huang (2020)^[39]. The rest of the paper is organized as follows: Section 2 describes the data and variables measures. Section 3 presents the regression analysis results and discussion. Ultimately, the major conclusions of the study are drawn in section 4.

2. Research Method

2.1 Sample description

The used data were retrieved manually from firms' annual reports available on the Tunisian stock market (BVMT) website, throughout 2010-2018. The BVMT counts about 82 listed firms, but we chose to exclude the financial firms since they were subject to a particular regulation and governance rules. Moreover, to obtain unbiased results, we have constructed an unbalanced panel sample with a final sample consisting of 61 firms with full information about their executive compensation. Then, the sample was split into three sectors as shown in table 1.

Concerning the period study, we have chosen to begin the investigation since 2010, because this issue has gained remarkable attention since the political revolution of 2011. In particular, from that date and influenced by the Renault affair, practitioners, politicians, journalists, civil society and academics began a fierce debate on the legitimacy of the salaries received by the leaders, suspecting abusive and exorbitant remuneration among the firms' managers.

⁴ Available at this link : Central Bank of Tunisia, Home (bct.gov.tn)

⁵ Available at this link : Tunisia Overview (worldbank.org)

Table 1: Sector sample repartition

Industry	29 companies
Services	20 companies
High technology	12 companies
Total	61 companies

2.2 Variable measurements

The main independent variable of our study is executive compensation. We aim to investigate its impact on the sample firm's performance. For data availability, we have considered the following measure:

CEO compensation $it = REM_{it} = \ln(\text{annual gross compensation}_{it})$ i refers to firm i and t to the t^{th} year.

These data include cash-based compensation (base salary, pension, bonus) and non-cash compensation (stock option, pension, insurance, utilities, incentive plans), (Lam *et al.* (2013)^[47], Raithatha and Komera (2016)^[65], Shao *et al.* (2012)^[66], Sheikh *et al.* (2018)^[67], Ejaz *et al.* (2019))^[23].

To measure our key dependent variable, that is the firm performance, we have used four different indicators as follows^[6]:

- ROA: the economic firm performance measured by the operating income over total assets.
- ROE: the financial firm performance, measured by the annual earning on equity stock-market value.
- Tobin's Q: it gives the firm stock-market valuation, measured by the firm stock-market value on the accounting value of total assets.
- Risk-taking (Risk): it indicates the executive behavior regarding risk-taking. This variable is measured by the logarithm of the monthly gross firm income standard deviation (Elyan *et al.* (2003)).

As control variables, we use essentially, variables related to firm characteristics, such as size (ln total assets), leverage (total debts on total assets) (Doucouliagos *et al.* (2012)^[20], Ntim *et al.* (2015)^[60], and Ejaz *et al.* (2019))^[23] and revenue growth rate (Farmer *et al.* (2013)^[26], Fallatah (2015)^[24], and Mehran (1995))^[55].

2.3 Descriptive analysis

Table 2 gives the main sample firms characteristics in terms of annual gross executive pay, profitability (ROA and ROE), stock-market performance (Tobin's Q), and respective volatility income (activity risk). The average of the whole sample executive gross income is 210 605.6 TND (about \$ 72 622.620). Moreover, the most rewarding sector seems to be the industrial sector with an average CEO compensation of about 222 611.66 TND, however, the high technology sector is the least rewarding. The average return on assets for the sample firms is 30. 6% but the average ROE is 2.3%. According to Tobin's Q, the sample firm shows an average stock-market value which is 6 times the book value. Nevertheless, these descriptive statistics are disparate and vary widely by sector. The highest remunerated executives are those belonging to the industrial sector and the lowest are those working in the high technology sector. Also, the industrial sector shows the highest average ROA of 113.9% and the highest average stock-market performance (the average stock-market value is about 23 times the book value). However, the service sector seems to offer the lowest average ROA but the highest ROE.

