The interaction between Board Independence and CEO entrenchment on Tobin's Q

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Abstract— **Can board independence control CEO entrenchment? The answer to this voluntarily provocative question, in light of the discussions that are taking place in France on corporate governance, is not trivial. The clarification given from agency / entrenchment theories proclaims that CEO entrenchment moderate the relationship. CEO still consumes expensive perquisites and diversifies at a high cost to shareholders. CEOs entrenchment consists in making themselves valuable to shareholders and costly to replace. An independent board (dominated by outside directors) is a crucial element in ensuring that the CEO will act in the best interests of shareholders and can check entrenched CEO. Other executives can provide sufficient monitoring to CEOs with low entrenchment. This study tests the effects of the interaction between board independence and CEO entrenchment on French firm performance. Both GLS regression and System GMM regression contribute to the same result. We're inclined to support our hypothesizing among two sources of CEO entrenchment. Thereby, whereas regulatory bends increasingly support board independence, our findings indicate that CEO entrenchment must be highlighted in board construction.**

Keywords⸻ **Board Independence; CEO entrenchment; Tobin's Q**

I. INTRODUCTION

"Power in the modern great corporation belongs to the management. The board of directors is an amiable entity, meeting with self-approval but fully subordinate to the real power of the managers". (Galbraith, 2004, p.58)[1].

In the strategic management literature, understanding the determinants of firm performance is essential, it's the research core. In a firm which various stakeholders (or actors) seek to gain entrenchment in order to reach their goals (Pfeffer, 1981)2, the control independence mainly based on the board of directors has received significant attention in order to resolve this opportunism. Ammari et al. (2104) argued that board independence is a determinant factor for French firm performance.

In accordance with agency theory, CEOs possess goals that diverge from those of shareholders, they are self-interested and risk averse, Serfling, (2014). Therefore, they will engage in self-serving actions and making themselves valuable to shareholders and costly to replace, (Jensen and Meckling, 1976).

An independent board (dominated by outside directors) is able to handle board responsibilities, help to protect shareholders from CEOs' opportunism and remove the influence of CEO entrenchment (Fama and Jensen, 1983; Horstmeyer, 2014). As a result, the proportion of outside directors in a board is a determinant key of firm performance and more independence is associated with greater performance. Black and Rachinsky, (2006) and Lefort and Urzua, (2008) conclude that the presence of outside directors on the board promotes a positive financial performance of the firm. Kor and Misangyi, (2008) demonstrate that outside directors' have good skills and they can positively influence the financial performance of the company. Abidin et al., (2009) determine the evidence that a higher proportion of independent non-executive directors on the board have a positive impact on firm performance. However, recently, Ammari et al. (2014) find that board independence has a negative impact on French firm performance measured by Tobin's Q, a result which is consistent with previous literature, Alexander and Paquerot, (2000), who find that independent members tend to mitigate agency conflicts between leaders and managers. Board independence and CEO influence over the performance has truly changed over time, ambiguity still surrounds this relationship and therefore, to have a clearer picture, a deeper and more robust understanding of the interaction between CEO entrenchment and Board Structure seems imperative.

In our investigation, CEO entrenchment refers to the potential for the CEO tenure, CEO age or position to pursue her/his own goals. While CEO age and CEO tenure are usually correlated, prior research (e.g., Musteen et al.2006) has indicated that CEO age and CEO tenure may affect firm outcomes differentially. In recent decades, the age and tenure of CEOs have also become increasingly decoupled. As noted in the business press, there has been a dramatic decline in

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[1] John Kenneth Galbraith the economics of innocent fraud, allen lane, 2004, pp 74

[2] Pfeffer, J. (1981) Entrenchment in organizations. Cambridge, MA: Ballinger

CEO tenure in the past two decades (e.g., Weisman, 2008)[3], which implies a greater number of CEOs with shorter tenure even if appointed at an advanced age. A CEO is more likely to take self-serving actions and to be more opportunistic when his/her entrenchment remains unchecked by outside directors which decrease shareholder wealth (e.g. Antia et al., 2010; Horstmeyer, 2014). However, the Entrenchment theory affirms that monitoring by other executives is good enough to protect shareholders when a CEO's entrenchment is low (Ocasio, 1994).

Following this study into the relationship between high/law CEO influences and the monitoring structure of the board through its independence on firm performance, we extend the negotiation hypothesis through an examination of the control offered by board independence over CEOs entrenchment. In particular, CEO entrenchment gained through older age is negatively associated with the firm performance. Shareholders cannot be certain that the CEO's entrenchment is being used to advance their interests because the independent board cannot counterbalance the entrenchment's gap. While age was identified as a high entrenchment which cannot be monitoring by the outside members of the board, dual and tenure affect positively firm performance measured by Tobin's q. an independent board can remove the influence of CEO entrenchment gained through duality or tenure, Horstmeyer, (2014). Hence, shareholders will benefit from the experience of tenured/duals entrenched CEOs through the monitoring of the independent members in board.

We use the q ratios assuming that French firm performance depend on board independence, CEO's entrenchment and its interaction. In total, the results associated with the negotiation hypothesis offer support for the notion that the double digit growth of CEOs compensations compared to the 0.7% growth rate by year of the average revenue between 2001 and 2010 has been interpreted as a deviation of theirs behaviour and a result of their entrenchment.

This investigation offers two contributions. Firstly, it provides an elucidation for why prior studies of the board independence –firm performance relationship still surround ambiguity and offer equivocal results; CEO entrenchment increase in the case of duality/ long tenure and let him/her have a greater ability to influence board independence and the firm performance. Second, the study is a fruit of an overview of agency and entrenchment theories and their relative interaction in light of recent corporate scandals centred on entrenched CEOs at firms in France, such as LOI NRE (2001) [4], RAPPORT BOUTON (2002) [5], CODE DE CONDUITE MEDEF ET AFEP (2003) [6], LOI BRETON (2005)[7] and LE NOUVEAU CODE AFEP MEDEF (2008)[8].

II. THEORETICAL BACKGROUND

A. Agency Theory

The agency problem developed by Jensen and Meckling (1976) is an essential part of the contractual view of the firm and guided much of the board structure–firm performance literature.

Agency theory designed this concept as a relationship where responsibility is delegated from principals to agents. Because agents are rational by nature, are assumed to be self-interested and possess goals that diverge from those of principals, they pursue their own interest instead of maximizing returns to the shareholders.

