

## DOES MANAGERIAL ENTRENCHMENT MATTER IN RISK TAKING? EVIDENCE FROM THE TUNISIAN CONTEXT

*Amel Belanes Aroui* <sup>\*,†</sup> and *Abdelwahed Omri* <sup>†,‡</sup>

### Abstract

Building on agency and prospect theory views, many researchers have analyzed the executive risk-taking behavior. They have usually put in evidence the role of the mechanisms of corporate governance. In this research, we try to point out that even managerial entrenchment does matter. We consider the non financial firms that are listed in the Tunisian Stock exchange during the 1996 - 2006 period. To reveal the managerial risk taking, we apply factor analysis so as to construct a global index. To find out the impact of managerial entrenchment on risk-taking, we consider the ownership of the manager, his experience within the firm as well as his age. The size of the firm is also worth investigating while exploring managerial risk taking. The results are somewhat robust to different specifications. They may enhance and extend the agency-based corporate governance literature on executive risk-taking. But above all, they may shed some light on the emerging markets context namely the Tunisian one.

**Keywords:** Managerial Risk Taking, Managerial Entrenchment, Prospective Theory, Agency Theory, Tunisian Firms

\* Corresponding author. App 163 Résidence Rym1 Cité Elwaha Agba 2011 Denden Tunisie. University of ESSEC. E-mail [amel\\_bns@yahoo.fr](mailto:amel_bns@yahoo.fr)

† University of FSEGTE-mail [abomri@yahoo.fr](mailto:abomri@yahoo.fr)

‡ Research Unit, Finance et Stratégie des Affaires, FIESTA, Institut Supérieur de Gestion de Tunis

### I. Introduction

Managerial Risk Taking is at the theory core of corporate finance. It is one of the most debated topics in the finance literature and becomes particularly more pronounced after the scandals of Enron, Worldcom, Global Crossing and other well-known companies. Healy and Palepu (2003) asserted in this vein that the main reason behind these bankruptcies is the dangerous and even deceitful strategies of managers for their own benefits. Risk management theory provides several rationales as to why shareholders may view corporate hedging favorably. Tax incentives and reduction of underinvestment/distress costs are commonly cited rationales for hedging by publicly held corporations. However, that is the firms' managers who actually make the risk management decision. Therefore the risk-taking incentives of managers may be an important determinant of corporate hedging policy according to Smith and Stulz (1985) and Tufano (1996). Nonetheless, most prior works deal with risk management rather than managerial risk taking which is the purpose of this paper. Indeed, this paper contributes to the corporate hedging literature by analyzing the determinants of managerial risk-taking and especially by focussing on the impact of the entrenchment of the CEO on his risk taking.

Agency theory already put in evidence the gap

in the risk taking of both agent (manager) and principal (shareholder). While the principal is indifferent towards risk as he can diversify his wallet through several firms, the agent is mainly risk averse. Donaldson (1961) and Williamson (1963) noted that manager' career and remuneration are tied to the firms' welfare. That's why the manager often manifests his risk aversion and is tempted to restrict his risk taking. Such attitude may create opportunity costs for the investor who prefers that the agent maximizes the enterprise value by incurring more risks. This hypothesis was approved of by several theoreticians mainly Morck, Schleifer and Vishny (1988) and Garen (1994). This gap between attitudes towards risk according to Tufano (1996), Dionne and Triki (2004) and Roger (2005), may feed interests conflicts between the two sides and hence agency problems.

Many researchers have devised theories and provided empirical evidence regarding the determinants of managerial risk taking. Tosi and Gomez-Mejia (1989), Beatty and Zajac (1994) and Gomez-Mejia (1994) outlined that the challenge is to institute a reliable governance system that is susceptible to align the interests of managers and shareholders. Thanks to such governance system, managerial risk taking will satisfy not only manager's interests but also the shareholders' ones. Later, Wiseman and Gomez-Mejia (1998) proposed a

behavioral agency model. According to them, behavioral theory bloomed and developed regardless of agency theory although they are complementary. Their model tried to reconcile between these two theories. On one hand, their model emphasized the efficiency of governance mechanisms dedicated to improve and control managerial risk taking by the principal. On the other hand, it highlighted the psychological and behavioral side of this very specific managerial decision.

However, entrenchment theory stipulated that governance mechanisms are not sufficient enough to compel the management to behave in favour of shareholders interests and restrict the empire building efforts of managers. Piggé (1998) explained that managerial entrenchment reveals the agent willing to overcome the principal control, at least partially, in order to build up some personal advantages namely special rewards and remuneration. Further more, manager can increase the dependence of the firm's partners on him and his skills. Management can even reduce the impact of corporate governance which obviously aims at restricting his authority and controlling his decision. There are in fact a wide range of entrenchment strategies followed by the manager to fulfil such objectives. Alexandre and Paquerot (2000) asserted for instance that investment policy may constitute a pertinent tool for managerial entrenchment. By taking up some risky projects that are specific and suitable to his skills, the manager increases the firm risk but above all the dependence of the firm on him. Besides, manager can increase his entrenchment by making the information not easily accessible or also by building some relational networks, either formal or not.