⁶ Fisher and Lindermyer (2020) ; Eliala, T (2019) among many others ; Elyan *et al.* (2003).

Table 2: Descriptive analysis

		Gross executive Compensation	ROA	ROE	Tobin's Q	Risk-taking level
Whole sample	Mean	210605.6 TND	0.306	0.023	6.942	2.384
	Standard deviation	226224	2.384	0.330	30.179	1.024
industrial sector	Mean	222611.66 TND	1.139	0.0102	23.395	2.399
	Standard deviation	106095.657	2.833	0.191	56.802	1.449
Service sector	Mean	155594.86 TND	0.016	0.028	12.424	0.520
	Standard deviation	19507.91771	0.060	0.127	0.247	0.125
High technology sector	Mean	126255 TND	0.058	0.118	1.985	13.231
	Standard deviation	241975.581	0.181	0.287	1.495	0.847

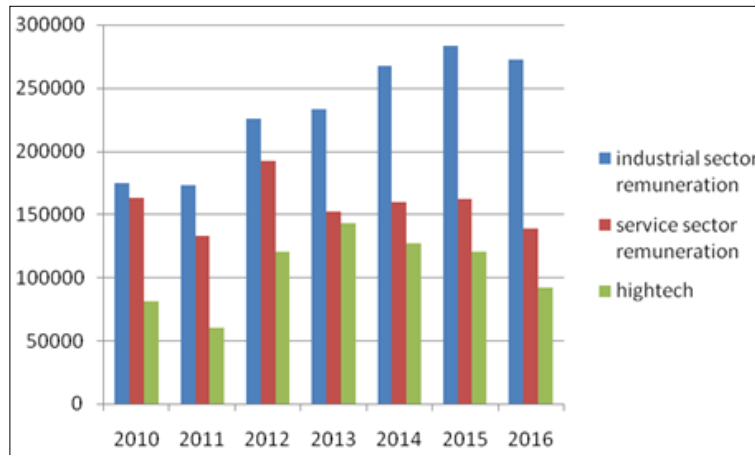


Fig 1: CEO Compensation by sectors

Figure 1 plots the evolution of the gross executive pay within sectors and over the study period.

Figure 1 shows some inequality of executive compensation over sectors. It confirms that the highest executive compensation is allocated within the industrial sector. Moreover, compared to the other sectors, the industrial firms' executive compensation seems to be more stable and to pursue an upward trend. The most volatile compensation is shown within the high technology sector. Moreover, we can notice a heterogenous CEO compensation evolution among sectors. Therefore, and as was highlighted by numerous papers (see for example Leszczynska and Chandon (2019))^[50], it would be important to investigate

the CEO compensation-sector interactions' impact on the firm performance-executive compensation relationship.

Table 3 reports a negative association between compensation and stock-market performance, measured by Tobin's Q. The investors seem to resent any improvement in executive compensation. Also, an increase in CEO gross pay seems to affect firm economic performance negatively. Even more, CEO compensation seems to be positively associated with the activity risk-level. The higher the executive gross compensation increase, the more volatile the monthly firm income is. We may argue that higher compensation may encourage executives to take higher risks, which may hurt the firm stability.

Table 3: Correlation matrix

	ROE	ROA	Q_TOBIN	SIZE	GROWTH	DEBT	RISK	COMPENSATION
ROE	1.000							
ROA	0.0126*	1.000						
Q_TOBIN	-0.0243*	0.4824*	1.000					
SIZE	-0.0958**	-0.0413**	-0.1306*	1.000				
GROWTH	0.0291*	-0.0476*	-0.0418*	0.0763**	1.000			
DEBT	-0.0458*	0.0174	0.0084*	-0.0590**	-0.0177	1.000		
RISK	-0.0061*	-0.2111*	-0.5173**	0.2186*	0.0563	-0.0005	1.000	
COMPENSATION	0.0733*	-0.0107**	-0.0386*	0.1349*	0.0920**	0.0776*	0.3285**	1.000