A shareholder wants the manager to make decisions which will increase the share value. Managers, instead, would prefer to expand the business and increase their benefits, which may not necessarily increase share value. Thus, firms might be operating for the managers' benefit rather than that of the owners, Berle and Means (1932)[9]. The agency cost is resulting from a divergence of interest between the owners and the managers of the firm (Jensen and Meckling (1976). Incentives and direct monitoring of agent behaviour is indispensable for aligning principals/agents interests. Shleifer and Vishny, (1989) argued that CEO-agents will emphasize their personal wealth and making themselves valuable to shareholders and costly to replace especially in the case where board control is sluggish.

Principal tasks of the Board of Directors include confirming the firm's strategy and objectives as well as monitoring the firm's performance through monthly reports and other information provided by the Group's management.

The board of director retains ultimate responsibility for safeguarding non-profit assets and constitutes the shareholders' first line of defence against CEOs opportunism, Ferreira et al. (2014).

Researchers have largely focused on the fraction of outside directors serving on the board roughly. Lehn et al. (2005) argued that independence increased from 50% to 83% during the second half of the 20th century studying the evolution of 81 firms over time. Coles et al. (2008) provide similar evidence which demonstrates that the median precent of insiders on the board had shrunk to 20% over the 1990s. Chen

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[3] Weisman, R. (2008) Being a CEO has its perks, but tenure isn't one of them. Boston Globe 2008: G1.

[4] The Nouvelles Regulations Economiques (NRE), passed by the French Parliament in May 2001

[5] The Bouton report (2002) was drawn up following the Enron crisis and aimed at a contribution to restore investor confidence.

[6] Various corporate governance codes have been drawn up by the employers' associations (MEDEF and AFEP) under the names of the Viénot 1 & 2 reports and the Bouton report.

[7] The Breton Act; an Act 2005-842 of 26 July 2005, published in the Official Journal of 27 July 2005.

[8] October 2008 AFEP and MEDEF recommendations concerning the compensation of executive directors of listed companies.

[9] Berle, A., Means, G.C. (1932) The Modern Corporation and Private Property. The Macmillan Company, New York, NY.

et al., (2014), focused on the role of network centrality of independent directors in corporate governance. They argued that independents boards are better positioned to protect shareholders, offer their members the possibility to preserve their reputation as experts in decision monitoring and control and their firms enjoy superior performance.

Even most independent board spend a significant fraction of their board member to control CEO's behaviour on a given committee, this does not argue that board independence equals board power.

Hence, if most board work is now handled at the committee level, the structure and composition of distinct committees is as crucial a feature to understand as the structure of the overall board of directors.

CEO influence over the board has truly changed over time and directors largely depend on the CEO for their board seats, Horstmeyer, (2014). CEOs initiate specific interpersonal influence attempts, such as ingratiation and persuasion toward board members that weaken their independence (Westphal, 1998), which tend to mitigate agency conflicts between leaders and managers, Alexander and Paquerot, (2000).

However, decades of research demonstrate that increasing the number of independent directors on the board promotes a positive financial performance of the firm (Lefort and Urzua, 2008, Kor and Misangyi, 2008) even CEO entrenchment is likely one factor that influences the effectiveness of outside directors (Westphal, 1998).

Confirming to agency theory and versus the wide dispersion position of shareholders, CEO enjoy appreciable entrenchment (Jensen and Meckling, 1976). Albeit research on CEOs shows that this entrenchment can have a positive impact on the value of the firm, such as helping in react more efficiently to product market changes and threats (Li et al. 2014), agency theory emphasized to an unobservable term that CEOs can use their entrenchment against shareholders. Landier et al.(2013) show that entrenched CEOs are more likely to engage in value-destroying mergers and acquisitions.

B. The entrenchment theory

The entrenchment theory comes to explain the effectiveness of control mechanisms that are advances of the agency as a mechanism supposed to strengthen the efficiency of the organization, and analyses the strategies adopted by the CEOs and their influences on the control system and the performance of the firm.

This theory also shows that the CEO will try to make investments in specific assets to enjoy more entrenchment and gain advantage in their functions and making themselves valuable to shareholders and costly to replace. The entrenchment shows willingness from the agent (ie the CEO) to neutralize the monitoring mechanisms which are imposed to him by the principal (shareholders); in order to grant larger personal benefits. A CEO is seen as entrenched when he cannot be easily dismissed by the Board.

Several authors of the entrenchment theory have defined the entrenchment as a strategy that covers all measures implemented by the CEO aimed at reducing the effectiveness of control and monitoring system, in order to ensure maximum utility drawn from the organizational rent.

Similarly, Paquerot (1997) defines the entrenchment as strategies used by the CEO to change the environment (control structure, competition in the market of employment, relationships with partners ...) and to increase their power against shareholders and the various partners of the firm.

In the case of High CEOs Entrenchment, the entrenchment policies suppose the inefficiency, in that the appropriations of rents by the CEO is gained at the expense of other partners of the firm, in other words; CEOs seek to neutralize the disciplinary systems in ways to increase their discretionary power in order to increase their well-being to the detriment of other stakeholders. In this perspective the entrenchment policy cannot be controlled even by an independent board and has harmful consequences for shareholders and consequently on performance.

Sleifer and Vishny (1989), Morck et al. (1990) argue that high entrenchment is damaging because it allows CEOs to get away of the control that shareholders may exercise. Such strategies consist to link the profitability of the firm to their presence and that through the recourse to specific investment strategy that reduces competition in the labour market.

In the case of Law CEOs Entrenchment, the CEO develops strategies that allow him to act on his environment and to increase his power over the shareholders, entrenched CEOs under invest in essential long-term activities, such as research and development (Baysinger et al., 1991). The control of this entrenchment level can be sufficient even by other executives.

Shleifer and Vishny (1989), assumed that CEO entrenchment can be through two means: the substantial voting rights and specific investments, he uses the latter means when his holding in the capital is not satisfactory. They argued also that using specific investments, the CEOs obtain a greater compensation by way of wages or fringe benefits and increase their decisional latitude. The CEO may proceed to the achievement of poorly reproducible investments and seeking to make his replacement expensive for shareholders. This allows him to reduce the risk of his dismissal.

Charreaux (1997)[10] defined a specific investment where the profitability of this latter is linked to the presence of the CEO at the company's head and loses its value with his departure.

In this context, the author has specified that the manager has an interest in practicing the diversification in firm's growth strategy to limit its managerial risk. Thus investments are called specific to the CEO when his replacement entails a loss of asset values.