In sum, many theories may contribute in explaining managerial risk taking. Not only agency but also prospective theories were the main references. But little is known about what really may influence managerial risk taking. We are yet to understand completely the factors that drive this managerial decision and the manner in which these factors interact. Entrenchment theory was a little bit neglected although it may offer further explanations and recommendations. This paper wants to contribute to the relatively limited literature on managerial risk taking. This is the main purpose of this paper.

But above all, the justification of this paper is to continue carrying the debate into the realm of emerging markets. Researchers have almost focused on the private sector in a few developed countries. Therefore, a fairly detailed, if incomplete, picture is available. No doubt, not only managerial risk taking but also managerial entrenchment are expected to deviate from the norms that have been long accepted in developed ones. Our survey wishes to be the first study focusing on this frame in Tunisia.

In particular, the Tunisian case presents at least four interesting features that make its study relevant in terms of policy recommendations for this country and others in the Middle East and North Africa

region. First, most Tunisian managers seem to be risk averse and scarcely undertake risky projects. According to a recent survey led by the Council of Capital Market, Tunisian managers would rather opt for secure and certain investments such as accounts savings, Treasury bills than receipts in risky reinvestments such as the SICAR, the mutual funds and stocks despite the various measures granted by authorities so as to promote such financial products. Second, most Tunisian firms are still family corporations and presents highly concentrated ownership and opaque ultimately identification. Thus, managers have tendency to preserve the maximum of opacity on the family's business. Third, Tunisians managers can not yet be rewarded by stock options. Therefore, stock options can neither constitute a managerial incentive nor reveal managerial risk aversion. Fourth, the Tunisian Stock Exchange witnessed several reforms especially the introduction of an electronic system for transactions in phase with international standards and this innovation is expected to have an impact on the way firms set their investment and indebtedness policies which are thoroughly tied with managerial risk taking.

More above, this paper suggests an econometrically sound approach to modelling managerial risk taking. It is the first paper, to our knowledge, to construct a global index revealing the intensity of managerial risk taking and the pioneer work to reveal the impact of managerial entrenchment on risk taking within the Tunisian firms.

The remainder of this paper is organized as follows. Section II describes the conceptual framework and details the working hypotheses. Section III presents a brief overview of the methodology and data used. Section IV sums up the empirical results. Section V concludes.

## **II. Conceptual Framework And Working Hypotheses**

Theoretical work in risk management suggests that corporate taxes, costs of underinvestment and financial distress, managerial motives, and information asymmetry may provide a value-maximizing corporation with rationales to alter risk according to Smith and Stulz (1985), Froot et al. (1993) and Leland (1998). However, the prior empirical work in managerial risk taking makes use of several different proxies to measure risk management.

On one hand, some researchers namely Dionne and Triki (2004), Beasley et al. (2005), Davies et al. (2005) and Coles et al. (2006) evaluated the risk taking of the manager through his payment in stock options. These researchers approved of the arguments of Coffee (1988), Hoskisson and al. (1991) and Mehran (1995) that a manager rewarded accordingly to the firm performance, his risk aversion decreased and would prefer risky projects with increasing variance. However, this argument did not enjoy the unanimity according to Beatty and Zajac (1994).

Some researchers of whom Shavell (1979) suggested that when the manager supports too much risk, he became excessively risk averse in spite of stock options. Besides, it seems that the manager payment is rather a determinant than a measure of managerial risk taking. In addition, managers are not yet rewarded with stock options in the Tunisian Stock Exchange.

On the other hand, some researchers notably Zahra (2005) linked the risk taking of manager to the risk of the company given that the manager is the decision maker. Therefore, Chen and Steiner (1999), Beasley et al. (2005), Kose et al. (2005) and Coles et al. (2006) asserted that business diversification was abundantly used in financial literature as indication of a moderate and careful risk taking. Other researchers of whom Crutchley and Hansen (1989), Rogers (2005), Davies et al. (2005) and Coles et al. (2006) estimated the risk taking of manager by expenses in research and development and capital expenditures. As for Zahra (2005), he evaluated it through the partnership strategies at the national scale and abroad, the conquest of new local or foreign markets and the investments in new technologies. We can not exploit such measures for lack of data in the Tunisian Stock Exchange.

Based on prior theoretical and empirical work in risk management, we are going to consider other seven proxies and construct a global index to assess managerial risk taking within the Tunisian Stock Exchange. First of all, managers would rather select riskier projects so as to generate more internal funds to finance the new opportunities of investments. Gay and Nam (1999), Knop et al. (2002), Rogers (2005), Dionne and Triki (2004), Davies et al. (2005) and Coles et al. (2006) gave evidence that managerial risk taking is then justified as a means to avoid the underinvestment problem. A common proxy for investment opportunities is the market-to-book ratio (MBV) and it is positively correlated with managerial risk taking. We also consider the intensity of investment (INV). It is predicted that the more persevering investment policy is, the more risky managerial decisions are. External financing is much more expensive than internal one. Similarly, firms with greater rate of growth that needed funds to preserve their growth and profitability ought to incur more risks. Besides, we refer to the indebtedness ratio (LEV). This measure was used by Myers (1977), Chen and Steiner (1999) and Coles et al. (2006) who asserted that managerial risk taking can be revealed through an aggressive indebtedness policy. Chen and Steiner (1999) noted in this regard that excessive debts increase the risk of bankruptcy. It is the financial leverage that leads to a non diversifiable managerial risk. It is expected that the more hard-line managerial risk taking is, the higher the indebtedness ratio is. Three proxies are used for the debt ratio: LEV1, LEV2 and LEV3 which measure the total debt to respectively book value of capital; the market value of total assets and the book value of total assets. The fifth variable is the volatility of the return on