*significant at 10%; **significant at 5%

3. Regression results and discussion

To examine empirically the effect of the executive compensation on firms' performance, we carried out a GLS estimation of the following model (1) $Performance_{it} = constant + \beta_1 REM_{it} + \beta_2 size_{it} + \beta_3 debt_{it} + \beta_4 growth_{it} + \beta_5 REM * Sect_{it} + \epsilon_{it}$

Where $performance_{it}$ indicates the performance of firm i in the t^{th} year. It is measured respectively by (1) profitability (ROA and ROE), (2) stock-market performance (Tobin's Q), and (3) Risk-taking (ln monthly income standard

deviation). So, we had to estimate four equations, as follows:

$$ROA_{it} = constant + \beta_1 REM_{it} + \beta_2 size_{it} + \beta_3 debt_{it} + \beta_4 growth_{it} + \beta_5 REM * Sect_{it} + \epsilon_{it} \text{ Eq (1)}$$

$$ROE_{it} = constant + \beta_1 REM_{it} + \beta_2 size_{it} + \beta_3 debt_{it} + \beta_4 growth_{it} + \beta_5 REM * Sect_{it} + \epsilon_{it} \text{ Eq (2)}$$

$$Q_{it} = constant + \beta_1 REM_{it} + \beta_2 size_{it} + \beta_3 debt_{it} + \beta_4 growth_{it} + \beta_5 REM * Sect_{it} + \epsilon_{it} \text{ Eq (3)}$$

$$Risk_{it} = constant + \beta_1 REM_{it} + \beta_2 size_{it} + \beta_3 debt_{it} + \beta_4 growth_{it} + \beta_5 REM * Sect_{it} + \epsilon_{it} \text{ Eq (4)}$$

REM_{it} refers to the annual executive gross pay of firm *i* in the *t*th year. The REM*Sect considers the interaction between CEO compensation and sector since each sector seems to have a specific level of executive annual pay. It might be argued here that considering this sector executive compensation disparity may improve the results and mitigate the sector effect. To indicate the corresponding sector, we used an ordinal variable that takes 1, for the

industrial sector, 2 for the service sector, and 3 for high the technology sector.

To carry out the model regression, we have used a panel fixed effect estimator since the F statistic related to the homogeneity test, and the khi-2 statistic related to the Hausman test were both significantly lower than 5%, for the four distinguished equations. Table 4 reports the findings.

Table 4: Regression results

	Eq (1) ROE	Eq (2) ROA	Eq (3) Tobin's Q	Eq (4) Risk
Constant	-1.527***	19.082***	22.414***	10.202***
REM	0.324*	-0.109	-2.904*	1.329**
Debt	-0.019	-0.629*	-2.791**	1.629***
growth	0.081	0.573*	1.470	1.203**
size	0.002	-0.067	5.475***	-0.281
REM*Sect	0.452***	-0.245**	-22.408***	-1.905***
R ²	0.1844	0.5277	0.4532	0.2544
F.Statistic /wald.khi2	F=7.91***	F=13.18***	F=29.01***	F=10.21***

***significant at 1%; ** significant at 5%; * significant at 10%

Table (4) shows that the Executive Compensation seems to hurt the firm's stock-market performance, which is measured by Tobin's Q. This can be explained by the fact the stock-market prices react negatively to an increase in the firm executive pay. Especially, investors may think that the executive can take advantage of their authority to claim exorbitant compensation, which may lead to an increase in firm expenses, hurting so the shareholders' wealth and the firm's stock-market equity value. Findings seem to corroborate the agency theory which establishes agency conflicts between the manager and the firm shareholders and supports the managerial approach in explaining the CEO compensation and firm performance relationship.