This policy of entrenchment has two negative effects: it leads firstly to a transfer of wealth from shareholders in favour of CEOs, and secondly, it leads to a sub-optimal investment policy.

Moreover, the handling of information can also present a privileged vector of entrenchment by the CEO,

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[10] Charreaux, G. (1997):«Le statut de dirigeant dans la recherche sur le gouvernement des entreprises ».

Stiglitz and Eldin (1992). Also the CEOs can invest in activities with low visibility that makes difficult their control and their evolution.

According to Charreaux (1997), this situation increases the uncertainty perceived even by the other competitors CEOs let them being less motivated to replace the manager in place.

The goals of the CEO may be achieved when handling the information relating to investments. There are three categories of handling namely: the first aims to advance the arrival of favourable news and delay those unfavourable, the second aims to improve the performance indicators in the short term in order to create a bias visibility and the third is related to imitative and differentiated behaviour which consists in copying the decisions of the most reputed CEOs.

According to Hirshleifer (1993)[11], Garvery and Swann (1994), and Charreaux (1997), the entrenchment is not always synonymous to the inefficiency. Stiglitz and Eldin (1994)[12], have indicated that the entrenchment le   ads the CEOs to invest in more risky projects and therefore more remunerative for partners and shareholders in particular. In addition, Castanias and Helfat (1992), focused on the managerial rents created thanks to the specific capabilities related to the CEO.

These authors stipulate that the CEO can maintain his position only after offering shareholders a sufficient remuneration.

Consequently the shareholders and the other partners of the firm benefit indirectly from the entrenchment. The CEOs can preserve their places as long as they provide to the shareholders more profitability.

Castanias and Helfat (1992) focused on the managerial sales, assuming that the CEOs skills were at the origin managerial rents which they released. These rents, was gained using their specific competences which they have implanted in the companies.

According to Castanias and Helfat (1992), the origin of rents generated by the firm can be classified in the following ways:

* The rents from greater performance derived of the rare goods and services

* Rents resulting from the monitoring of scarce resources.

* Rents from market power (barrier to entry, advertising).

A portion of these rents may come from the complementarity between the assets of the firm and the specific skills of the COEs.

The other forms of rents are reviewed by these authors to show that COEs may be compelled to have a management that converge in the best interests of shareholders; the case of the providential rents. The authors assume that the takeover market operates and that the raiders may seek to appropriate these rents. The appropriation of the providential rents is easy,

no worthlessness will result from crew change, and CEOs benefiting from these rents may be particularly threatened by hostile takeovers.

Castanias and Helfat (1992, concluded that CEOs undertake projects that generate rents that benefit them but can be profitable for shareholders. These CEOs did not act opportunistically to keep the remuneration which they receive from rents generated by their specific capacity what resulting an alignment of interests between shareholders and managers.

In addition, they concluded that effective CEOs have an incentive to use protective measures against adverse takeover to guarantee the payment of rents generated by their managerial capabilities.

III. RELATED LITERATURE AND RESEARCH HYPOTHESES

A. CEO Tenure

Tenure (the number of years a CEO has been CEO) is the most important pillar in the process of framing entrenchment. In the early years of their position, CEOs will depend on the knowledge of other members of the executive team (Fredrickson et al., 1988). This is the most delicate phase wherein the CEOs have to show their skills to shareholders, since they may be replaced in case of mismanagement (Baulkaran, 2014). Then, they start developing leadership skills and try to increase the complementarity of assets through their particular knowledge to have a profound effect on the firm and benefit from more entrenchment (McClelland et al., 2010).

Aubert et al.(2014) find that managers' tenure is positively correlated with managerial quality or skill.

Over time, the more of CEOs tenure is associated with more CEO entrenchment because a long lasting of a CEO increases the commitment to the status quo and decreases the voluntary to adopt the most recent techniques Hambrick et al. (1993). Long tenure affects decision-making Wanrong et al.,(2013), investment policies Serfling, (2014), acquisitions Soojin, (2013) and ownership mode choice Qunyong, (2014).

Baulkaran (2014) find that long tenure in firms with poor performance is an indication of CEO entrenchment. He affirms that, since the controlling shareholder in dual class firms is not always the CEO, it is important to examine directors' tenure as a further measure of entrenchment.

Antia et al., (2010) by examining the association between CEO tenure and decision horizon argue that early tenure CEOs are encouraged to focus on the long-term profit of companies, tenure has a significant effect as in statistics and in economic terms and they conclude that early tenure CEOs have longer time horizons.

Previous research has found that CEOs prefer to pursue short-term performance as their tenures increase or before they leave their job position. Soojin, (2013) found that long-tenured CEOs are more likely to arise in other forms of investment such as capital expenditures than to take risky long-term investments. McClelland et al., (2010) argued that CEOs with long tenures pursue risk-averse strategies and have weak future preferences. Qunyong, (2014) found that CEOs

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[11] Hirsleifer(1993): Managerial reputation and corporate investment decision, financial management summer 9.22.

[12] Stiglitz J.E., Eldin A. (1992), « Discouraging Rivals: Managerial Rent Seeking and Economic Insufficiencies», NBER, working-paper series, n°41-45.

tend to manage discretionary to have a stronger impact on firm outcomes or strategic choices than long-term investments. CEOs focus more on short-term performance and forgo the long-term economic interests of their companies, Qunyong, (2014). Horstmeyer, (2014) argued that outside directors are able to handle their board responsibilities and remove the influence of oldest CEO. If an independent board counterbalances the entrenchment's gap gained through tenure, it can prohibit the use of high-risk investments, examine the nonprofit's short-term and long-term strategies and monitors CEOs who have longer tenures. Shareholders can also be certain that the CEO's entrenchment is being used to advance their interests under the well surveillance of the independent board Awan, (2012).

Independent board underwent a significant transformation in terms of its structure (independence) and offers an efficient control to entrenched CEOs where tenure is a proxy of their entrenchment.

Thus, independent board is able to handle board responsibilities, remove the influence of CEO entrenchment gained through tenure, Horstmeyer, (2014). Hence, shareholders will benefit from the experience of tenured entrenched CEOs through the monitoring of the independent members in board.

Accordingly:

Hypothesis 1: CEO tenure moderates the board independence – Tobin's Q relationship. Specifically, the greater CEO tenure; the more positive the relationship between board independence and performance measured by Tobin's Q.