equity (ROE). According to Chen and Steiner (1999), Guay and Nam (1999) and Coles et al. (2006), such volatility translates the risk taking of the manager as estimated and felt by the financial market through the fluctuations of the firm value. It is estimated that the more managerial risk taking increases, the more this volatility increases. Additionally, we consider the volatility of the return on assets (ROA). It is an approximation of the risk of the exploitation operations and reveals the manager's strategy according to which he behaves, risky or moderate. This was held by Leuz and al. (2003), Cebenoyan and Strahan (2004) and Kose et al. (2005) who suggested in this respect that the management of results allows the leaders to hide the real profitability of the company. One foresees that the more intensive managerial risk taking is, the higher this volatility is. Finally, we apply the factor analysis so as to construct a global index of managerial risk taking that would reconcile between these four aspects of managerial decisions.

*H1: All else equal, managerial risk taking are positively correlated with the opportunities growth, investment intensity, the indebtedness ratio and the volatility of both ROE and ROA.*

The manager, as an agent, aims at being the best entrenched, in order to reduce the risk of being dismissed. Although this is the main objective of managerial entrenchment, the CEO may also misuse corporate assets for his own benefits at the cost of outside investors and accumulate personal rewards and remunerations. The CEO is expected to maximise his risk taking in order to maximise the firm value. However, he may reduce his risk taking and even opt for a quiet life according to Windram (2005). The nature of the relation between managerial entrenchment and risk management is in fact complex. There is a large variety of strategies that would increase the level of managerial entrenchment through specific investments, information manipulation and relational networks. However, the level of managerial entrenchment does depend on many factors that are specific to the manager himself. Broadly speaking, the participation of the manager into the capital, his experience within the firm as well as his age, all of these factors are expected to influence the managerial entrenchment. Therefore, we will test the impact of these factors on managerial risk taking so as to reveal the impact of the entrenchment of manager on his risk taking. Beyond that, various arguments do bear on the issue.

Building on agency theory, the participation of the manager into the capital of the firm would align executives' and shareholders' interests and hence a convergence. Jensen and Meckling (1976) hypothesized in this vein that that agency costs associated with manager-owner conflicts increase with the degree of the separation of ownership and control. When the manager is the sole equity owner of a firm, there is no separation of ownership and control; and hence no agency problems. The manager

is thus motivated to optimise his risk taking so as to maximise the firm value. However, recent empirical researches namely those of Davies et al. (2005) put in evidence a non linear relationship between managerial ownership and corporate value. This has been attributed to the onset of managerial entrenchment, which results in a decrease of corporate value for increasing levels of managerial holdings. Davies et al. (2005) proposed a new structure that accounts for the effect of conflicting managerial incentives, and external and internal disciplinary monitoring mechanisms. Specifically, for low levels of managerial ownership, external discipline and internal controls or incentives will dominate behavior as suggested by Fama (1980) and Jensen and Ruback (1983). At intermediate levels of managerial ownership, management interests begin to converge with those of shareholders. However, managers may, at this level of holdings, maximise their personal wealth through increasing perquisites and guaranteeing their employment at the expense of corporate value. Indeed, even though external market controls are still in place, these and the effect of convergence of interests are not strong enough to align the behavior of management to shareholders. This lack of discipline provides evidence of a deficiency in incentives for managers to maximise shareholder value at this level of ownership. As levels of managerial equity ownership grow, objectives converge further to those of shareholders. Nevertheless, at ownership levels below 50%, managers do not have total control of the firm and external discipline still exists. Managers are likely still subject to discipline from external block shareholders. At levels above 50% ownership, managers have complete control of the company. Although atomistic shareholders are unlikely to have been able to influence managers at far lower levels of ownership than this, there is always a possibility that a cartel of blockholders, allied with minority shareholder's rights may be able to mount a challenge to management if they fail to make decisions in shareholders' best interests. Thus, we expect a non linear relationship between managerial ownership and managerial risk taking. As a proxy to managerial ownership MOWN, we measure the percentage of capital the CEO holds.

*H2: All else equal, the relationship between managerial ownership and managerial risk taking is not linear in the Tunisian Stock Exchange.*

Managerial entrenchment does also depend on his experience as a chairman as well his experience before being nominated a chairman within the firm. Empirical research has not straight highlighted its impact on managerial risk taking. It is a little bit confusing. Indeed, Chaganti and Sambharya (1987) assumed that creativeness and originality shrink as long as the manager gets more experienced. Consequently, one hypothesizes that managerial risk taking would reduce with experience. Furthermore, Loomes et al. (2003) and Li et al. (2004) suggested that risk aversion raise with experience. Likewise,

one expects that managerial risk taking would decrease with the CEO experience. However, we can not distinguish whether his experience before being nominated chairman or as a chairman within the firm. Agency theory stipulated in this framework that when the CEO is also the chairman, the capabilities of the board to monitor the CEO are weakened. Brickley et al. (1997) argued that there are also costs associated with having two persons holding the CEO and chairman posts. But, they find no evidence that firms with separate persons holding the CEO and chairman posts perform better. In contrast, Pi and Timme (1993) found that firms with one person holding both posts have less cost efficiency and performance than those with two persons holding the two titles. As a proxy, we count the experience of the manager before being nominated as a chairman (MEXPBF) and his experience as a chairman (MEXPAF). We test whether the relation between the experience of the CEO and managerial risk taking is negative in Tunisia.

