



## **Managers' Entrenchment, Governance and Bank Performance**

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### **ABSTRACT**

This paper examines the relationship between managers' entrenchment, governance and financial and stock market performance of Tunisian banking institutions listed on the Tunis Stock Exchange. We first propose to model the level of managers' theoretical entrenchment. Second, we examine a panel data to determine the relationship between the different internal banking governance mechanisms, including managers' entrenchment, on banking performance. To this end, our study examines a sample of 11 Tunisian banks over a period stretching from the first half of 2006 to the second half of 2013. The results indicate that "good" governance practice codes of banking institutions often represent poor performance. On the other hand, managers' theoretical entrenchment contributes to improving the financial performance of Tunisian banking institutions.

**Keywords:** Banking Governance, Managers' Entrenchment, Market Performance

**JEL Classifications:** G01, G20, G30

### **1. INTRODUCTION**

Information asymmetry theory derived from the famous agency theory represents the cornerstone of all the studies that examined corporate governance problems. Indeed, company executives take advantage of the problems arising from information asymmetry in order to make specific decisions and achieve performance objectives. Hence, the question that comes to mind is: What decisions are taken in order to increase shareholder wealth?

On this concern, opinions diverged among researchers of this field. Some authors support the idea that managers should increase shareholder wealth. Others believe that managers who take advantage of organizational problems always seek to maximize their personal profit. Such a contradiction founded indeed managers' entrenchment theory. Research on the effect of managers' entrenchment level on financial and market performance of firms produced mixed results. On the one hand, entrenchment is found to be beneficial for the organization, nevertheless it misallocates wealth on the other hand.

Pigé (1998) defines managers' entrenchment as "a process that reflects the agent's desire to free himself, at least partially, from

the principal's (shareholders) control, in order to obtain more personal benefits (either in the form of cash benefits or in the form of benefits in kind)." Mork et al. (1988) and Bebchuk et al. (2009) define entrenchment as managers' ability to make decisions that do not maximize shareholder wealth, but rather maximize their discretionary power.

Several studies examined the notion of managers' entrenchment and their costs. Indeed, corporate governance internal mechanisms are supposed to reduce managers' entrenchment. Jarrell and Poulsen (1988) and Ruback (1988) show that separating functions of Chief Executive Officer (CEO) and Chairman of the board weakens their entrenchment level.

In this paper, we will determine the relationship between managers' theoretical and historical entrenchment and banking performance. To this end, first, we will review the literature outlining managers' entrenchment theory<sup>1</sup>. Then, we will proceed by modeling managers' theoretical entrenchment, referring to the methodology of Pigé (1998). Finally, we will report on a study

<sup>1</sup> Entrenchment measurement method is inspired by the work of Pigé (1998) "l'enracinement des dirigeants et la richesse des actionnaires."

that examined a panel data to determine the relationship between internal banking governance mechanisms and financial and stock market performance.

## 2. REVIEW OF THE LITERATURE

Pigé (1998) defined managers' entrenchment as "the process that allows managers to free themselves from the control of the board of directors or even their shareholders." This definition implies that managers manage the firm in a way contrary to value maximization. Shleifer and Vishy (1997) argue that managers seek to make specific investments according to their know-how, the aim of which is to enhance their presence in the company and make their dismissal costly. As a result, they get more attractive compensations, great benefits and a greater decision autonomy to manage the firm.

Indeed, there are other entrenchment mechanisms distinct from specific investments such as private information. Moreover, circular (No. 2011-06) of the Central Bank of Tunisia issued to credit institutions recommended considering organizational strategies that address conflicts of interest and anti-entrenchment practices. This circular, through its Article 9, requires the managing body to provide all the information necessary and available for the discussions and the deliberations of the board of directors<sup>2</sup>. This encourages managers to disclose information and pass it on to specific committees, preventing them from using it for personal benefits. This has been prohibited since 2011 by article 21 of circular (2011-06) of the Central Bank of Tunisia which stipulates that "The governing body shall provide to committees any documents or information they deem useful and make available to them the necessary means to accomplish their mission"<sup>3</sup>. Desbrières (2002) argues that "private information they hold, their status as shareholders give them the right to information and promote the exchange of information with external shareholders in general assemblies. Transfer of information helps to limit managers' discretionary power and to strengthen the firm's governance system." Moreover, the author adds that "employee shareholders have the possibility of exercising active control, even if they do not have a blocking minority, they can create or join a coalition aimed at centering the decisions of the majority." Thus, the form of stock ownership affects the relationship between employee shareholders and managers. Holding a capital share through a mutual fund is different from holding a nominal share. The latter form of share ownership makes employee shareholder's management rights more flexible (Desbrières, 2002).

However, there is another form of managerial control that may influence managers' entrenchment, i.e., board structure (board of directors or supervisory board). Gharbi (2007) assumes that board size can indicate levels of efficiency and control over managers. The author assumes that employee shareholding and board size influence managers' entrenchment level.

According to Paquerot (1997) and Pichards (2000), managers' entrenchment can be achieved in several ways. Managers, because of their strategic positions, are able to establish explicit or implicit contracts with the different stakeholders, i.e., employees. They are able to establish implicit contracts to rally certain agents and subsequently free themselves from certain control mechanisms.

Morck et al. (1988) show that managers' entrenchment is harmful for firms, since it allows part of the control exercised by shareholders to be disengaged. On the other hand, Castanias and Helfat (1992) find that by making discretionary investments, managers can generate large profits, then shareholders will be indirectly beneficiaries.

Indeed, several researchers like Pigé (1998), Aouadi (2001) and Guerhazi (2006) validate the hypothesis assuming that entrenchment affects stock market performance. The latter two authors confirmed that managers' seniority in a company before being appointed general manager (GM)/CEO positively affects entrenchment. On the other hand, they found that rotation and duration of mandates of managers of non-financial institutions have no effect on entrenchment level in the Moroccan and Tunisian contexts. In addition, Wang (2014) finds that the "manager-shareholder" conflict intensifies as the financial position of the institution weakens. When managers fail to meet shareholders' objectives, their entrenchment level decreases. In addition, Klein (2002), Buchko (1993), Gorton and Rosen (1995), Gamble (2000) and Markowitz et al. (2010) argue that entrenchment positively affects employee shareholders' behavior. Indeed, the literature distinguishes between two employee-shareholders strategies; a positive behavior involving performance and a negative one that leads to managers' entrenchment.

However, Aubert et al. (2014) argue that employee shareholders will be more motivated when their financial package is favorable. In other words, when a company is financially stable, employee shareholders will be more perfectionist. It is for this reason that most executives seek to entrench themselves through performance. During CEOs elections, employee shareholders vote in favor of renewing the mandate of the existing executive so that the latter can maximize their profits at a later date. Several authors believe that the employee-shareholder strategy can be useful as an entrenchment mechanism.

In a similar vein, Shivdasani (1993) and Beatty (1995) found that distributing shares to employees indirectly contributes to amplifying managers' entrenchment. Given that employee participation in the capital, this puts them at an advantage as a function of their shareholdings. The latter mechanism subsequently weakens the controlling power of institutional investors and ultimately diffuses capital. This strategy leaves considerable room for maneuver in terms of decision-making and control. Another paradox cited by Gharbi (2007) distinguishes two positions explaining the relationship between employee ownership and the manager. The first refers to agency theory, which supports the ability of employee shareholders to control managers. The second refers to entrenchment theory, which implies that employee ownership leads to managers' entrenchment.