B. CEO Age

Prior theoretical and empirical work generates conflicting predictions and evidence with regard to how a manager's age is an important source of entrenchment and impacts firm performance. Soojin, (2013), documented that a firm's acquisition propensity is decreasing in the age of its CEO. Serfling, (2014) documented a negative relation between CEO age and stock return volatility; he argued that older CEOs reduce firm risk through less risky investment policies. Older CEOs invest less in research and development, make more diversifying acquisitions, manage firms with more diversified operations, and maintain lower operating leverage. CEO age can have a significant impact on firm performance, Serfling, (2014).

Earlier studies predict that a CEO's age impacts firm performance, but predictions are mixed. Specifically, Pigé (1998) argued that CEO's longevity expressed by its age is an entrenchment indicator. Oldest CEOs are harder to control. Age reflect their experience in the firm management, quality of their human capital and thus its capacity of potential entrenchment. Paquerot (1997) found that it is possible that the oldest avoid the most risked operations in case to not destabilize their entrenchment. Because high qualities CEOs have more reputations as younger CEOs, they are susceptible to self-serving bias and increase the risk that they will cling to entrenchment.

Charles Elson (2001)[13] notes that directors face significant pressure when speaking in front of the executive officers of the firm: ''in a boardroom, there is nothing more difficult to do than to talk about the CEO while the CEO is present''.

Mace (1986)[14], in a case study where CEO entrenchment was relative to his age detailed that an independent director was removed from the firm's proxy statement after openly disagreeing with management. Oldest managers possess additional power and receive more performance sensitive compensation Serfling, (2014). Thus, oldest CEO who had been monitored by an independent board affects negatively firm performance. Stated formally:

Hypothesis 2: CEO Age moderates the board independence – Tobin's Q relationship.

Specifically, the greater CEO age; the more negative the relationship between board independence and performance measured by Tobin's Q.

C. CEO Duality

"*Corporation law virtually carves the separation of ownership and control into stone.*" Bainbridge (2008)[15]. Also known as a "double-edged sword", Finkelstein and D'Aveni (1994) and defined later by Krause et al. (2014) as ''the practice of a single individual serving as both CEO and board chair'' CEO duality is one of the most widely discussed corporate governance phenomena (Dalton and Dalton 2011). Krause et al. (2014) concluded that the literature lacks evidence of a substantive relation between firm performance and the board leadership structure. The search for a CEO duality–performance relationship is precocious and substantial in order to observe variables that might moderate or mediate the duality–performance relationship in order to surrounding this ubiquitous phenomenon, (Dalton and Dalton, 2011; Gove and Junkunc, 2013). The studies of this relationship offer equivocal results.

Dual CEOs will pursue high levels of diversification, Castañer and Kavadis (2013), CEO duality is viewed as wielding unchecked entrenchment. This entrenchment is vested through formal position and CEO duality is a source of additional entrenchment. Zajac and Westphal (1996) theorized that with the dual of function of chief executive officer and chairman of the board of directors, CEOs have greater entrenchment relative to the board (CEO duality was one measure of entrenchment). Independent boards often bestow duality to otherwise low- entrenchment CEOs in order to improve unity of direction and offer a focal point for accountability (Finkelstein and D'Aveni, 1994).

However, when duality is bestowed under a law level of board's independence, CEOs with greater influence over their

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[13] Charles Elson (2001) Emerging Trends in Corporate Governance', a supplement to Corporate Board Member.

[14] Mace, M. L. (1986). Directors: Myth and Reality. Harvard Business School Press.

[15] Bainbridge, S. (2008) The New Corporate Governance in Theory and Practice. OXFORD University Press.

boards will impede the selection of outside directors and the opportunity for CEOs to take unchallenged self-serving actions increases, Castañer and Kavadis (2013). Prior empirical studies have also demonstrated that the proportion of independent directors on the board is negatively related to measures of CEO influence (Boone et al. (2007); Linck et al. (2008). Dunn (2004), found that dual CEO-chairs are more likely to publish fraudulent financial statements.

Krause and Semadeni, (2013) found that separation positively affected future firm performance when past performance was weak, but negatively affected future firm performance when past performance was strong.

In the other hand, Daily and Dalton (1994) hypothesized that CEO duality would increase the likelihood of bankruptcy because the increased power afforded to CEOs through the addition of the board chair role would permit them to remain committed to the status quo even when performance was poor. In France, Godard and Shatt, (2004) found that Duality is more profitable in the long term, confirming the essential role played by the leadership to moderate this relationship and create value. Yang and Zhao, (2014), using the exogenous shock of the 1989 Canada–United States Free Trade Agreement argued that CEO duality are serving in saving information costs and making speedy decisions.

Hence our third hypothesis:

Hypothesis 3: CEO duality moderates the board independence – Tobin's Q relationship.

Specifically, under duality, there is a positive relationship between board independence and performance measured by Tobin's Q.

IV. DATA AND METHODOLOGY

A. *Presentation of the Sample*

Our sample includes 40 French firms with dimensions to index SBF 120. The financial and managerial data are collected using annual reports, Paris Market Exchange and websites of selected firms. Collected data covers the 2001-2010 period. Our final sample consists of 40 groups over a period of 10 years (400 observations). The use of the panel data give the advantage to benefit from the both, individual and temporal dimension of the available information.

B. Measure of performance (*Tobin's Q*)

In the formulating proposed by Tobin (1969) [16], the investment is a positive function of the ratio between the market value of existing assets and its replacement value. When the first is greater than the second, in other words, when Q, the assessment report is higher than the unit, there is obviously an incentive to invest. This means, if the financial markets have a favorable view of a company's capacity in terms of future gains, they give its capital stock a value which is greater than its replacement value, which encourages

managers to undertake new investments in physical assets. This point was emphasized by Keynes and cited by Tobin (1969, p. 237). If Q is less than the unit, it is more profitable to invest in financial assets than in physical assets. If the market value of existing assets is permanently lower than their replacement value, there was incentive to repurchase in the stock exchange.

Tobin's Q is considered a market measure that has the ability to predict improvement in future performance that may be explained by existing changes in the business environment. Tobin's Q also supports the empirical evidence of prior studies finding that directors and shareholders, who use Tobin's Q to evaluate performance, assess corporate performance differently (Bebchuk et al., 2009). Tobin's Q is calculated as the total assets minus book value of equity plus market value of equity, all divided by total assets.

C. *Measures of explanatory variables*

CEO Entrenchment:

The three most widely researched sources of CEO entrenchment are: CEO tenure (TEN), CEO Age (AGE) and CEO duality (DUAL).