*H3: All else equal, the experience of the CEO is negatively correlated with managerial risk taking in the Tunisian Stock Exchange.*

How should the CEO's age influence managerial risk taking? The most popular view among the financial advisors is that as the investors get older their choices become less risky and more rationale. In recent years, several other researchers examine optimal portfolio choice as a function of the investment horizon within different economic frameworks and under different assumptions. For example, Benzoni, Collin-Dufresne, and Goldstein (2006) found that a young investor should invest more into the risky asset because cointegration generates a high correlation between returns to human capital and market returns. As long as the investor gets older, his portfolio's allocation should shift from primarily equities to a balanced portfolio and then to a primarily bond portfolio. Gollier (2002) provided a theoretical foundation to the notion of time diversification and deduce an argument that sustains the folk wisdom suggesting that younger people should invest more of their wealth in risky assets. The basic idea has its roots in the prospective theory. King and Leape (1987) noted in this frame that older managers are more mature and risk averse. They added that daring, audacity; overconfidence, inventiveness and creativity are thoroughly tied with youth. As a proxy, we assess the manager age (MAGE) through three values: 1, 2 and 3 which mean respectively that the CEO age is less than 40 years, between 40 and 60 years and finally over 60 years. The CEO age is hypothesized to be negatively correlated with managerial risk taking.

*H4: All else equal, the age of manager is negatively correlated with his risk taking in the Tunisian Stock Exchange.*

Smith and Stulz (1985) suggested that the costs of managerial risk taking are proportional to the firm size. In particular, larger firms should have easier

access to external capital markets and can borrow at better conditions. Even the conflicts between creditors and shareholders are more severe for smaller firms rather than larger ones. Besides, larger firms tend to be more diversified and their cash flows are more regular and less volatile. Thus, larger firms should be more willing to undertake riskier projects. The managers of small firms will be then more risk averse. Besides, Howard (1988) noted that as the firm grows, its wealth increases and so does its ability to manage bigger and riskier projects. Dionne and Triki (2004), Beasley et al. (2005) and Walls (2005) approved of such results and concluded that managerial risk taking is a heavy burden for small firms. As surrogate to size, we use the total assets value (LNSIZE) and it is expected to be positively correlated with managerial risk taking.

*H5: All else equal, larger firms incur more risks. We expect that the degree of managerial risk taking will be positively associated with the size of the firm in the Tunisian Stock Exchange.*

### III. Data And Empirical Methodology

#### A. Data

The data used is provided by the Tunisian Stock Exchange and the Council of Capital Market through respectively their official bulletins and their annual reports covering the period 1996 to 2006. The data relative to the determinants of managerial entrenchment are collected through a questionnaire destined to the managers of the Tunisian listed firms. Tunisian firms that are non-quoted in the Tunisian Stock Exchange are not compelled to reveal the needed information. For such reasons, we can not spread the survey for all Tunisian companies. Besides, most prior work, however, implicitly recognizes differences in determinants in financial decisions between financial and non financial firms. That's why we ought to exclude financial firms from the analysis. The period of study covers eleven years, from 1996 to 2006, which appears a period long enough to smooth out variables fluctuations. Moreover, it should be pointed here that combining cross-section and time series data is worthwhile as it provides a wealth of information. The use of panel data allows increasing the sample size and hence the gain in degrees of freedom which is particularly relevant when a relatively large number of regressors and a small number of firms are used which is our case here.

[Insert table 1 about here]

In table 1, some relevant descriptive statistics are provided for the variables that are used to evaluate the impact of managerial entrenchment. For instance, the average age of Tunisian managers is between 40 and 60 years. Most of them were not hired by the firm before being nominated a chairman.

They are usually directly nominated without having any prior experience within the firm. In addition, half of the managers have occupied this post for more or less 5 years. However, there are some managers who are chairmen for 30 years. An important stylized fact on Tunisian listed firms is the too low managerial ownership. In fact, managerial ownership is on average around 3% which is too low. But above all, half of the considered managers detain about 1,7% of the capital of the firm they run. Such figure may reveal that managerial ownership can not incite managers to incur risks as it is in major empirical researches. More above, as managerial risk taking may be influenced by firm size; we also exhibit its descriptive statistics. We should point out that most non financial firms that are listed in the Tunisian stock exchange have the same size which would eliminate the bias due to size.

[Insert table 2 about here]

In addition, we provide in table 2 the descriptive statistics of the variables making up the global score of managerial risk taking. Table 2 shows a very low rate of investment which is around 13% of total assets. The rate of MBV is also too small which confirms the risk aversion of Tunisian managers. They usually do not look for new investments that may be risky. An additional striking result is the high leverage ratio. Total debt is on average 3,1 times the book value of equity. The total debt may even represent more than the half of total assets. Although a high rate of indebtedness witnesses of a risky behaviour, it may not be the case in the Tunisian context as firms are compelled to borrow to finance their investments. They have not an alternative source of financing. Another important stylized fact on Tunisian firms is the volatility of the firms listed in the Tunisian Stock Exchange. The dispersion indicators of the volatility of both ROA and ROE approve of such volatility. Finally, table 1 shows a low average rate of the score of managerial risk taking which confirms the risk averse attitude of most managers of the listed firms in the Tunisian Stock Exchange.