2 Article 9, circular of the CBT No. 2011-06 on credit institutions.

3 Article 21, circular of the CBT No. 2011-06 on credit institutions.

Similarly, Wang (2014) assumes that employee compensation system positively affects managers' entrenchment. The author studied how disproportionality of wealth-distribution in terms of bonuses and dividends seems to lead minority shareholders to opt for an expropriation behavior. Therefore, managers' entrenchment behavior can be visible in case of distributing large amounts of premiums to employees disproportional with the firm's earnings (Wang, 2014). Moreover, doubting a bank's manager behavior is likely when abnormal amounts of premiums are distributed disproportionately to the firm's earnings.

As for the relationship between managers' entrenchment and the number of independent directors, Faleye (2007) found that managers' entrenchment is affected by the decision to maintain or replace directors. In addition, company executives exploit potential "anti-takeover" strategies to protect themselves from hostile takeover bids and not to be dismissed by newly elected directors. This is only possible if company performance is poor. Such a threat motivates management to react with a behavior that maximizes shareholder wealth rather than company performance.

On the other hand, seniority is an important factor explaining managers' entrenchment process. Salas (2010) believes that senior managers are those who show higher entrenchment levels. However, previous research shows that seniority is the best proxy used to measure entrenchment. Salas (2010) also shows that executives often use "anti-takeover" strategies, on the one hand, to defend their firms against hostile take-overs and to keep their positions, on the other hand. Moreover, Bertrand and Scholar (2003) explain how managers' entrenchment levels change over time.

Finally, we can conclude that managers' entrenchment and control strategies develop and evolve over time. However, evasive strategies adopted by managers to overcome control mechanisms differ from one organization to another. Indeed, a manager can take advantage of a bank's poor governance system in order to strengthen their entrenchment level. They can act either on the board of directors or the supervisory board, and this either through specific investments, through debt policy or a diversification policy.

Following the methodology of Pigé (1998), we will try first to model managers' theoretical entrenchment in a sample of Tunisian banks, and second to determine historical entrenchment level, age and legal retirement age, and managers' seniority in terms of number of years as an executive. In what follows, we first proceed by determining managers' theoretical entrenchment level.

### 3. DETERMINING MANAGERS' ENTRENCHMENT

#### 3.1. The To-be-tested Hypotheses Quantifying Managers' Theoretical Entrenchment

In order to study managers' multidimensional entrenchment on banking performance and to test managers' entrenchment level on firm performance, Pigé (1998) formulated the following hypotheses:

- Hypothesis 1: "Past performance of a manager has a positive effect on their entrenchment level of"
- Hypothesis 2: "Managers' entrenchment level depends positively on their seniority as CEO"
- Hypothesis 3: "Managers' seniority in the firm before being named CEO has a positive effect on their entrenchment level"
- Hypothesis 4: "Managers' entrenchment level depends positively on their belonging to an external relational network"
- Hypothesis 5: "A manager who does not belong to an external relational network will seek to maximize their internal informal network through entrenchment"
- Hypothesis 6: "There is an entrenchment threshold above which managers no longer seek to be efficient."

The above methodology was adopted by other researchers like "Aouadi (2001) and Guerhazi (2006)." In this study, we test Pigé's hypotheses (1998), except that instead of examining non-financial institutions, we focus on a sample of banking institutions. However, we believe that some hypotheses will be biased as the banking sector shows differences from the industrial or service sector in terms of managerial organization and the requirements for the appointment and recruitment of managers. For instance, we cannot consider the hypothesis about the intellectual level of executives, because managers (GMs and CEOs of the banks) are supposed to be highly qualified, hence, management training seems irrelevant at this point. Therefore, we will try to reformulate some hypotheses to fill this theoretical inadequacy specific to the banking sector. Therefore, the to-be-tested hypotheses are as follows:

- Hypothesis 1: Managers' entrenchment level positively depends on their seniority as CEO/GM
- Hypothesis 2: Managers' seniority in the firm before being named CEO positively affects their entrenchment level
- Hypothesis 3: Managers' age positively affects their entrenchment level
- Hypothesis 4: The decision to maintain or replace executives at the end of their mandate positively affects their entrenchment level
- Hypothesis 5: Stock market performance positively affects managers' entrenchment level.

#### 3.2. Research Methodology

The aim of this study is first to identify managers' theoretical entrenchment, and second to determine of the relationship between governance internal mechanisms of credit institutions, including variables that describe managers' profile (theoretical and historical entrenchment, seniority, age, exceeding or not the statutory retirement age) and banking performance.

In order to determine managers' entrenchment level in the sense of Pigé (1998), we should first determine entrenchment weight and the variables affecting it. To do so, we will first identify the variables necessary for our study, namely: "Manager's age, the length of time spent as a servant before being appointed as a manager, the number of cumulative mandates, experience and average long-term return on banks' stock prices."

In fact, we will adopt Pigé's method (1998), which consists in first estimating a hold-off function (maintaining or replacing the

manager at each end of the period) through a logistic regression by introducing as independent variables, manager's age and the average long-term return on stock prices.

After estimating the first equation, we will carry out a second regression by taking as a dependent variable the residual of the first estimation (which is assumed to reflect in part managers' entrenchment level as well as other factors not taken into account such as shareholding structure and board structure) in order to determine the relative weight of the different entrenchment factors. Finally, we can identify the significant variables that explain and determine managers' theoretical entrenchment in Tunisian banks.

3.2.1. Presentation of data

The study examines a sample of 11 Tunisian banks listed on the Tunis Stock Exchange (TSE), totaling 176 quarterly observations covering the first quarter of 2006 to the second quarter of 2013. Our study focuses on 23 CEOs/MGs of Tunisian banks. "Data on internal governance mechanisms of banking institutions, such as capital structure, board structure and composition, managers' mandates rotation, managers' seniority, experience and age, are collected from the banks' annual reports, the financial market council's website, the "Who's Who" section of the "leaders" website and the "stock-guides" of the banks published by the TSE. As for banking performance data, they were collected from the TSE website and from the semi-annual activity reports of the banks.

3.2.2. Definition and measurement of variables

Our procedure is two-fold. First, we will run a logistic regression taking as dependent variable "maintenance." Second, we will estimate as the dependent variable the residual of the first logistic regression. Finally, we will estimate the effect of introducing the "managers' entrenchment level" variable on banks' financial and stock market performance. To this end, we have to define the relevant variables:

- "Maintenance": Maintaining or replacing the manager. This is a dichotomous variable that is presented in the following way:

$$\begin{cases} 1 & \text{If the manager is maintained.} \\ 0 & \text{If the manager is replaced at the end of period (t).} \end{cases}$$

- "AGE<sub>t</sub>": Manager's age at time "t"
- "BHR": Buy and hold return: Average long-term return on stock prices over a 6-month period

$$BHR_i = \prod_{t=1}^T (1 + r_{i,t}) - 1 = R_i \tag{1}$$

- "ANC": Denotes managers' seniority in the bank before being appointed to the position of CEO/GM.
- "NCIVIL": The number of years the manager spent at the head of the bank after his appointment within the meaning of Pigé (1998).

$$NCIVIL = \frac{(n + 1)n}{2} \tag{2}$$

- "MDT": A dichotomous variable that describes the renewal or non-renewal of the executive's mandate.
  - 1 If the mandate is renewed
  - 0 Otherwise

3.2.3. Presentation of the to-be-tested model

Our study consists in modeling managers' entrenchment level in Tunisian banks using the methodology of Pigé (1998). The latter postulates that managers' initial entrenchment, at the time of their appointment, depends on different variables that represent their profiles, namely education and belonging to strong relational networks. However, seniority is measured by the number of years the manager spent in service before being appointed at the head of the bank.