• TEN: Tenure was measured as the number of years the CEO had served on the board. We used board tenure because it depicts all of the time the manager was in a position to build key relationships.

• AGE: the Age of the CEO.

• DUAL: dummy variable having the value 1 if there is separation of the function of chief executive officer and chairman of the board of directors of the firm i in the year t, and 0 otherwise.

Independence:

• IND: we measured board independence as the proportion of outsiders.

Interaction terms:

 The hypotheses describe moderated relationships wherein the relationship between two variables depends on a third. Such relationships can be captured using interaction terms in moderated regression (Aiken and West, 1991)[17]. Multiplying the values for the two independent variables of interest creates interaction terms, which are then included in the regression.

• INTERAG: proportion of outsiders X Age

• INTERTEN: proportion of outsiders X Tenure

• INTERDUAL: proportion of outsiders X Duality

The component variables were standardized to reduce multicollinearity (Aiken and West, 1991).

Control Variables

To strengthen confidence in the analysis, we have included several control variables.

Controls are those variables that might offer an alternative explanation when left out of a regression model. By including them, the partial correlation coefficients that test our hypothesized model can be interpreted as depicting the

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[16] Brainard, William C.; James, Tobin (1968). "Pitfalls in Financial Model Building". American Economic Review

[17] Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Newbury Park: Sage.

relationship between the hypothesized interaction terms and Tobin's Q, holding constant all other variables in the model.

• BS: Board size was measured as the total number of directors on the board

Prior work has found that both the number of insiders and outsiders relate to financial performance (Wagner et al., 1998), which suggest that the total number of directors influences performance. Large board size reflects an organization's ability to secure needed resources, which enhances organizational performance.

Following prior studies, we included two other variables of control: firm size (TA) and Leverage (EL).

• TA: the firm size measured by the logarithm of total assets.

• EL: the ratio of book value of debt and book value of assets.

Firm size

The influence on firms' investment decisions by the CEO becomes more arduous the larger the firm is (Nahavandi and Malekzadeh, 1993; Papadakis, 2006). Larger firm size may be a deadlock for CEOs (Hannan and Freeman, 1977; Misangyi, 2002), and outbalance theirs entrenchment (Misangyi, 2002; Williamson, 1964). Thus, firm size as a form of inertial force may compel managerial entrenchment (Misangyi, 2002). Larger firms are mostly endowed with more hierarchical structures (Nelson and Winter, 1982)[18], which may dampen CEOs' impact on firm performance and weaken their entrenchment (Nahavandi and Malekzadeh, 1993; Papadakis, 2006). Jim (2009) provides evidence that profit rates are positively correlated with firm size in a non‐linear manner.

Contrariwise, in small firms, CEOs may enjoy a greater entrenchment because smaller firms are composed of fewer steering and the control structure is relatively vulnerable (Papadakis, 2006). Therefore, the status of deadlock and the more hierarchical structures created by a larger firm size may reduce CEO entrenchment, and the reduced managerial discretion may reduce the impact of a manager on firm performance. Per contra, a smaller firm size may create smaller inertia and less hierarchical structures and thus increase managerial discretion, which may increase the impact of a manager on firm performance. Therefore, we think that firm size will have a positive impact on firm performance.

Leverage

Empirical evidence on the relation between leverage and performance is equivoque; that is, the effect of leverage on performance has been found to be positive, negative, or insignificant. Chaiporn and Jittima (2014) examine the relation between financial leverage and firm performance for a panel of 159,375 non-financial firms in Thailand and find that leverage is negatively associated with firm performance in the full sample analysis. Antoniou et al. (2008), find that the relation between financial leverage and performance is negative. Furthermore, Connelly et al. (2012) provide

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[18] Nelson, R., Winter, S. (1982) An evolutionary theory of economic change. Cambridge, MA: Harvard University Press.

evidence to support the notion that the variation in leverage is not associated with firm performance, measured as Tobin's q. Contrariwise, Margaritis and Psillaki (2010) find that leverage has a positive effect on firm performance. Cai and Zhang (2011) show that changes in financial leverage negatively affect stock returns. Similarly, Giroud et al. (2012) show that reducing leverage ratios result in better performance.

D. *Descriptive Statistics*

We have panel data on Tobin's Q and we need to account for variation over time (within) and across individuals (between). Tobin's Q is the dependent variable and CEO Tenure, CEO Age, CEO Duality, board size, independent directors, firm size, leverage and interaction terms are independent variables.

The id and t variables are not real variable, id shows the cross section dimension and t shows the time dimension of the data set. These two variables decide how to classify our panel data; it said that we have 40-observation 10 years data point starting from 2001 to 2010.

In the summary Table 1 each variable have mean, standard deviation and min-max. The standard deviations are gives in three categories: overall, between and within. The between variation implies the variation of the same variable over time. On the other hand, within variation refers to the variable among the different countries in different time periods. The mean of the Tobin's Q variable is 1.342, the minimum is 0 .562 and maximum is 4.926. Let's see the overall variation is 0.578, if we see between and within variance- the within variation dominates. All the independent variable are explained by within variation that's mean the variable vary across countries over time. Therefore, the most of the variables variability in this data set can be explained by the within variation (Appendix A, B, C and D).

TABLE 1: SUMMARY STATISTICS-WITHIN AND BETWEEN VARIATIONS FOR PANEL DATA

Variable	Variation	Mean	Std. Dev.	Min	Max
id	overall	20.5	11.557	1	40
	between		11.690	1	40
	within		0.0	20.5	20.5
t	overall	2005.5	2.875	2005.5	2010
	between		0.0	2002	2005.5
	within		2.875	2001	2010
Tobin's Q	overall	1.342	0.578	0 .562	4.926
	between		0.498	0.923	3.395
	within		0.302	0.048	2.273
AGE	overall	56	7.266	38	74
	between		5.448	46.5	68.5
	within		4.877	40.1	78.9
TEN	overall	12.462	8.432	1.00	42
	between		7.008	3.10	37.5
	within		4.806	-2.537	34.962
IND	overall	6.002	2.666	1.00	18
	between		2.411	2.50	12.4

	within		1.193	2.102	11.602
DUAL	overall	0.607	0.488	0.00	1.00
	between		0.381	0.00	1.00
	within		0.310	-0.292	1.507
BS	overall	11.705	3.871	4.00	24
	between		3.613	4.90	20.5
	within		1.491	8.205	17.905
LEV	overall	0.110	4.181	-35.895	0.999
	between		3.501	-21.446	0.942
	within		2.345	-14.338	22.525

E. *Estimation method*

To analyze the panel data we can use following estimators:
• Pooled OLS (ordinary least squares).
• The GLS is applied when the variances of the observations are unequal (heteroscedasticity), or when there is a certain degree of correlation between the observations. In this case generalized least squares can be statistically efficient due to the detection of heteroscedasticity and serial correlation.