Nevertheless, an increase in CEO compensation seems to moderately improve the shareholders' profitability measured by the ROE. In line with the previous literature, we also argue that the executive compensation is an effective mechanism for controlling and motivating the executive to achieve the shareholders' objectives (Cordeiro and Veliyath (2003) [10]; Kuo *et al.* (2013) [46] and Hanlon *et al.* (2003) [34]). Especially, it might be argued that an increase in CEO compensation may insure the current shareholders but it evokes mixed perception within potential shareholders. Our results seem to corroborate the agency theory which states that CEO compensation may be an effective corporate governance mechanism able to align the interests of both the manager and the shareholders. But the investors' reactions seem to be in line with the managerial approach to consider an increase in the CEO compensation may reduce the firm wealth and to reflect some excessive managerial power, thus the double side of the CEO compensation as an effective corporate governance mechanism and in the same time managerial powerful tool (Murphy (2002)) [59].

Indeed, table (4) shows a similar but more significant influence of the variable REM*Sector, which controls for the sector executive compensation average level on the firm stock-market performance. Within sectors, results indicate that an increase of executive compensation beyond the sector average has a significantly negative impact on Tobin's Q and a significantly positive impact on the ROE. These findings are highlighting again the mixed effect of CEO compensation and especially, the different impact of the increase of CEO compensation on the current and

potential shareholders' perception. In line with Murphy (2002) [59], Chan (2012), and Chen *et al.* (2011) [12], it might be argued that the agency theory may explain the positive impact of CEO compensation on the shareholders' profitability, supporting that a particularly higher CEO compensation compared to the average sector, will be able to align the manager and shareholders objectives. But the managerial powerful approach should explain the significant negative impact of CEO compensation on the stock market and investors perceptions, who would interpret a higher CEO remuneration compared to the sector average as misappropriation of shareholders' wealth and as manager excess power, hence this negative reaction to an increase of CEO compensation. Besides the economic recession and the financial and social crisis which mark the study context could reinforce this feeling of mistrust and doubt among investors. Thus enhancing the current CEO remuneration contracts transparency in the Tunisian context would contribute importantly in reestablishing confidence and in insuring investors.

Consistent with some previous studies, (Leonard (1990) [49]; Attaway (2000) [2]; Farmer *et al.* (2013) [26]; Balafas and Florackis (2014) [6]; Cooper *et al.* (2014) [15]; Ozkan (2011) [62]; and Mohammed and Phil (2013)) [57], we did not record a significant relationship between executive compensation and firm economic performance. This inconclusive finding may be due to the mixed effect of executive compensation on firm returns. It could motivate executives, on the one hand, but causes an increase in the firm expenses, on the other. Nevertheless, when we have controlled for the sector effect, the results show a significant negative influence of the increase of executive compensation on firm economic profitability. This can be argued by the fact that an increase of executive compensation beyond the sector average seems to empirically increase the firm expenses, rather than enhance executives to improve their services. Although these findings are consistent with some existing literature ((Balafas and Florackis (2014) [6]; Cooper *et al.* (2014) [15]; Ozkan (2011) [62]; and Mohammed and Phil (2013)) [57], we expect that these findings may be just immediate results, which are valid only in the short term, and the positive effect of an incentive pay could be felt in the long run. This issue could be a potential subject matter of our future

research. Regarding the risk-taking level which is proxied with firm income volatility, and in line with Massa and Patgiri (2009)^[53], Mehran and Rosenberg (2008)^[56], and Balachandran *et al.* (2010)^[7], our results have reported a significant positive influence of executive compensation on the firm risk level. This can be explained by the fact that an increase in executive compensation enhances the manager to undertake risky investments, which are associated with high expected returns. This finding is also confirmed by the sector descriptive analysis. The highest executive compensation recorded in the industrial sector may be related to the highest standard deviation of the industrial firm income (see table 2). The riskier the sector is (income standard deviation), the better the executives are paid.