To solve for problems of lack of data and theoretical mismatch, on the one hand, and the inconsistency between our sample and that of Pigé (1998), on the other hand, we substituted some variables, in particular "intellectual level" by "number of mandates." In addition, we added a variable that defines the number of years in service before being appointed as a CEO.

In this respect, the main equation of our estimation, which describes the managers' initial entrenchment, is as follows:

$$Y_0 = F_1(X_1, X_2) \tag{3}$$

With;

- X<sub>1</sub>: Seniority before being appointed to the position of CEO,
- X<sub>2</sub>: Average return on stock prices over a 6-month horizon.

Where,  $Y_0 = \beta_1 X_1 + \beta_2 X_2$  (4)

Put differently;

$$Y_0 = \beta_1(ANC)_{it} + \beta_2(BHR)_{it} \tag{5}$$

In this respect, following the decision to maintain or replace a manager, entrenchment level at time (t) depends on initial entrenchment at the beginning of the year, manager's age and stock market performance during period (t).

$$Y_t = Y_0 + \beta_1(AGE)_{it} + \beta_2 \left[ \prod_{t=1}^T (1 + r_{it}) - 1 \right]$$

With Avec  $r_t = \ln(R_t) - \ln(R_{t-1})$  (6)

3.3. Descriptive Statistics and Estimation of Variables Representing Managers' Entrenchment Level

3.3.1. Descriptive statistics

The descriptive statistics of the different estimated variables are presented in the Tables 1 and 2.

From these tables, we notice that 91% of Tunisian banks' executives maintain their positions as CEO or GM until the end of the year. Moreover, managers average age is 56 years, with a dispersion of 3.5 years. This can be explained in the following

way; managers of Tunisian banks will be appointed at the head of the institution 6 years before their retirement. In other words, the Tunisian banking sector confirms that experience is the criterion for appointing managers.

However, stock market performance of the banks shows a negative average of -0.051 for the period between 2006 and 2013. This can be explained by the political events that marked the post-revolution period (2011).

3.3.2. *Estimating the maintenance function and determining entrenchment parameters*

In order to estimate the “the manager’s maintenance” function, we first examine the correlation between the different variables, namely manager’s age (AGE<sub>i</sub>) and average return on stock prices (BHR). Table 3 reports the correlation coefficients between these two variables.

In the Table 3, we find a negative correlation between managers’ age and average return on stock prices. In other words, banks run by senior executives have less significant stock market performance. These results confirm the absence of a problem of strong correlation between the two variables.

To explain entrenchment level, we first determine the correlation between the residual of the first regression and the decision to maintain or replace the manager at the beginning of each quarter of the period under study. To do so, we first carried out a regression on two variables, namely managers’ age and average return on stock prices (BHR), in order to explain the board’s decision to maintain the manager. The model is as follows:

$$Y_i = \text{MAINTENANCE} = \beta_1 (\text{AGE}_{it}) + \beta_2 (\text{BHR}_{it}) + \varepsilon_i \quad (7)$$

It is through this logistic regression that we will determine managers’ entrenchment level which is calculated in turn by age and stock market performance.

The results of our estimation are presented in the Table 4.

The results of the logistic regression show that the model is globally significant. We obtained a zero probability associated with Fisher’s statistic. According to the Hausman test, the null hypothesis is rejected since the probability of the test exceeds the critical threshold [p(Hausman) = 0.1792 > 5%]. Therefore, the chosen model is a random effects model.

Moreover, the decision to maintain or replace the manager is significantly explained by age. Manager’s age, calculated in number of years, shows a positive coefficient (0.039) with a zero probability of the “t-student” test. The obtained results invalidate those obtained by Pigé (1998), Aouadi (2001) and Guermazi (2006). The latter argued that the decision to maintain or replace managers depends on stock market performance.

After identifying the factors of managerial discretion, reflected by the residual of the first logistic regression, we will try to determine the relative weight of each entrenchment factor. To do

**Table 1: Descriptive statistics for (AGE<sub>t</sub>) and (BHR)**

Variables	Observations	Mean±SD	Minimum	Maximum
AGE <sub>t</sub>	176	56.647±3.630	46	64
BHR	176	-0.051±0.216	-0.992	0.366

SD: Standard deviation, BHR: Buy and hold return

**Table 2: Descriptive statistics for maintenance**

Maintenance	Frequency (%)
0	16 (9)
1	160 (91)
Total	176 (100)

**Table 3: Correlation between managers’ age and average return on stock prices**

Variable	AGE <sub>t</sub>	BHR
AGE <sub>t</sub>	1	
BHR	-0.048	1

BHR: Buy and hold return

**Table 4: The results of the logistic regression**

Maintain	AGE <sub>t</sub>	BHR	P (Fisher)	Specification
Coefficient	0.039	-0.671	0.000	Random effects
t (Student)	8.54***	-0.47		

BHR: Buy and hold return, \*\*\*Significant at the 1% threshold, \*\*Significant at the 5% threshold, \*Significant at the 10%

this, we proceed by a linear regression taking as the dependent variable the residual of the first regression. In order to explain, on the one hand, how seniority, the number of years in service, renewal of the mandate and average stock market performance act on entrenchment, and to determine the weight of managers’ theoretical entrenchment, on the other, we proceed as follows:

Indeed, the residuals of the first logistic regression strongly correlate with the decision to maintain or replace managers with a coefficient of 0.998. Nevertheless, residuals cannot be used to determine managers’ theoretical entrenchment. In order to avoid a problem of strong correlation and multicollinearity between these two variables, we attributed the natural logarithm to the dependent variable (the residual of the first regression).

The second estimation is to explain (managers’ seniority, the number of years in service before being appointed as CEO/GM, renewal of the manager’s mandate and average stock market performance of the banks) as a function of the residuals of the first logistic regression. It amounts to estimating the following relationship:

$$\text{Ln}(\varepsilon_{it}) = \alpha_1 \ln(\text{ANC})_{it} + \alpha_2 \ln(\text{NCIVIL})_{it} + \alpha_3 \ln(\text{Mandat})_{it} + \alpha_4 \ln(\text{BHR})_{it} + \mu_{it} \quad (8)$$

Estimation of the residual of the first regression shows a single significant variable “manager’s seniority.” Indeed, the coefficient of the variable (ANC) is negative and statistically significant at the 10% threshold. Consequently, the higher the managers’ seniority (ANC), the lower entrenchment level, reflected by the residual of the first regression (which includes unobservable entrenchment factors). This may be explained by the fact that

experienced managers have already built their relational networks and implemented entrenchment strategies in order to reduce the possibility of their replacement or revocation. In other words, they have already achieved their objectives and are no longer seeking entrenchment.

The results of our study invalidate those obtained by Guermazi (2006) who postulates that the highly experienced managers are better able to manage all the contracts of the bank.

Moreover, the signs of the coefficients of the variables "NCIVIL," "MDT" and "BHR" are not significant. Our results are inconsistent with those obtained by Pigé (1998) and Guermazi (2006). In this respect, our basic hypotheses are not retained, yet neither do stock market performance nor managers appointment process lead to entrenchment, at least in the case of the studied Tunisian banks. Finally, we confirm that initial entrenchment is affected only by managers' seniority.