•System GMM, the causality between the independent and dependent variables of a model lead to endogeneity. In our study board size can be affected by firm characteristics such as firm size. To solve this problem, we introduce Arellano and Bover, (1995)[19] and Blundell and Bond, (1998)[20] two-step "system GMM" as our third estimation technique. This approach allows us to orthogonally use the lag of explanatory variables as instruments to reduce endogeneity problem from reverse causality, simultaneity and unobserved fixed effect.

Particularly, the system GMM technique involves stacking the equations in difference with the equations in levels and carrying out GMM estimation using lagged level values of all variables as instruments for the differenced equation and lagged differenced values as instruments for the equations in levels. First differencing eliminates unobserved heterogeneity and omitted variable bias. Then, using the past as instrument for the present reduces potential biases from simultaneity and reverse causality. Following Wintoki et al., (2009)[21], all explanatory variables are included as endogenous except year dummies. In the system GMM, two-step estimates of the standard errors tend to be downward biased (Blundell and Bond, 1998) and hence a finite-sample correction to the two-step covariance matrix is executed following Windmeijer, (2005)[22]. The reliability of the system GMM estimates is also

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[19] Arellano, M., Bover, O. (1995) Another look at the instrumental variables estimation of error-components models. Journal of Econometrics, 68(1), 29-51.

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checked with Hansen test for instruments validity and Arellano and Bond, (1991)[23] test for serially uncorrelated error terms. In order to choose the best model specification, we examined several specifications according to different assumptions about the endogeneity of variables.

In terms of methodology, this study contributes by checking the robustness of the findings with several estimation methods to control for serial correlation, heteroscedasticity and endogeneity.

V. EMPIRICAL RESULTS

1) Pooled OLS Regression:

The hypotheses were tested using hierarchical regression analyses. Hierarchical regression is a conservative method of testing the hypotheses. Table 2 shows Pooled OLS regression output, to obtain robust results our control variables are entered first into the regression model before the variables of theoretical interest are analyzed. Results in Model 1 indicate that the coefficients associated with all control variables of the model are statistically significant at 10%, Model 2 point out the significant effect of CEO tenure which affect negatively the performance and affirm the assumption that board independence offer more monitoring. The presence of independent members in board is positively correlated with firm performance as predicted by agency theory. Model 3 expose the interaction between CEO entrenchment and board independence, CEO age can be identified in this case as a high entrenchment level which has a negative indirect effect on firm performance. Board independence can handle CEO duality to realize a convergence of interest.

Our regression revealed the presence of serial correlation (Table 3) and heteroskedasticity (p>0.000), thus this estimation technique cannot be efficient and it is absolutely essential to have recourse to GLS regression.

2) GLS Regression:

Table 4 shows the GLS regression results. Model 4 addressing Tobin's Q as the performance variable, the coefficient on board size, BS, is negative and statistically significant at 5%. The coefficient on board independence, IND, is positive and statistically significant. The negative coefficient on CEO duality, DUAL, is statistically significant at 1% level. The direct effect of CEO Age is positive and significant at 1% level. However, the positive coefficients on the direct effect of CEO tenure, TEN, is no longer statistically significant. To test for the reciprocal actions or influences, the negative coefficients on the interaction between CEO Age and board independence, INTERAG, is significant at 1% level. We find support for the Hypothesis 2 that CEO Age moderates the reciprocal effect of board independence. Our

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[23] Arellano, M., and Bond, S. (1991) Some tests of specification for panel data: Monte Carlo evidence and application to employment equations. The Review of Economic Studies, 58(2), 277-297.

results indicate no support for Hypothesis 1. Tenure (when entered alone or inter-reacting with board independence INTERTEN) was not related to firm performance as predicted.

The results indicate that the interaction between CEO duality and board independence, INTERDUAL, is statistically significant at 1% level and affect positively the performance, so Hypothesis 3 is supported

3) Dynamic System Panel GMM Regression:

The results reported in Table 5 indicate that all the coefficients associated with all variables of the model are statistically significant except the interaction between CEO tenure and board independence. The dynamic GMM model includes one lag of performance. In addition, we note that according to the p-values of the Hansen test and that of Arellano and Bond AR(2), we cannot reject the null hypothesis of validity of instruments and the absence of autocorrelation of second order to usual risk's thresholds, respectively. Note that the instruments used in the some model's specifications are the number of 47.

Board size instrumented with the strong instruments is strongly positively associated with Tobin's Q ratio performance. The rest of variables have the same direction as supported by GLS regression which confirm our Hypothesis 2 and Hypothesis 3 but not our Hypothesis 1.

TABLE 2. REGRESSION RESULTS FOR TOBIN'S Q. POOLED OLS ESTIMATOR

	Model 1	Model 2	Model 3
VARIABLES	QDETOBIN	QDETOBIN	QDETOBIN
BS	0.37577**	-0.05675	-0.13199
	(0.16404)	(0.16717)	(0.16575)
FS	-1.44892***	-2.26802***	-2.24703***
	(0.39274)	(0.38976)	(0.38902)
LEV	0.27272*	0.09213	0.12026
	(0.14144)	(0.13831)	(0.13872)
IND		1.60818***	9.04164***
		(0.23339)	(1.59842)
AG		-0.06319	0.80589***
		(0.07284)	(0.19166)
TEN		-0.20566***	-0.22208
		(0.06169)	(0.17362)
DUAL		1.14405	-5.98247**
		(1.08322)	(2.98168)
INTERAG			-22.81418***
			(4.68859)
INTERTEN			0.11311
			(1.59572)
INTERDUAL			3.76697**
			(1.55346)
Constant	10.78799***	18.83845***	-69.2227***
	(3.13498)	(4.74226)	(19.34894)
Observations	400	400	400
R-squared	0.03543	0.16482	0.21333

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Testing for Serial Correlation:

Because serial correlation in linear panel-data models biases the standard errors and causes the results to be less efficient, researchers need to identify serial correlation in the idiosyncratic error term in a panel-data model.