However, after controlling for the sector effect, our findings have reported a significantly negative influence of executive compensation on firm risk level. It seems that within sectors, the higher the executive compensation is, the less the income volatility would be. It might be argued that the more the executive is paid, the more he would opt for less risky projects to preserve his job and then his relatively higher compensation (Aslam *et al.* (2019)^[4] and Soana *et al.* (2019)^[69]). Regarding the size influence on the firm performance, our results indicated a significant positive influence only on the stock-market performance measured by Tobin's Q. Such findings are consistent with Rachdi and El Gaied (2009)^[64], Cohen, *et al.* 2013)^[13], Gomez-Mejia *et al.* (1987)^[29], and Elayan *et al.* (2003)^[21]. Investors seem to appreciate the big firms, maybe because they are seen as too big to fail. For the growing influence, table 4 shows a positive and significant influence on the firm's risk-taking level. The higher the growth income rate is, the greater the income standard deviation will be. Consistent with the results of King and Santor (2008)^[45], Maury (2006)^[54], who showed that high-growth companies can generate higher profits through a higher level of investment, our study also registered a significant positive effect of CEO compensation on the economic firm-profitability. Finally, the leverage level has a negative influence on both firm economic and stock-market performance. Our findings are in agreement with those of Elayan *et al.* (2003)^[21] who found a negative relationship between corporate debt and corporate performance and therefore noted that the level of performance is weak when corporate debt increases. Aziz and Abbas (2019)^[5] found that the coefficient of the debt variable is statistically significant at the 1% level and negatively affects firm performance. We nevertheless recorded a positive effect of debts on the firm risk level, which is consistent with the financial theory, arguing that the more the company is indebted; the riskier it is considered to be.

4. Conclusion

In this study, we have investigated the executive compensation-firm performance relationship among a sample of 61 non-financial Tunisian firms. We have used four different firm performance indicators; these are (1) ROA; (2) ROE; (3) Tobin's Q, and (4) firm risk level. Moreover, we have controlled for the sector effect, which may impact the explored relationship. The study reports a significant negative effect of executive gross pay on the stock-market firm performance. Consistent with the managerial approach, potential shareholders (investors) may suspect an excessive compensation awarded to the CEO,

whence the documented negative effect of executive gross pay improvement on the firm Tobin's Q. So it would be useful for the listed Tunisian companies to look for more effective governance mechanisms to ensure more transparency to reassure shareholders and investors. Differently, findings indicate a significant positive impact of CEO compensation increase on the firm ROE. We have argued that CEO compensation increase affects differently the current firm shareholders. Especially, CEO compensation would be an effective corporate governance mechanism able to align the shareholders and the management objectives.

Also, the findings have shown a significant and positive impact of executive compensation on firm risk-taking, which is in line with existing literature arguing that incentive executive compensation, tends to encourage excessive risk-taking. Nevertheless, after controlling for the sector effect, our results showed a significant negative effect of CEO gross pay on firm risk-level. It might be argued that an increase in CEO gross pay tends to encourage managers to no longer undertake risky projects, to preserve their jobs, altering so, the firm growth and long term returns. It might be useful for Tunisian listed companies to establish optimal incentive contracts encouraging the executive to hold reasonable growth opportunities. Finally, while the reached results indicate a mitigating effect of executive compensation on firm economic performance, the impact becomes significantly negative when we controlled for the sector. It may be deduced that any executive compensation improvement seems to increase firm expenses, more than improve executive involvement.

4.1 Conflict of interest statement: On behalf of all authors, the Corresponding author states that there is no conflict of interest.