#### B. Operational Model

The following regression equation is estimated to provide bearing on the remaining hypotheses indicated above (H2 through H5):

$$RISK_{i,t} = f + a_1 MOWN_{i,t} + a_2 MOWN_{i,t}^2 + a_3 MOWN_{i,t}^3 + b MEXBF_{i,t} + c MEXAF_{i,t} + d MAGE_{i,t} + e LNSIZE_{i,t} + \varepsilon_{i,t}$$

where: RISK  $\equiv$  Global index of managerial risk taking obtained after applying factor analysis to seven variables which are MBV, INV, LEV1, LEV2, LEV3, VROA and VROE; where: MBV is Market-to-book-value; INV is Total investments deflated by total assets; LEV1 is Total debt divided by book value of capital; LEV2 is Total debt divided by the market value of total assets; LEV3 is Total debt divided by the book value of total assets; VROA is Standard deviation of ROA for a three-year period;

VROE is Standard deviation of ROE for a three-year period; MOWN is % of Managerial ownership; MEXBF is Managerial experience before being nominated a chairman; MEXAF is Managerial experience as a chairman; MAGE is the Age of manager; it equals 1 if it is less than 40 years, 2 if it is between 40 and 60 years and finally 3 if it is over 60 years; LNSIZE is Logarithm of the value of total assets.

### C. Econometric Modelling

Prior theoretical and empirical work in managerial risk taking makes use of several different proxies to measure risk taking. In our study, we are going to select seven proxies that are suitable to the Tunisian context and to construct thereafter a global index to evaluate managerial risk taking within the Tunisian Stock Exchange. Factor analysis and specifically Principal Components Analysis is applied to construct this global index.

In fact, factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance that is observed in a much larger number of manifest variables. It can also be used to generate hypotheses regarding causal mechanisms or to screen variables for subsequent analysis; for instance to identify collinearity prior to performing a linear regression analysis. Principal Components Analysis specifies the method of factor extraction. It is used to form uncorrelated linear combinations of the observed variables. The first component has maximum variance. Successive components explain progressively smaller portions of the variance and are all uncorrelated with each other. Principal components analysis is used to obtain the initial factor solution. It can be used when a correlation matrix is singular. While carrying out a factor analysis, one should precise the method of rotation. Five methods of rotation are available, including direct oblimin and promax for non orthogonal rotations. We opt for promax rotation as we have many variables that are not necessary correlated and we need at the end once factor. Promax Rotation is indeed an oblique rotation, which allows factors to be correlated. This rotation can be calculated more quickly than a direct oblimin rotation which is a method for oblique (non orthogonal) rotation. When delta equals 0 (the default), solutions are most oblique. As delta becomes more negative, the factors become less oblique. So, the promax Rotation is more useful for large datasets.

Moreover, pure linear give inconsistent estimations as recent empirical works approve of a non linear relationship between managerial ownership and managerial risk taking. This accounts for the effect of conflicting managerial incentives, and external and internal disciplinary monitoring mechanisms. However, many kinds of models are suggested namely quadratic and cubic according to

the context. Thus, we make a comparison between linear, quadratic and cubic models applied to the Tunisian context. It seems that the cubic model is the most appropriate. Table 3 summarizes this comparison.

[Insert table 3 about here]

The ANOVA table tests the acceptability of the model from a statistical perspective. The F, df1, df2, and Sig. columns summarize the results of the F test of model fit. The significance value of the F statistic is less than 0.05 for all of the three models, which means that the variation explained by each model is not due to chance. While the ANOVA table is a useful test of the model's ability to explain any variation in the dependent variable, it does not directly address the strength of that relationship.

The model summary table reports the strength of the relationship between the model and the dependent variable. Not only the multiple correlation coefficient, R, but also the coefficient of determination, R Square, and the Adjusted R Square approve of the fact that the cubic model provides the best estimations. In fact, these statistics, along with the standard error of the estimate, are most useful as comparative measures to choose between two or more models.

Moreover, the coefficients table points out that managerial risk taking decrease, then increase and finally decrease with managerial ownership. All the variables associated with managerial ownership are significant and are respectively negative, positive and negative; which confirms the curve relationship between managerial risk taking and ownership.

In addition, the curve fit chart gives us a quick visual assessment of the fit of each model to the observed values. From this plot, it appears that the cubic model better follows the shape of the data than the linear and the quadratic models.

[Insert figure 1 about here]

The curve fit chart shows that the cubic model follows the observed data points fairly well during the observed time period. However, because of the positive cubic term in the model, the curve is turning upward at the end of the observed time period, so it is highly unlikely that this model fits very well.

### IV. Empirical Results

Two sets of results will be displayed and discussed in this section: those corresponding to the construction of the global index of managerial risk taking and those dealing with the impact of managerial entrenchment on managerial risk taking.