Ignoring Serial Correlation may let OLS coefficients unbiased and consistent but inefficient. The neglect of this test makes the forecasts inefficient, the variances of coefficients biased and tests are invalid.

Wooldridge (2002, pag. 28-23)[24] derives a simple test for autocorrelation in panel-data models.

Regress the pooled (OLS) model in first difference and predict the residuals

Regress the residuals on its first lag and test the coefficient on those lagged residuals (Table 3).

In the Table 3 below, P value of L1.rest = 0.000 thus the null hypothesis of no serial correlation is strongly rejected. Drukker (2003)[25] implements the test with the user-written command -xtserial- to test the null hypothesis that there is no serial correlation in this specification.

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
$F(1, 39) = 29.345$
$Prob > F = 0.0000$

Note that the null hypothesis of no serial correlation is strongly rejected. The most accurate estimation is then provided by the Generalized Least Squares (GLS).

Testing for heteroskedasticity

Poi and Wiggins (2001)[26] suggest an LR test for panel-level heteroskedasticity: iterated GLS with heteroskedastic panels produces MLE. Likelihood ratio test is a statistical test used to compare the goodness of fit of two models, one of which (the null model) is a special case of the other (the alternative model). The test is based on the likelihood ratio, which expresses how many times more likely the data are under one model than the other. Thus, we can use a LR test with -xtgls, igls panels (heteroskdastic)- versus -xtgls, igls- (Assumption: homosk nested in hetero). Likelihood-ratio test:

$LR\ chi2(39) = 2457.42$
$Prob > chi2 = 0.0000$

The null hypothesis standing for homoskedasticity, the Likelihood-ratio test indicates that our panel faces heteroskedasticity. The most accurate estimation is then provided by the Generalized Least Squares (GLS).

[24] Wooldridge, J. M. 2002. Econometric Analysis of Cross Section and Panel Data. Cambridge, MA: MIT Press

[25] Drukker, D. M. 2003. Testing for serial correlation in linear panel-data models. Stata Journal 3: 168—177.

[26] Poi and Wiggins 2001.
http://www.stata.com/support/faqs/stat/panel.html

TABLE3. REGRESSION RESULTS FOR RESIDUALS ON ITS FIRST LAG

	CORR Model
VARIABLES	QDETOBIN
BS	-0.17694
	(0.14565)
FS	-1.77055***
	(0.36630)
LEV	0.20129*
	(0.11226)
IND	8.13163***
	(1.63582)
AG	0.80921***
	(0.20532)
TEN	-0.23467**
	(0.10609)
DUAL	-5.36587**
	(2.72297)
INTERAG	-20.77899***
	(4.80610)
INTERTEN	0.37549
	(1.05665)
INTERDUAL	3.36789**
	(1.49511)
L1.REST	0. 8195772***
	(0.0711114)
Constant	-68.09057***
	(18.83544)
Observations	360
R-squared	0.78888

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 4. REGRESSION RESULTS FOR TOBIN'S Q. GLS ESTIMATOR

	Model4
VARIABLES	QDETOBIN
BS	-0.29381**
	(0.12663)
FS	-1.19334***
	(0.40011)
LEV	0.07976
	(0.06973)
IND	6.46857***
	(1.28743)
AG	0.54182***
	(0.18368)
TEN	0.05966
	(0.16022)
DUAL	-5.21191***
	(1.79064)
INTERAG	-15.89013***
	(3.98000)
INTERTEN	-1.53338
	(1.24729)
INTERDUAL	2.56302***
	(0.84194)

Constant	-49.52924***
	(16.96175)
Observations	400
Number of group	40
Wald chi2(10)	104.02
Prob > chi2	0.0000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 5. REGRESSION RESULTS FOR TOBIN'S Q. SYSTEM GMM ESTIMATOR

	System GMM
VARIABLES	QDETOBIN
L1. QDETOBIN		0.5263335***
	(0. 0247899)
BS	0.24553**
	(0.09294)
FS	-3.33294***
	(0.26629)
LEV	0.48662***
	(0.06248)
IND	9.08037***
	(0.75336)
AG	0.80254***
	(0.08389)
TEN	-0.24411*
	(0.13717)
DUAL	-4.39851*
	(2.33357)
INTERAG	-23.05643***
	(2.36868)
INTERTEN	-0.45702
	(0.86758)
INTERDUAL	4.12391***
	(0.99339)
Constant	-66.16440***
	(9.77983)
Numbre of Observations	400
Numbre of Instruments	62
P-value Hansen Test	1.000
P-value AR(1)	0.107
P-value AR(2)	0.280

Notes: QDETOBIN is the dependent variables. The numbers in parentheses are absolute value of t-statistics. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level. For System-GMM estimator in two stages, the explanatory variable in the model, assumed endogenous, is BS. Furthermore, the reported values in the table are p-values of the Hansen test of instruments' validity and those of Arellano and Bond test AR(2) autocorrelation absence of second-order thresholds usual risk.

VI. E DISCUSSION

Our investigation is endeavouring to elucidate two contributions. Primary, the outcomes afford a reasonable illustration for why previous studies of the board

independence –firm performance relationship offered ambiguous results; CEO entrenchment appears to moderate the link.

Secondary, our study did not simply develop agency and entrenchment theories, but instead it deepened in the interaction between the two theories to offer specific evidence consistent with our backgrounds.

Prior studies on the board independence –firm performance relationship have been presented with mixed findings.

Whatever the measure of CEO entrenchment; (via CEO tenure, CEO age and duality), using GLS regression or GMM regression, our findings indicate that CEO entrenchment moderates the board independence –firm performance link.

While prior studies have argued that CEO entrenchment is related to more firm performance (e.g. Castanias and Helfat, 1992), our results gave best shots to understand the board independence –firm performance relationship, that CEO entrenchment must be highlighted in board construction.

Although duality offers a source of entrenchment; persons who are responsible for the firm's performance are the same with those who evaluates the efficiency. This situation makes difficult the correct evaluation of the firm's performance but cannot conduct to an under-performance. CEO duality would increase the likelihood of bankruptcy because the increased power afforded to CEOs through the addition of the board chair role would permit them to remain committed to the status quo even when performance was poor. Our results confirm those of Godard and Shatt, (2004) found that duality is more profitable in the long term, confirming the essential role played by the leadership to moderate this relationship and create value in France.