5. References

1. Antenucci R. The Disconnect between CEO Compensation and Firm Performance during Recessionary Periods. *Global Journal of Economics and Finance* 2020;4:25-41.
2. Attaway MC. A study of the relationship between company performance and CEO compensation. *American Business Review* 2000;18:77-85.
3. Arya A, Glover J, Mittendorf M, Narayanamoorthy G. Unintended consequences of regulating disclosures: The case of Regulation Fair Disclosure. *Journal of Accounting and Public Policy* 2005;24:242-253.
4. Aslam E, Haron R, Tahir MN. How director remuneration impacts firm performance: an empirical analysis of executive director remuneration in Pakistan. *Borsa Istanbul Review* 2019;19:186-196.
5. Aziz S, Abbas U. Effect of debt financing on firm performance: A Study on the nonfinancial sector of Pakistan. *Open Journal of Economics and Commerce* 2019;2:8-15.
6. Balafas N, Florackis C. CEO Compensation and Future Shareholder Returns: Evidence from the London Stock Exchange. *Journal of Empirical Finance* 2014;27:97-115.
7. Balachandran S, Kogut B, Harnal H. The probability of default, excessive risk, and executive compensation: A study of financial services firms from 1995 to 2008. Working paper, Columbia University 2010.

8. Bebchuk LA, Fried JM. Pay without Performance: an overview of the issue. *The Journal of Applied Corporate Finance* 2010;17:8-23.
9. Brick IE, Palmon O, Wald JK. CEO compensation, director compensation, and firm performance: Evidence of cronyism? *Journal of Corporate Finance* 2010;12:403-423.
10. Cordeiro J, Veliyath R. Beyond Pay for Performance: A Panel Study of the Determinants of CEO Compensation. *Latin American Business Review* 2003;21:20-31.
11. Chan L. Industry Comparison of Executive Compensation and Equity Considerations. Honors Theses and Capstones 2012, 92. <https://scholars.unh.edu/honors/92>.
12. Chen J, Ezzamel M, Cai Z. Managerial power theory, tournament theory, and executive pay in China. *Journal of Corporate Finance* 2011;17:1176-1199.
13. Cohen DA, Dey A, Lys TZ. Corporate governance reform and executive incentives: implications for investments and risk-taking. *Contemporary Accounting Research* 2013;20:34-46.
14. Conyon MJ, He L. Executive compensation and corporate governance in China. *Journal of corporate governance* 2011;17:1158-1175.
15. Cooper MJ, Gulen H, Rau P. Raghavendra, Performance for Pay? The Relation between CEO Incentive Compensation and Future Stock Price 2014. Available at SSRN: <https://ssrn.com/abstract=1572085>.
16. Core John E, Wayne Guay R, Tjonne Rusticus O. Does weak governance cause weak stock returns? An examination of firm operating performance and investors expectations. *Journal of Finance* 2006;61:655-687.
17. Darrough MN, Melumad ND. Divisional versus Company-Wide Focus: The Trade-Off between Allocation of Managerial Attention and Screening of Talent. *Journal of Accounting Research* 1995;33:65-94.
18. Dittrich LO, Srbeek PA. Comparative Sectoral Analysis of Managerial Compensation and Firm Performance. *International Advances in Economic Research* 2017;23:359-360.
19. Doucouliagos H, Haman J, Askary S. Directors compensation and performance in Australian banking. *Corporate governance: an international review* 2007;15:1363-1383.
20. Doucouliagos H, Haman J, Stanley TD. Pay for Performance and Corporate Governance Reform. *Industrial Relations. A Journal of Economy and Society* 2012;51:670-703.