[Insert Table 4 about here]

In table 4, we present the empirical results of the Principal Component Analysis which is pursued to construct the score of managerial risk taking,

RISK. It seems that the rate of total debt to book value of capital, LEV1, and total debt to market value of total assets, LEV2, are the most eminent factors of the global score. The ratio of MBV and INV as proxies to respectively growth opportunities and investment intensity are less eminent; the ratio of total debt to book value of total assets, LEV3, as well. However, the volatility of both ROA and ROE are meaningless. But above all, all these dimensions of risk are positively correlated with the global factor score RISK which confirms the first hypothesis. Besides, table 3 shows that the total explained variance is above 76,6%; which approves of the robustness of the score. Besides, the Kaiser-Meyer-Olkin test, which tests whether the partial correlations among variables are small, as well as the Bartlett's test of sphericity, which tests whether the correlation matrix is an identity matrix, both tests indicate that the factor model is appropriate. The reliability analysis (Cronbach's Alpha) which studies the properties of measurement scales and the items that compose the scales also approves of the fittingness of the factor model.

**[Insert table 5 about here]**

Table 5 recapitulates the regression results for the impact of managerial entrenchment on managerial risk taking. The model is globally robust. The results in table 5 reveal that the coefficients relative to managerial ownership are all significant but above all respectively negative, positive and negative. This provides strong support for the non linear relationship between managerial ownership and managerial risk taking. This result is in line with those of Davies et al. (2005) who put in evidence the effect of conflicting managerial incentives, and external and internal disciplinary monitoring mechanisms. Specifically, for low levels of managerial ownership, external discipline and internal controls or incentives will dominate managerial behaviour. At intermediate levels of managerial ownership, management interests begin to converge with those of shareholders. However, the lack of disciplinary control over poorly performing management may strengthen management's ability to pursue sub-optimal corporate policies at intermediate ownership levels. As levels of managerial equity ownership grow, objectives converge further to those of shareholders. Nevertheless, at ownership levels below 50%, managers do not have total control of the firm and external discipline still exists. Managers are likely still subject to discipline from external block shareholders. It should be pointed here that managerial ownership in the non financial firms listed in the Tunisian stock exchange does not exceed 30%.

Besides, our findings show that the experience of the manager after being nominated a chairman has a significant and a negative impact on managerial risk taking. The more experienced the manager becomes, the less he becomes innovative and creative, and hence more risk averse. This result agrees with the

empirical findings of Loomes et al. (2003) and Li et al. (2004) that risk aversion raises with experience. However, the experience of the manager within the firm before being nominated a chairman has not a significant influence on managerial risk taking. The age of the manager, as well, has no significant impact. This result does not confirm the common view that the older we get the more risk averse we become. Finally, the results indicate that managers of larger firms are more prone to invest in risky projects. This finding is consistent with the suggestions of Dionne and Triki (2004), Beasley et al. (2005) and Walls (2005) who concluded that managerial risk taking is a heavy burden for small firms.

## V. Conclusion

Many researchers with different streams have worked on risk management and proposed several theories to explain managerial behavior. Nevertheless, managerial risk taking does not truly appeal to researchers. Thus this field is yet puzzling. Many questions are either still unanswered or answered in conflicting ways. Many others remain to be asked. While many earlier studies refer to the governance theory by pointing out the role of internal and external monitoring mechanisms, many recent studies rather emphasize the prospective theory hypotheses. Nonetheless, few researchers have highlighted the impact of managerial entrenchment on managerial risk taking. But above all, the contribution of this paper resides in providing a further insight into both managerial entrenchment and managerial risk taking within the emerging markets and namely within the Tunisian Stock Exchange.

More specifically, we attempt to find answers to the following questions: What are the main indicators of managerial risk taking? What can reveal the managerial entrenchment? What is the impact of managerial entrenchment on managerial risk taking? At first, a Principal Component Analysis is applied to construct a global score of managerial risk taking. This factor analysis puts in evidence that the debts ratios are more relevant than the MBV and the investment ratios. Neither the volatility of the ROA nor the volatility of the ROE are significant. Secondly, we highlight some managerial entrenchment components that may influence managerial risk taking. First, the results indicate a significant non linear relationship between managerial ownership and managerial risk taking. This reveals the effect of conflicting managerial incentives, and external and internal disciplinary monitoring mechanisms. Also, it seems that managerial ownership may incite managers to incur risks and look for new investments. It is high time to promote stock options like in developed countries. Besides, our findings show that the more experienced the manager gets, the more risk averse he becomes. Upon such result, Tunisian authorities are recommended to urge managers not to exceed a certain experience within the same firm so as to



promote the initiative and the creativity. On the other hand, neither the anterior experience of the manager nor his age have a significant influence on managerial risk taking. These two criteria are thus not so eminent while hiring a new manager. Finally, the results indicate that managers of larger firms are more prone to invest in risky projects. Such result would stimulate Tunisian authorities to strengthen the value of listed firms and assist their growth. Last but not least, our findings would be more significant and pertinent if the study covers all non financial firms not only the listed ones.