CEO age, in contrast, was negatively related to firm performance. As a CEO's age increases, the intellectual capabilities of the executive are enhanced due to the knowledge and experience gained from the position. Oldest CEOs may increases the pressure to engage in short-term performance, become risk averse and tend to adapt less to the external environment (Miller, 1991), thus hurting firm performance.

Companies with older managers or occupied their posts for long date during a long time, may be less estimated than companies with young CEOs or managing directors who did not serve their current jobs for long time (Antia et al., 2010).

Although tenure gives CEOs more experience to act in the best interest of the firm, recent research suggests that the impact of CEO tenure on firm performance is a complex phenomenon and our results offer support that longer CEO tenure cannot translate into superior performance.

The new CEO may lacks from specific knowledge of the company and has a low level of power. Thus, the probability to increase information asymmetry or create implicit contracts with stakeholders decreases. The CEO in this phase is seeking to be heard, be respected and to consolidate his power. So we can talk about a neutral entrenchment in this case. In addition, he must prove that he has adequate capacities to manage the company, and he will try to increase the complementarity of

the firm's assets through his skills and special knowledge (creation of networks, building informal contacts ...).

A second argument our study is important is that it advances theory. We developed agency and entrenchment theories to explain why CEO entrenchment should moderate the board independence –firm performance relationship.

Based on the entrenchment theory, we asserted that CEOs entrenchment is not always synonymous to the inefficiency; Constraining CEOs abilities to take serve-serving actions are the greatest challenges confronting by board of director. Furthermore, an independent board (dominated by outside directors) is able to counterbalances the CEO entrenchment's gap, especially low- entrenched CEOs who might under invest in essential long-term activities, such as research and development (Baysinger et al., 1991). However, monitoring high- entrenched CEOs is not sufficient to protect shareholders as predicted by agency theory.

Agency theory awaits a relationship between board structure and firm performance based on the assumption that CEOs entrenchment serve to take self-serving actions that drain shareholder wealth (Fama and Jensen, 1983). The present study takes different level (law and high) of CEOs entrenchment into account. High- entrenched CEOs are hard to control but the monitoring of low- entrenched CEOs can be sufficient even by other executives.

Despite the fact that agency theory admits the crucial role of monitoring, entrenchment theory helps to explain when these alternative mechanisms are effective. Thus, the importance of an independent board in agency theory appears circumscribed by the different level of CEO entrenchment.

VII. CONCLUSION

The relationship between board independence and firm performance yielded equivocal results. Based on agency and entrenchment theories, we argued that one explanation is that the relationship is moderated by CEO entrenchment. Our GLS and Dynamic System Panel GMM Regression offered us same results.

In support, we found that different level (law and high) of CEOs entrenchment is a crucial key to understand the monitoring system provided generally by independents members of the board.

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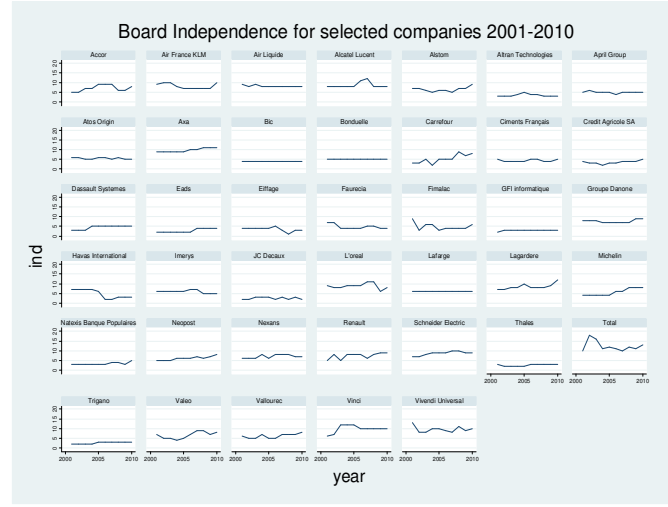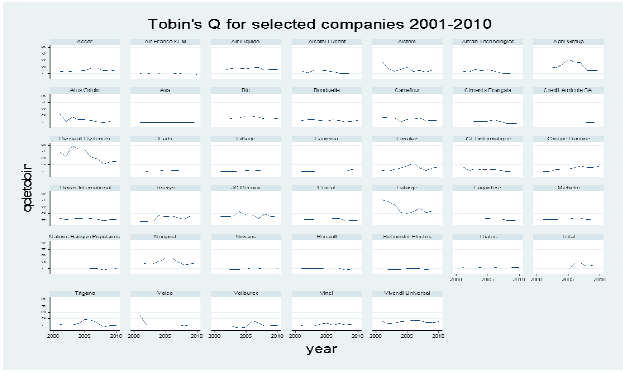
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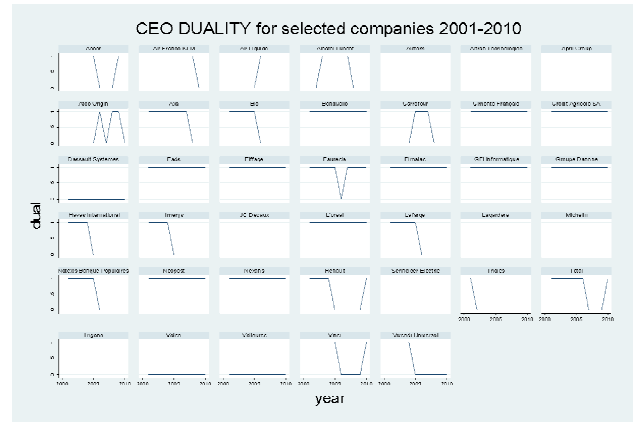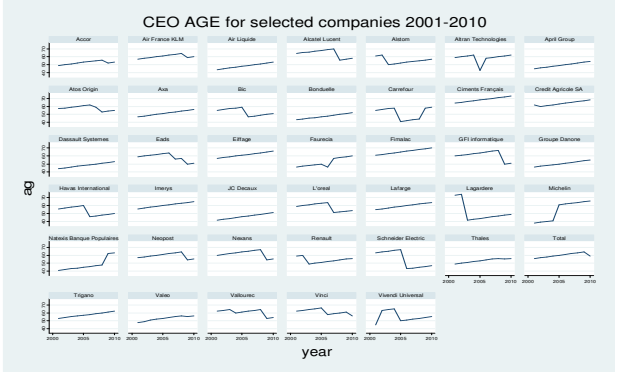
Appendix D

Appendix A

Appendix B

Appendix C