21. Elayan F, Jammy SC, Meyer LTO. Executive incentive compensation schemes and their impact on corporate performance: evidence from New Zealand since compensation disclosure requirements became effective. *Studies in economic and finance* 2003;21:54-92.
22. Elsayed N, Elbardan H. Investigating the associations between executive compensation and firm performance: Agency theory or tournament theory. *Journal of Applied Accounting Research* 2018;19:245-270.
23. Ejaz A, Razali H, Muhammad NT. How director compensation impacts firm performance: An empirical analysis of executive director compensation in Pakistan. *Borsa Istanbul Review* 2019;19:186-196.
24. Fallatah Y. CEO Compensation, Firm Performance and Corporate Governance: An Empirical Investigation of Saudi Arabian Companies. *MAGNT Research Report* 2015;3:43-71.
25. Fama EF, Jensen MC. Separation of Ownership and Control. *Journal of Law and Economics* 1983;26:301-325.
26. Farmer M, Archbold S, Alexandrou G. CEO Compensation and Relative Company Performance Evaluation: UK Evidence. *Compensation and benefits Review* 2013;45:13-22.
27. Fernandes N. EC: Board compensation and firm performance: the role of independent board members. *Journal of multinational financial management* 2008;18:30-44.
28. Fischer M, Lindermoyer J. Dodd Frank Act: Reporting CEO Compensation Relationship to Worker Ratio and Firm Performance. *American Journal of Management* 2020;20:31-46.
29. Gomez-Mejia L, Tosi RH, Hinkin T. Managerial control, performance, and executive compensation. *Academy of Management Journal* 1987;30:51-70.
30. Gompers PA, Ishii JL, Metrick A. Corporate governance and Equity Price. *The Quarterly Journal of Economics* 2003;118:107-156.
31. Girma S, Thompson S, Wright PW. Corporate governance reforms and executive compensation determination: evidence from the UK. *The Manchester School* 2007;75:65-81.
32. Grossman S, Hart O. An Analysis of the Principal-Agent Problem. *Econometrica* 1983;51:7-45.
33. Hall B, Leibman J. Are CEOs Really Paid Like Bureaucrats? *Quarterly Journal of Economics* 1998;113:653-691.
34. Hanlon M, Erickson M, Maydew EL. Is There a Link Between Executive Compensation and Accounting Fraud? *Journal of Accounting Research* 2003;44:11-22.
35. Haron R. Do Muslim directors influence firm performance? Empirical evidence from Malaysia. *Al-Shajarah, Special issue Islamic Banking, and Finance* 2018, 283-305.
36. Hillock KF, Madalozzo R, Reck CG. CEO pay-for-performance heterogeneity using quantile regression *Financial Review* 2010;45:1-19.
37. Holm C, Zaman M. Regulating audit quality: Restoring trust and legitimacy. *Accounting Forum* 2012;36:51-61.
38. Holmstrom B. Moral Hazard, and Observability. *The Bell Journal of Economics* 1979;10:74-91.
39. Huang Q. Executive Compensation and Risk-Taking of Chinese Banks 2020. Available at SSRN: <https://ssrn.com/abstract=3594987> or <http://dx.doi.org/10.2139/ssrn.3594987>
40. Javid AY, Iqbal R. Corporate governance in Pakistan: corporate valuation, ownership and financing. Working paper and research reports 2010.
41. Jensen MC, Murphy KJ. Performance Pay and Top-Management Incentives. *Journal of Political Economy* 1990;98:225-264.
42. Jensen MC, Murphy KJ, Wruck E. CEO pay and how to fix it. Harvard Business School NOM Working paper 2004, 04-28.
43. Kazan E. The impact of CEO compensation on firm performance in Scandinavia. 8th IBA Bachelor Thesis Conference. Enschede, The Netherlands 2016.