After estimating and analyzing the results of the previous regression, we will now estimate managers' theoretical entrenchment at the beginning of the period (t) using the parameters ( $\alpha_1, \alpha_2, \alpha_3, \alpha_4$ ) issued from the previous regression.

We represent managers' theoretical entrenchment in the following way:

$$Y_{t-1} = Y_0 + X_1 \ln \left[ \prod_{t=1}^T (1 + r_{it}) - 1 \right] \tag{9}$$

$$\text{With } Y_0 = \alpha_1(\text{ANC})_{it} + \alpha_2(\text{BHR})_{it} \tag{10}$$

We found that only the variable (ANC) has a significant effect on managers' theoretical entrenchment. Thus, we can write the initial equation as follows:

$$Y_0 = -0.031(\text{ANC}) \tag{11}$$

The coefficient of the performance variable is not significant, then it is possible to estimate managers' theoretical entrenchment in the following way:

$$Y_{t-1} = Y_0 = -0.031(\text{ANC}) \tag{12}$$

Moreover, managers' entrenchment function is a linear function of theoretical entrenchment. Indeed, entrenchment directly depends on managers' seniority before being appointed at the head of the bank. Figure 1 presents seniority of the different studied banks.

Finally, as a recapitulation, in Table 6 we compare the results of our work with those obtained by other authors cited above.

Indeed, our findings on hypotheses ( $H_2$  and  $H_3$ ) corroborate those found by Pigé (1998), Aouadi (2001) and Guermazi (2006). In addition, we confirmed that experience (measured in terms of seniority years) affects entrenchment level. In this respect, our results indicate that seniority in terms of experience is the most important factor that can explain entrenchment of executives in our sample. On the other hand, we found no significant relationship between executives' mandates rotation and entrenchment level. Finally, unlike previous studies, we found that stock market performance does not affect managers' entrenchment level.

## 4. GOVERNANCE AND BANKING PERFORMANCE IN THE PRESENCE OF MANAGERS' ENTRENCHMENT

After identifying the key variables sensitive to managers' theoretical entrenchment, in what follows we will examine, through a panel data, the relationship between the different variables representing entrenchment, governance internal mechanisms and banking performance of all Tunisian banks listed on the TSE. Indeed, we will study the extent to which managers' entrenchment affects the relationship between governance internal mechanisms and financial and stock market performance of banks.

### 4.1. Methodology and Variables Definition

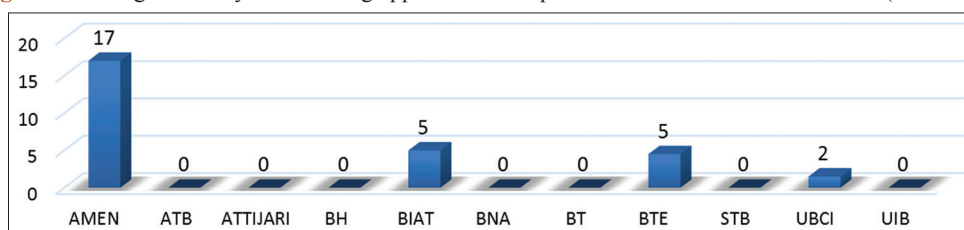
In this section, we will proceed with regressions on panel data in order to study the relationship between governance internal mechanisms of banking institutions, managers' entrenchment level and banking performance. Our study focuses on a sample of eleven Tunisian banks listed on the TSE over an 8-year period, stretching from 2006 to 2013. Data describing managers' profiles is extracted from the annual reports published by banks and websites such as "Leaders, Tustex, the Financial Market Council and TSE."

**Table 5: Determining entrenchment factors coefficients**

Variable	Coefficient	t
Seniority	-0.0310	-1.72*
Adjusted duration	-0.0001	0.17
Mandate	-0.0377	-0.59
Performance	0.0718	0.67
Log-likelihood	-60.783	
Wald $\chi^2$	3.77	
Specification	RE (MLL)	

\*\*\*Significant at the 1% threshold, \*\*Significant at the 5% threshold, \*Significant at the 10%

**Figure 1: Average seniority before being appointed to the position of Chief Executive Officer (2006-2013)**



**Table 6: Comparison of different studies**

Authors	France Pigé (1998)	Morocco Aouadi (2001)	Tunisia Guermazi (2006)	Our study
Sample	1747 observations	220 observations	191 observations	176 observations
Period	1966-1990	1993-1998	1997-2003	2006-2013
H <sub>1</sub> : Stock market performance	Retained	Retained	Retained	Rejected
H <sub>2</sub> : Seniority as CEO/GM	Rejected	Rejected	Rejected	Rejected
H <sub>3</sub> : Manager's experience in the firm before being appointed as CEO	Rejected	Retained	Retained	Retained
H <sub>4</sub> : External relational network	Retained	Retained	Rejected	-
H <sub>5</sub> : Absence of external network	Retained	Retained	-	-
H <sub>6</sub> : Existence of an entrenchment threshold	Retained	Retained	Rejected	-

GM: General Manager, CEO: Chief executive officer

**Table 7: Variables and authors**

Variables	Measures	Authors
The dependent variables		
Buy and hold stock returns (BHR)	$BHR_i = \prod_{t=1}^T (1 + r_{it}) - 1 = R_i$	Fahlenbrach et al. (2011), Aebi et al. (2012)
Stock market volatility (VOL)	$VOL = \frac{PH - PB}{\frac{PH + PB}{2}}$ PH: Highest price, PB: Lowest price	Huang et al. (2011)
Adjusted Tobin's Q (QTA)	$\frac{\text{Stock market capitalization} + \text{depts}}{\text{Total assets}}$	Chung and Pruitt (1994)
The independent variables		
Independent administrators (INDD)	Number of independent administration in the board	Molz (1988), Gupta et al. (2013)
Audit quality (BIG4)	Dummy variable that takes 1 - if the company hires one of the BIG4 for an external audit, 0 - otherwise	Huang et al. (2011)
Number of institutional investors (STR)	Number of investors holding 5% or more of the capital	Baysinger et al. (1991), Huang et al. (2011)
Board structure (DUALIT)	Binary variable that takes 0 if the company separates functions, and 1 if the company blends functions	Daily (1995), Baliga et al. (1996), Mitton (2002)
Board size (BDSIZE)	An independent variable that tells us about board size	Viénot (1995) and Bouton reports (2002)
Presence of a risk supervision and monitoring committee (CRO)	Takes 1: Presence of a risk management committee 0: No risk management committee	Aebi et al. (2012)
Managers' gross remuneration to total assets (REMB)	$\frac{\text{Management gross remuneration}}{\text{Total assets}}$	Baker et al. (1988), Attia (2013)

In order to identify the governance mechanisms that reinforce banking performance, we propose to estimate three dependent variables, namely, stock market volatility (VOL), buy and hold returns (BHR) and adjusted Tobin's Q (QTA). Meanwhile, the Table 7 presents the other variables used in the estimation.

Moreover, in order to consider further the various aspects of managers' entrenchment, we included two new measures, namely managers' historical entrenchment (ENRH)<sup>4</sup> and exceeding the legal retirement age (AGER), which describe managers' profiles.

- ENRH: Binary variable,

- 1: More than 10 years in the bank
  - 0: Otherwise.