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## Appendices

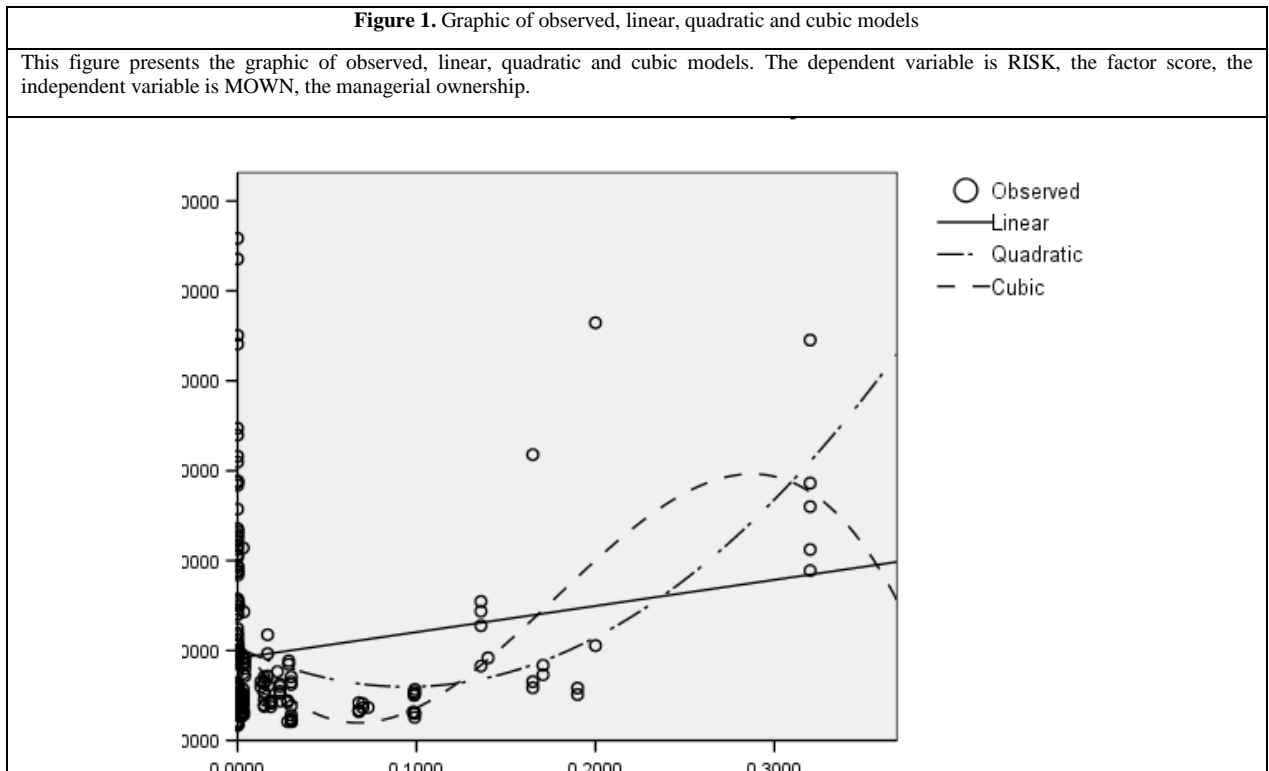
**Table 1.** Descriptive statistics of managerial entrenchment components

Table 1. Descriptive statistics of managerial entrenchment components							
This table presents descriptive statistics for the independent variables used in our estimations. MOWN is the percentage of managerial ownership; MEXBF is the managerial experience before being nominated a chairman; MEXAF is the managerial experience as a chairman; MAGE is the age of the manager; it equals 1 if it is less than 40 years, 2 if it is between 40 and 60 years and finally 3 if it is over 60 years; LNSIZE is the Logarithm of the value of total assets.							
		MOWN	MEXBF	MEXAF	MAGE	LNSIZE	MOWN
N	Valid	205	206	206	206	206	205
	Missing	1	0	0	0	0	1
Mean			0,7330	7,7087	2,0971	17,7172	0,0302
Median			0,0000	5,0000	2,0000	17,5982	0,0017
Std. Deviation			2,9353	6,8270	0,5590	0,9203	0,0643
Minimum			0,0000	1,0000	1,0000	16,1481	0,0000
Maximum			30,0000	29,0000	3,0000	21,0159	0,3200

**Table 2.** Descriptive statistics of managerial risk taking components

Table 2. Descriptive statistics of managerial risk taking components									
This table presents descriptive statistics for the components of the dependent variable RISK used in our estimations. MBV is the market-to-book-value; INV is the total investments deflated by total assets; LEV1 is the total debt divided by book value of capital; LEV2 is the total debt divided by the market value of total assets; LEV3 is the total debt divided by the book value of total assets; VROA is the standard deviation of ROA for a three-year period; VROE is the standard deviation of ROE for a three-year period; RSIK is the factor score.									
		MBV	INV	LEV1	LEV2	LEV3	VROE	VROA	RISK
N	Valid		206	206	206	206	206	206	206
	Missing		0	0	0	0	0	0	0
Mean		1,5197	0,2214	3,0863	2,1207	0,5256	0,3367	0,0261	0,0000
Median		1,2786	0,1331	1,7743	0,7732	0,4810	0,2176	0,0171	-
Std. Deviation		0,7858	0,3655	3,5185	3,4468	0,3929	0,3478	0,0309	1,0000
Minimum		0,6556	-	0,0832	0,0328	0,0436	0,0058	0,0002	-
Maximum		7,0994	2,7550	23,8184	24,2568	3,1578	1,9611	0,1805	4,5838