44. Kim YS, Kang SA, Seol I. The Effect of the Owner CEO on the Relation between CEO Compensation and Firm Performance: Korean Case. *Global Business and Finance Review* 2018;23:81-97.
45. King M, Santor E. Family values: Ownership structure, performance and capital structure of Canadian firms, *Journal of Banking and Finance* 2008;32:2423-2432.
46. Kuo HC, Lin D, Wang LH. Chief Executive Compensation: An Empirical Study of Fat Cat CEOs. *The International Journal of Business and Finance Research* 2013;7:25-36.
47. Lam KCK, McGuinness PB, Vieito JP. CEO Gender, Executive Compensation and Firm Performance in Chinese-Listed Enterprises. *Pacific-Basin Finance Journal* 2013;21:1136-1159.
48. Lazear Edward P, Rosen Sherwin. Rank-Order Tournaments as Optimum Labor Contracts. *Journal of Political Economy* 1981;89:841-864.
49. Leonard JS. Executive Pay, and Firm Performance. *ILR Review* 1990;43:13-29.
50. Leszczynska D, Chandon JL. Is there still a gender effect on CEO compensation? *Journal of Management Development* 2019;38:336-356.
51. Lewellen WG. The Pattern of Compensation over time. Chapter in NBER book *Executive Compensation in Large Industrial Corporations 1968*, 122-156.
52. Lewellen WG. Management and ownership in large firms. *Journal of Finance* 1969;24:156-187.
53. Massa M, Patgiri R. Incentives and Mutual Fund Performance: Higher Performance or Just Higher Risk-Taking? 2009. SSRN electronic journal 10.2139/ssrn.891442.
54. Maury B. Corporate Performance, Corporate Governance, and Top Executive Turnover in Finland. *European Financial Management* 2006;12:221-248.
55. Mehran H. Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics* 1995;38:163-184.
56. Mehran H, Rosenberg J. The effect of employee stock options on bank investment choice, borrowing, and capital. *Federal Reserve Bank of New York Staff Report No.305*, 2008.
57. Mohammed NY, Phil D. The Effect of Return on Assets (ROA) on CEO Compensation System in TSX/S&P and NYSE Indexes Companies. *International Journal of Scientific & Engineering Research* 2013;4:2-5.
58. Monem R, Ng C. Australia's two-strikes rule and the pay-performance link: are shareholders judicious? *Journal of Contemporary accounting and economics* 2013;9:237-254.
59. Murphy KJ. Explaining Executive Compensation: Managerial Power versus the Perceived Cost of Stock Options. *University of Chicago Law Review*. Summer 2002;69:847-69.
60. Ntim GC, Lindop S, Osei KA, Thomas D. Executive Compensation, Corporate Governance, and Corporate Performance: A Simultaneous Equation Approach. *Managerial and Decision Economics* 2015;36:67-96.
61. Oviantari I. Directors and commissioners compensation and firm performance: Indonesian evidence. *The second international conference on business and economic research* 2011.
62. Ozkan N. CEO Compensation and Firm Performance: an Empirical Investigation of UK Panel Data. *European financial management* 2011;17:260-285.
63. Perry T, Zenner M. Pay for performance? Government regulation and the structure of compensation contracts. *Journal of financial economics* 2001;62:453-488.
64. Rachidi H, El Gaied M. L'impact de l'Indépendance et de la dualité du Conseil d'Administration Sur la Performance des Entreprises: Application au contexte Américain. *Revue Libanaise de Gestion et d'Economie* 2009;3:1-24.
65. Raithatha M, Komera S. Executive compensation and firm performance: Evidence from Indian firms. *IIMB Management Review* 2016;28:160-169.
66. Shao R, Chen C, Mao X. Profits and losses from changes in fair value, executive cash compensation, and managerial power: evidence from A-share listed companies in China. *China Journal of Accounting Research* 2012;5:269-292.
67. Sheikh MF, Shah SZA, Akbar S. Firm performance, corporate governance, and executive compensation in Pakistan. *Applied Economics* 2018;50:2012-2027.
68. Smirnova AS, Zavertiaeva MA. Which came first, CEO compensation or firm performance? The causality dilemma in European companies. *Research in International Business and Finance* 2018;42:658-673.
69. Soana MG, Ferri G. Remuneration provisions, internal governance, and risk-taking in small cooperative banks. *International Journal of Business and Social Science* 2019;10:21-34.
70. Van Essen M, Heugens PP, Otten J, Van Oosterhout. An institution-based view of executive compensation: A multilevel meta-analytic test. *Journal of International Business Studies* 2012;43:396-423.