- AGER: Binary variable,

- 1: If the manager exceeded the 60-year legal retirement age
  - 0: Otherwise

#### 4.2. Descriptive Statistics

This section reports on the descriptive statistics of the different variables for each bank, namely the mean, the median, the standard deviation, the minimum and the maximum (Appendix Tables 1 and 2).

<sup>4</sup> Salas, J.M. (2010), "Entrenchment, governance, and the stock price reaction to sudden executive deaths," *Journal of Banking & Finance*, 34, 656-666.

According to the statistical statistics, on average the variable (BHR) is negative for all banks with the exception of AMEN BANK which shows a mean of 0.062. On the other hand, the variables (VOL) and (QTA) were on average positive. Stock market volatility was significant for most banks with a mean of 0.207, similar to QTA with a mean of 1.029.

On the other hand, the statistics indicate that managers' entrenchment effect is reflected in their seniority in the banks. This is true for "Amen Bank." Similarly, the statistics show that managers who spent more than 10 years in the bank and who have subsequently been appointed to the position of (GM/CEO), score greater levels of entrenchment. A case in point is, Amen Bank which been headed by the most entrenched managers. Thus, the latter bank recorded the highest BHR mean against the rest of the banks in the sample.

As for governance internal mechanisms of banking institutions, we notice that most managers blend the functions of the Chief Executive Officer and the Chairman of the Board of Directors, at least for the period before 2011. Such a practice seems to undermine stock market performance of banks. However, the descriptive statistics of the variable (BIG4) confirm the theoretical assumptions that audit quality enhances financial and market performance. Indeed, most banks in our sample use (BIG4) firms for their external audit missions. Nevertheless, these banks scored the lowest stock returns. Moreover, the Tunisian banking sector is known by a low presence of independent directors in the board of directors with a mean of 7.2%, which does not comply with international standards. Indeed, the UIB admits the largest proportion of independent directors. It is described as the best performing bank with a BHR mean of 0.176 and an adjusted Tobin's Q of 1.129. However, board size mean validates the recommendations in this area stipulated by circular number (2011-06) of the Central Bank of Tunisia. Average board size is 11 members within a range of 5-13 directors. The statistics inform us that ATB has on average the largest board of directors during the study period.

Similarly, it seems that the risk management process is not yet installed in the Tunisian banking system, at least during the period before 2010. The weakness of the process is confirmed by the descriptive statistics on the variable (CRO). Moreover, 52% of Tunisian banks do not have a specialized risk management committee. Thus, banks with such a committee experienced low stock market volatility (VOL) between 2006 and 2013, with a mean of 0.167. In this regard, referring to these statistics, we can confirm in advance that the presence of a risk management committee contributes to improving the stock market performance of banks.

The statistics show that, on average, only (20%) of the managers of Tunisian banks exceeded the legal retirement age. However, BIAT bank displays the highest value for the variable (AGER). In fact, during the study period, 69% of the bank's managers (BIAT) exceeded the age of 60. A priori, the statistics indicate that exceeding the legal retirement age by managers negatively affects banking performance. Finally, referring to the descriptive statistics, we can confirm the existence of managers' theoretical entrenchment.

### 4.3. Study of the Relationship between the Different Internal Governance Mechanisms, in the Presence of Managers' Entrenchment, and Banking Performance

In what follows, we will estimate a panel data in order to study the relationship between internal governance mechanisms of banking institutions and financial and stock market performance, in the presence of variables representing managers' entrenchment.

First, we will carry out some econometric tests to insure the robustness of the models to be tested, i.e., to avoid problems of correlation between variables, multicollinearity (variance inflation factor [VIF]) and error heteroscedasticity (Appendix Table 3).

In Appendix Table 3, we notice a dominant negative correlation between the variables. However, there is a strong correlation between the three pairs of variables (MDT-NCIVIL), (NCIVIL-ENRH) and (AGET-AGER). In addition, correlation between the variable (MDT) (renewal or non-renewal of manager position) and the number of years before being appointed head of the bank (NCIVIL) (0.598), an acceptable correlation level. As for the (NCIVIL-ENRH) variables, we notice a strong correlation at 0.818, suggesting that historical entrenchment (ENRH) positively depends on the number of years in the sense of Pigé (1998). To conclude, we can affirm the non-existence of a strong correlation between the variables. This is validated by the VIF test, which indicates the absence of multicollinearity problems between the variables.

### 4.4. Estimation of the Panel Data Models and Interpretation of the Results

In order to detect the effects of internal governance mechanisms of banking institutions and entrenchment level on banking performance, we will estimate different regressions with the dependent variables being stock market variability (VOL), stock returns (BHR) and adjusted Tobin's Q (QTA).

It amounts to studying three groups of independent variables. The main model can be written as follows:

$$Y_{i,t} = \Psi_{i,t}^1 G_{i,t}^1 + \Psi_{i,t}^2 G_{i,t}^2 + \Psi_{i,t}^3 G_{i,t}^3 + \varepsilon_{i,t} \quad (13)$$

With ( $G^1$ ,  $G^2$  and  $G^3$ ) denoting the following different groups of variables:

$G^1$ : Denotes all the variables of internal governance mechanisms of banking institutions,

$G^2$ : Refers to the set of variables that describe managers' theoretical and historical entrenchment, managers' age, whether or not the legal retirement age has been exceeded, and seniority,

$G^3$ : A binary variable that represents the presence or absence of a risk management committee.

#### 4.4.1. Governance of banking institutions and stock market volatility (VOL)

In order to study the effect of the different governance variables on stock prices volatility, we chose to introduce the different groups



of variables in a progressive and alternative way in order to test the explanatory power as well as the robustness of our model. The model is specified as follows:

$$VOL_{it} = \beta_0 + \beta_1(DUALIT)_{it} + \beta_2(INDD)_{it} + \beta_3(BIG4)_{it} + \beta_4(BDSIZE)_{it} + \beta_5(STR)_{it} + \beta_6(REMB)_{it} + \beta_7(CRO)_{it} + \beta_8(ENR)_{it} + \beta_9(MDT)_{it} + \beta_{10}(NCIVIL)_{it} + \beta_{11}(AGEt)_{it} + \beta_{12}(AGER)_{it} + \beta_{13}(ENRH)_{it} + \varepsilon_{it} \quad (14)$$

In order to study the explanatory power of each group of variables and the effect of their interaction, we will proceed by four regressions. Table 8 reports the results of the estimations.

The regressions of the three groups of variables show that the calculated (Chi-square) of the four models is higher than the tabulated one and that the probability of the "Wald  $\chi^2$ " statistic is below the critical threshold (5%) ( $P \chi^2 = 0.000 < 0.05$ ), which leads us to reject ( $H_0$ ), thus the models (1, 2, 3 and 4) are significant.

The estimated models show a negative effect of most governance internal mechanisms on stock market volatility (VOL). This can be explained in the following way: Banks that have not yet synchronized their governance system with the recommendations of the circular (2011-06) of the Central Bank of Tunisia show more volatile stock prices than other banks.

Moreover, the introduction of the second group of variables (NCIVIL, AGEt, AGER, ENRH) did not have any significant effect on all the models. Indeed, notice that managers' age (Models 2 and 3) is statistically significant and negative. This means that banks run by less senior/experienced managers show more stable stock market variability. On the other hand, the legal retirement age, seniority and managers' remuneration (Model 3) have no significant effect on stock prices volatility.

Finally, our results corroborate most of the findings assuming that the "good" internal governance practice contributes to hedging destabilization induced by stock market volatility (Huang et al., 2011; Aebi et al., 2012).