Table 3. Comparison of linear, quadratic and cubic models						
This table presents the results of linear, quadratic and cubic regressions. The dependent variable is RISK, the factor score, the independent variable is MOWN, the managerial ownership.						
Type of models	Models summary					
	R	R Square	Adjusted R Square	Std. Error of the Estimate		
Linear	0,187	0,035	0,030	0,987		
Quadratic	0,357	0,127	0,119	0,941		
Cubic	0,422	0,178	0,166	0,915		
ANOVA						
		Sum of	df	Mean Square	F	Sig.
Linear	Regression	7,140	1	7,140	7,334	0,007
	Residual	197,638	203	0,974		
	Total	204,778	204			
Quadratic	Regression	26,091	2	13,046	14,748	0,000
	Residual	178,687	202	0,885		
	Total	204,778	204			
Cubic	Regression	36,426	3	12,142	14,497	0,000
	Residual	168,352	201	0,838		
	Total	204,778	204			
Coefficients						
		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Beta		
Linear	MOWN	2,908	1,074	0,187	2,708	0,007
	(Constant)	-0,085	0,076		-1,123	0,263
Quadratic	MOWN	-9,285	2,826	-0,596	-3,286	0,001
	MOWN ** 2	49,218	10,634	0,840	4,629	0,000
	(Constant)	0,035	0,077		0,453	0,651
Cubic	MOWN	-30,090	6,530	-1,932	-4,608	0,000
	MOWN ** 2	275,975	65,376	4,710	4,221	0,000
	MOWN ** 3	-518,736	147,671	-2,679	-3,513	0,001
	(Constant)	0,130	0,080		1,633	0,104



**Table 4.** Construction of the score of managerial risk taking

This table presents the empirical results of the Principal Component Analysis pursued to construct the score of managerial risk taking RISK.

Component Score Coefficient Matrix(a)		Communalities			
	Component 1	Raw		Rescaled	
		Initial	Extraction	Initial	Extraction
VROA	0,000	0,121	0,001	1,000	0,005
VROE	0,000	0,001	1,84E-005	1,000	0,019
LEV1	0,572	12,380	9,902	1,000	0,800
LEV2	0,543	11,881	9,295	1,000	0,782
LEV3	0,006	0,154	0,075	1,000	0,483
MBV	0,012	0,618	0,085	1,000	0,138
INV	0,001	0,134	0,003	1,000	0,022

Rotation Method: equamax with Kaiser Normalization.  
a - Coefficients are standardized.

**Total Variance Explained**

	Component	Initial Eigenvalues(a)			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Raw	1	19,361	76,561	76,561	19,361	76,561	76,561
	2	5,079	20,086	96,647			
	3	0,526	2,078	98,725			
	4	0,138	0,545	99,270			
	5	0,111	0,438	99,708			
	6	0,073	0,288	99,997			
	7	0,001	0,003	100,000			
Rescaled	1	19,361	76,561	76,561	2,249	32,126	32,126
	2	5,079	20,086	96,647			
	3	0,526	2,078	98,725			
	4	0,138	0,545	99,270			
	5	0,111	0,438	99,708			
	6	0,073	0,288	99,997			
	7	0,001	0,003	100,000			

a - When analyzing covariance matrix, initial eigenvalues are the same across the raw and rescaled solution.

<b>KMO and Bartlett's Test(a)</b> a - Based on correlations	Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,717
	Bartlett's Test of Sphericity	301,655	301,655
		21	21
		0,000	0,000
<b>Reliability Statistics</b>	Cronbach's Alpha		N of Items
	0,546		7

**Table 5.** The determinants of managerial risk taking

This table presents results of the cubic regression. The dependent variable is RISK, the factor score. The dependent variables are MOWN, MEXBF, MEXAF, MAGE and LNSIZE. MOWN is the percentage of managerial ownership; MEXPBF is the managerial experience before being nominated a chairman; MEXPAF is the managerial experience as a chairman; MAGE is the age of the manager; it equals 1 if it is less than 40 years, 2 if it is between 40 and 60 years and finally 3 if it is over 60 years; LNSIZE is the Logarithm of the value of total assets.

**Model Summary**

R	R Square	Adjusted R Square	Std. Error of the Estimate
0,646	0,417	0,397	0,7767

**ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Regression	85,541	7	12,220	20,254	0,000
Residual	119,459	198	0,603		
Total	205,000	205			

Coefficients							
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			B	Std. Error
(Constant)	-8,215	1,090		-7,536	0,000		
MOWN	-30,117	5,571	-1,933	-5,406	0,000	0,023	43,454
MOWN2	303,727	57,576	5,181	5,275	0,000	0,003	327,787
MOWN3	-612,862	132,501	-3,163	-4,625	0,000	0,006	158,884
MAGE	0,006	0,114	0,004	0,055	0,956	0,725	1,380
MEXBF	-0,019	0,021	-0,056	-0,890	0,375	0,745	1,342
MEXAF	-0,031	0,009	-0,211	-3,404	0,001	0,769	1,300
LNSIZE	0,483	0,061	0,444	7,941	0,000	0,940	1,064