4.4.2. Banking governance and stock market performance: "Average long-term stock prices return: Buy and hold return (BHR)"

In this section, we look at the relationship between average long-term stock prices return (BHR) on the one hand and internal governance mechanisms of banks, the presence of risk management committees, age, and managers' entrenchment on the other hand. This relationship is presented through the model below.

$$BHR_{it} = \beta_0 + \beta_1(DUALIT)_{it} + \beta_2(STR)_{it} + \beta_3(BDSIZE)_{it} + \beta_4(CRO)_{it} + \beta_5(REMB)_{it} + \beta_6(ENR)_{it} + \beta_7(MDT)_{it} + \beta_8(NCIVIL)_{it} + \beta_9(AGEt)_{it} + \beta_{10}(AGER)_{it} + \beta_{11}(ENRH)_{it} + \varepsilon_{it} \quad (15)$$

Table 9 illustrates the different estimations of BHR.

The Chi-square statistic of the four models is higher than the tabulated one and the probability of the "Wald  $\chi^2$ " is below the critical (5%) threshold ( $P \chi^2 = 0.000 < 0.05$ ). This leads us to reject ( $H_0$ ), thus the different models are significant.

In the Table 9, it seems that the coefficient of the variable (CRO) "presence of a risk management committee" is statistically significant and negative at the 1% threshold for all models (1, 2, 3 and 4). Indeed, this result validates the findings of Aebi et al. (2012), which postulate that the presence of such a committee in the board intensifies conflicts of interest and subsequently undermines firm performance. These authors believe that in periods of financial crises, a conflictual relationship arises between those in charge of the risk management committee and those responsible for the remuneration committee. Aebi et al. (2012) explains this paradox in the following way: During periods of financial crises, the risk management committee seeks to minimize excessive risk taking, while the remuneration committee seeks to maximize financial performance by motivating and remunerating senior managers at the expense of the financial position of the firm. On the other hand, a decrease in average long-term stock prices return (BHR) suggests that "good" governance practice codes have no significant effect on stock market performance.

Table 8: Estimation of the effect of the different groups of variables on VOL

Regression	Stock prices volatility (VOL)			
	(1)	(2)	(3)	(4)
Constant	0.549 (6.480)	1.117 (4.920)	1.133 (4.270)	0.553 (5.92)
DUALIT	-0.049 (-1.430)	-0.056* (-1.740)	-0.052* (-1.780)	-0.047 (-1.53)
INDD	-0.517*** (-3.500)	-0.526*** (-4.260)	-0.516*** (-4.460)	0.509*** (-3.72)
BIG4	-0.031 (-0.630)	-0.054 (-1.150)	-0.053 (-1.080)	0.029 (-0.64)
STR	-0.333** (-2.090)	-0.365** (-2.570)	-0.362** (-2.480)	-0.342** (-2.11)
CRO	-0.104*** (-2.620)	-0.095** (-2.52)	-0.098** (-2.590)	0.106*** (-2.64)
ENR	0.000 (0.010)	-0.007 (-0.130)	-0.018 (-0.330)	-0.024 (-0.40)
MDT	0.001 (0.030)	0.023 (0.650)		0.026 (-0.64)
NCIVIL	0.000 (-0.250)		0.000 (0.13)	
AGEt		-0.009*** (-2.620)	-0.009** (-2.38)	
AGER			0.020 (0.390)	
R <sup>2</sup>	0.815	0.925	0.937	0.815
P (Wald $\chi^2$ )	0.000	0.000	0.000	0.000
Specification	RE	RE	RE	RE

\*\*\*Significant at the 1% threshold, \*\*Significant at the 5% threshold, \*Significant at the 10%

Moreover, we notice that managers' theoretical entrenchment does not affect the variable (BHR). This is explained by the fact that certain key shareholders keep the so-called "opportunistic managers" in order to take advantage of the profits generated by the latter. It is for this reason that Castanias and Helfat (1992) believe that managers' entrenchment, in some cases, is beneficial.

However, the legal retirement age, seniority, managers' remuneration and managers' mandates rotation' do not affect average long-term stock prices return. On the other hand, the second regression shows that the coefficient of the variable (AGEt) "managers' age" is negative and statistically significant at the (5%) threshold. In other words, banks run by less senior managers are more efficient at the stock market level. This can be explained by the fact that these managers are more motivated and subsequently their dynamism can generate significant stock market profitability. In addition, the literature assumes that senior managers are qualified to be the most experienced. Therefore, senior managers may be more competent.

#### 4.4.3. Bank governance and investment capacity (QTA)

The regression on the variable (QTA) is to detect the effect of the "good" internal governance practice of banks on investment capacity. In addition, we will examine the effect of the different internal governance mechanisms of banks, the effect of the presence of risk management committees and managers' entrenchment on financial performance as measured by the adjusted Tobin's Q. The general model that describes this relationship is as follows:

$$QTA_{it} = \beta_0 + \beta_1(INDD)_{it} + \beta_2(BDSIZE)_{it} + \beta_3(CRO)_{it} + \beta_4(REMB)_{it} + \beta_5(ENR)_{it} + \beta_6(MDT)_{it} + \beta_7(NCIVIL)_{it} + \beta_8(AGEt)_{it} + \beta_9(AGER)_{it} + \beta_{10}(ENRH)_{it} + \epsilon_{it} \quad (16)$$

With QTA: Representing adjusted Tobin's Q.

To complete our estimation, we will gradually introduce the different groups of variables in order to identify the mechanisms that significantly affect the bank's investment capacity (QTA) (Table 10).

**Table 9: Effect of the different groups of variables on BHR**

Regressions	BHR			
	(1)	(2)	(3)	(4)
Constant	0.158 (1.070)	0.431 (2.260)	0.148 (0.590)	0.071 (0.560)
DUALIT	-0.052 (-1.580)	-0.051 (-1.540)	-0.039 (-1.390)	-0.049 (-1.60)
STR	-0.082 (-0.640)	0.029 (0.260)	0.070 (0.050)	
BDSIZE	-0.005 (-0.580)	-0.006 (-0.510)	-0.004 (-0.370)	-0.004 (-0.340)
CRO	-0.183*** (-4.650)	-0.132*** (-3.420)	-0.124*** (-3.200)	-0.139*** (-4.050)
REMB				-0.060 (-0.160)
ENR	0.081 (0.440)	-0.093 (-1.530)	-0.055 (-0.570)	0.018 (0.140)
MDT	-0.028 (-0.570)	0.0517 (1.020)		
NCIVIL	0.001 (1.480)		0.000 (1.180)	
AGEt		-0.006** (-2.020)	-0.002 (-0.810)	
AGER			-0.032 (-0.690)	
ENRH				0.083 (1.310)
R <sup>2</sup>	0.110	0.413	0.359	0.265
P (Wald $\chi^2$ )		0.000	0.000	0.000
P (Fisher)	0.000			
Specification	FE	RE	RE	RE

\*\*\*Significant at the 1% threshold, \*\*Significant at the 5% threshold, \*Significant at the 10%. BHR: Buy and hold return

**Table 10: The effect of the different groups of variables on investment capacity (QTA)**

Regressions	Investment capacity (adjusted Tobin's Q)			
	(1)	(2)	(3)	(4)
Constant	1.160 (29.820)	0.777 (6.960)	0.863 (7.000)	
INDD	-0.038 (-0.450)	-0.032 (-0.471)	0.032 (-0.450)	-0.011 (-0.200)
BDSIZE	-0.007* (-2.150)	-0.008*** (-2.820)	0.006** (-2.230)	-0.006** (-2.000)
CRO	0.012 (0.600)	0.017 (1.320)	0.020 (1.570)	0.014 (1.010)
REMB	-0.352 (-0.780)	0.301 (1.570)	0.154 (0.670)	-0.257 (-0.800)
ENR	0.156* (1.910)	0.004 (0.070)	-0.019 (-0.230)	0.039 (0.310)
MDT	-0.014 (-1.120)	-0.0544*** (-4.600)		
NCIVIL	0.000 (-0.680)		0.000*** (-4.540)	
AGEt		0.006*** (3.460)	0.004** (2.110)	
AGER			0.023 (1.590)	
ENRH				-0.056*** (-3.300)
R <sup>2</sup>	0.153	0.432	0.211	
Log likelihood				202.971
P (Wald $\chi^2$ )		0.000	0.000	0.000
P (Fisher)	0.007			
Specification	FE	RE	RE	RE

\*\*\*Significant at the 1% threshold, \*\*Significant at the 5% threshold, \*Significant at the 10% threshold

Estimation of the adjusted Tobin's Q variable show a significant probability of the "Wald  $\chi^2 < 0.05$ " statistic for the four models at the 5% level. This leads us to reject ( $H_0$ ). Therefore, we validate the global significance of all models.

With reference to the hypothesis that a small board size positively affects financial performance and investment capacity, we obtained a statistically significant and negative coefficient for the variable (BDSIZE) for all three models (1, 2, 4), henceforth it is positive for Model 3. The estimated coefficients are respectively (-0.007) (-0.008) and (-0.006) and (0.006) for Model 3. Indeed, a small board size reinforces the rationality of decision-makers, which subsequently eases conflicts of interest between the different management bodies and contributes to a better long-term financial performance.

On the other hand, we found that other internal governance mechanisms such as independence of directors (INDD) and mandates rotation frequency (MDT) have no significant effect on investment capacity as shown by the adjusted Tobin's Q.

Moreover, managers' theoretical entrenchment is statistically significant and positive at the 10% threshold and this only for the first model with a coefficient equal to 0.156. In other words, the higher managers' theoretical entrenchment, the greater investment capacity of banks. Contrary to theory which assumes that managers' entrenchment undermines performance, our results show that entrenchment strategies contribute to improving the economic and financial positions of banks.

The progressive and alternative introduction of the different groups of variables affected the explanatory power of our models. We notice that (QTA) is sensitive to managers' theoretical entrenchment (ENR) and this for the first model only. As for regressions (2), (3) and (4), after introducing the other groups of variables, we notice the explanatory effect of (ENR) disappeared, confirming thus that managers' theoretical entrenchment mainly affects the two variables (AGEt) and (AGER). This last finding has been validated for the second and third models as the variables (NCIVIL) and (AGEt) respectively display statistically significant and positive coefficients equal to (0.000) and (0.004), whereas the variable (ENRH) displays a negative coefficient equal to -0.056.

## 5. CONCLUSION

In order to study the relationship between the different internal governance mechanisms of banking institutions, managers' profiles and their entrenchment level on the one hand and bank performance on the other hand, we proceeded by a set of regressions on a panel data over the 2006-2013 period. Indeed, first we have surveyed the theory on managers' entrenchment. Second, using the methodology of Pigé (1998), we succeeded in determining the variables that explain significantly the unobservable factors of entrenchment. Finally, we conducted a set of regressions on a panel data to examine the relationship between the different internal governance mechanisms of banking institutions and performance indicators such as stock market volatility, stock prices returns, and investment.

First, examining the effect of the different governance variables on stock market volatility, we found a significant correlation between the dependent variable (VOL) on the one hand and independence of directors, institutional ownership, the presence of risk management committees and managers' age, on the other. These results confirm that independence of directors negatively affects stock prices volatility. The same is true for institutional ownership (STR). The presence of a Risk Management Committee in the board points to the importance of this mechanism as a stabilizing process for stock market performance. This is true for managers' age. The results indicate that banks with less senior managers show more volatile stock prices.

On the other hand, regressions on average long-term stock prices return pointed to an inverse relationship between on the one hand the presence of a risk management committee in the board and managers' age and market performance, on the other.

Similarly, running the regressions on investment capacity as measured by the "adjusted Tobin's Q," we obtained that board size has a negative effect on investment capacity. In addition, the smaller the board size, the greater investment capacity. This finding is in line with the recommendations of the different regulatory organizations. Indeed, we found that managers' theoretical entrenchment (RNs) positively effects investment capacity of banks. This finding highlights the relationship between experience and managers' theoretical entrenchment on the one hand and ability of banks to invest, on the other. Contrary to this finding, we found that managers' historical entrenchment negatively affects ability of banks to invest. A priori, these latter mixed results may be explained by the difference in the measurement methods of each variable.

Moreover, we were able to determine the key variables that significantly affect banking performance. At this level, we can highlight the importance of internal governance mechanisms of banking institutions, on the one hand, and managers' age, experience and entrenchment, on the other hand, as dimensions that improve financial and market performance. Consequently, the recommendations issued by the supervisory authority<sup>5</sup> in this area were proportionally successful in improving the financial and stock market performance of Tunisian banks listed on the TSE.

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## APPENDICES

Appendix Table 1: Descriptive statistics

Banks	statistics	VOL	BHR	QTA	INDD	BDSIZE	REMB	ENR	NCIVIL	AGEt	STR
AMN	Mean	0.2507	0.0623	1.0108	0	12	0.0489	-0.5470	73.313	57.125	0.684
	Median	0.1901	0.0475	1.0148	0	12	0.0506	-0.5590	78	57	0.675
	Standard deviation	0.2024	0.1048	0.0403	0	0	0.0066	0.0250	42.317	2.247	0.025
	Minimum	0.0361	-0.0908	0.9407	0	12	0.0389	-0.5593	1	54	0.637
	Maximum	0.7484	0.3662	1.0897	0	12	0.0605	-0.4971	136	61	0.712
ATB	Mean	0.2487	-0.0352	0.9856	0.097	11.188	0.1155	0	52.5	55.500	0.665
	Median	0.1230	0.0019	0.9871	0.077	12.500	0.1124	0	50	55.500	0.651
	Standard deviation	0.2268	0.1807	0.0271	0.105	2.287	0.0203	0	23.782	2.366	0.027
	Minimum	0.0422	-0.6578	0.9258	0	8	0.0855	0	21	52	0.642
	Maximum	0.7215	0.1107	1.0386	0.250	13	0.1437	0	91	59	0.699
ATJ	Mean	0.1892	-0.0595	1.0688	0.139	10.688	0.0530	0	3.875	51.250	0.740
	Median	0.1172	-0.0170	1.0613	0.091	11	0.0548	0	3	50.500	0.762
	Standard deviation	0.2133	0.2255	0.0462	0.061	1.078	0.0098	0	2.5528	3.493	0.077
	Minimum	0.0300	-0.7849	0.9605	0.083	8	0.0366	0	1	47	0.545
	Maximum	0.8130	0.2122	1.1401	0.250	12	0.0653	0	10	57	0.803
BH	Mean	0.1605	-0.0264	0.9957	0.103	9.313	0.0065	0	9.875	56.813	0.548
	Median	0.0953	-0.0081	0.9936	0.143	9	0.0061	0	10	56.500	0.562
	Standard deviation	0.1411	0.1303	0.0316	0.098	2.056	0.0008	0	6.1087	2.007	0.049
	Minimum	0.0359	-0.2672	0.9513	0	7	0.0056	0	1	54	0.492
	Maximum	0.5609	0.1595	1.0595	0.250	12	0.0080	0	21	60	0.626
BIAT	Mean	0.1975	-0.0403	1.0482	0.173	11	0.0549	-0.0388	11.75	60.500	0.599
	Median	0.1569	-0.0155	1.0446	0.167	12	0.0547	0	10	60.500	0.672
	Standard deviation	0.1723	0.2067	0.0542	0.054	1.461	0.0062	0.1061	8.8807	2.366	0.127
	Minimum	0.0365	-0.7405	0.9547	0	8	0.0432	-0.3107	1	57	0.343
	Maximum	0.5778	0.1559	1.1484	0.250	12	0.0697	0	28	64	0.716
BNA	Mean	0.2776	-0.0658	0.9863	0	11.688	0.0055	0	5.625	59.125	0.577
	Median	0.1834	0.0021	0.9891	0	12	0.0055	0	4.5	59.500	0.644
	Standard deviation	0.2598	0.1771	0.0259	0	0.479	0.0010	0	4.6744	2.802	0.100
	Minimum	0.0469	-0.5694	0.9386	0	11	0.0039	0	1	55	0.452
	Maximum	0.9285	0.1342	1.0299	0	12	0.0068	0	15	63	0.683
BT	Mean	0.2582	-0.2466	1.1285	0	8.750	0.0690	0	30.625	57.500	0.366
	Median	0.1758	-0.0071	1.1926	0	9	0.0673	0	4.5	57.500	0.388
	Standard deviation	0.2130	0.4467	0.1477	0	1.915	0.0139	0	49.009	2.366	0.072
	Minimum	0.0276	-0.9923	0.8485	0	6	0.0506	0	1	54	0.282
	Maximum	0.7527	0.0604	1.2951	0	12	0.0963	0	120	61	0.474
BTE	Mean	0.1006	-0.0263	0.9606	0.052	11.688	0.0566	-0.1282	11.25	58	0.777
	Median	0.0794	-0.0118	0.9798	0	12	0.0545	-0.0932	8	58	0.777
	Standard deviation	0.1758	0.0636	0.0765	0.080	1.250	0.0121	0.0466	9.0885	1.265	0.000
	Minimum	-0.3211	-0.1849	0.6945	0	7	0.0446	-0.1864	1	56	0.777
	Maximum	0.5098	0.0504	1.0180	0.167	12	0.0850	-0.0932	28	60	0.777
STB	Mean	0.2739	-0.0554	0.9637	0	11.625	0.0051	0	3.75	57.188	0.556
	Median	0.1615	-0.0162	0.9627	0	12	0.0051	0	3	57	0.571
	Standard deviation	0.2069	0.1515	0.0314	0	1.025	0.0003	0	3.7283	2.198	0.054
	Minimum	0.0534	-0.3242	0.9021	0	9	0.0046	0	1	54	0.447
	Maximum	0.6772	0.1418	1.0433	0	12	0.0057	0	15	61	0.609
UBCI	Mean	0.1600	-0.0402	1.0319	0.030	10.063	0.1799	-0.0291	49.625	55.375	0.704
	Median	0.1086	0.0028	1.0306	0	10	0.1846	0	55	56	0.812
	Standard deviation	0.1594	0.2017	0.0467	0.048	1.569	0.0401	0.0446	35.829	3.324	0.164
	Minimum	0.0240	-0.6557	0.9316	0	7	0.1313	-0.0932	1	50	0.500
	Maximum	0.6766	0.1760	1.1295	0.143	12	0.2572	0	105	60	0.864
UIB	Mean	0.1675	-0.0357	1.1484	0.197	9.625	0.1158	0	8.125	54.750	0.622
	Median	0.1092	0.0007	1.1556	0.200	10	0.1102	0	6	56.500	0.616
	Standard deviation	0.1239	0.1928	0.0547	0.101	2.277	0.0184	0	6.6219	5.158	0.102
	Minimum	0.0322	-0.6611	0.9829	0.083	5	0.0914	0	1	46	0.523
	Maximum	0.3971	0.1600	1.2163	0.400	12	0.1439	0	21	60	0.725
Total	Mean	0.2077	-0.0517	1.0299	0.072	10.693	0.0646	-0.0676	23.665	56.648	0.622
	Median	0.1245	-0.0036	1.0103	0	12	0.0544	0	6	57	0.644
	Standard deviation	0.1965	0.2165	0.0858	0.095	1.848	0.0542	0.1610	32.834	3.630	0.137
	Minimum	-0.3211	-0.9923	0.6945	0	5	0.0039	-0.5593	1	46	0.282
	Maximum	0.9285	0.3662	1.2951	0.400	13	0.2572	0	136	64	0.864

BHR: Buy and hold return

**Appendix Table 2: Statistics for the dichotomous variables**

Variables	Description	Frequency (%)
DUALIT	1: Dual functions 0: Separate functions	90 (51.14) 86 (48.86)
BIG4	1: Big4 audit 0: Otherwise	102 (57.95) 74 (42.05)
CRO	1: Presence of a risk management committee 0: No risk management committee	84 (47.73) 92 (52.27)
AGER	1: Exceeding the 60-year legal retirement age 0: Not exceeding	36 (20.45) 140 (79.55)
ENRH	1: 10-year seniority in the bank 0: Less than a 10-year seniority in the bank	37 (21.02) 139 (78.98)
MDT	1: Renewed mandate 0: Not renewed	91 (51.70) 85 (48.30)

**Appendix Table 3: Correlation and VIF coefficients**

Variables	VIF	DUALIT	INDD	BIG4	BDSIZE	STR	REMB	CRO	ENR	MDT	NCIVIL	AGEt	AGER	ENRH
DUALIT	1.81	1												
INDD	1.74	-0.4250	1											
BIG4	1.91	-0.2339	-0.0663	1										
BDSIZE	1.72	-0.1875	-0.2679	-0.1418	1									
STR	1.84	-0.4106	0.1735	0.2867	0.2476	1								
REMB	1.82	-0.1327	0.0856	0.4133	-0.104	0.1954	1							
CRO	1.37	0.0238	0.1678	0.1686	-0.409	-0.09	-0.002	1						
ENR	2.30	0.1669	0.2068	-0.2741	-0.281	-0.202	0.0857	0.2087	1					
MDT	2.12	0.1243	-0.0617	-0.0861	0.0674	-0.01	0.2011	-0.2375	-0.1892	1				
NCIVIL	4.30	0.0275	-0.1787	0.2128	0.0841	0.0289	0.3467	-0.1928	-0.4331	0.5985	1			
AGEt	2.05	0.0744	-0.0164	-0.2864	-0.077	-0.176	-0.2254	-0.0421	-0.0504	0.4022	0.1624	1		
AGER	1.75	0.0730	0.0120	-0.2244	0.0003	-0.082	-0.1796	-0.0897	0.0500	0.2928	0.0207	0.6058	1	
ENRH	4.65	0.0022	-0.1787	0.2700	0.1313	0.0148	0.2960	-0.2417	-0.5978	0.4149	0.8187	0.0695	-0.1233	1

VIF: Variance inflation factor