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Does Corporate Governance and Corporate Investment Affect Value Creation? A Comparative Study of Shariah Compliant and Non-Shariah Compliant Companies

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Abstract

There is an increase attention towards the needs for good corporate governance which leads to value creation. Hence, this study attempts to examine whether good corporate governance mechanisms and corporate investment may lead to a better performance. While corporate governance generally affects firm value creation, however, it could also entail different consequences for corporate investment. The investment problem can be attributed to the firms' governance structures, as the agency theory predicts. Most prior research focuses on performance consequences of investment policy or governance structure. These studies do not examine whether a direct relation exists between governance structure and investment policy. The main objective of this study is to examine the relationship between corporate governance mechanisms and corporate investment towards value creation. The first objective of this research is to provide empirical evidence on the direct effect of corporate governance, corporate investment and Shariah/Non-Shariah compliant companies on value creation. The second objective is to test the impact of ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and Chairman-CEO duality), Free Cash Flow, debt and corporate investment on value creation and simultaneously the impact of corporate governance mechanisms on corporate investment to determine the indirect effect of these mechanisms. Applying the Shariah screening tests, we identify two sub-samples that represent distinct companies for Shariah compliant criteria: 308 firm-year observations in Shariah compliant group and 88 firm-year observations in Non-Shariah compliant group. The third objective is to determine how corporate governance improvements affect value creation' sensitivity to investment.

This study use a panel dataset of non-financial firms listed on Saudi Arabia Stock Exchange between the years of 2007 and 2010. Based on a panel of 366 firm year observations of 99 Saudi firms, we provide a comparison between Shariah compliant firms and Non-Shariah compliant firms as regards corporate investment and corporate governance.

The preliminary result indicate that investment affect positively value creation in the first model when analyzing the direct effect of these mechanisms. Ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and Chairman-CEO duality), Free Cash Flow and debt haven't a direct effect on value creation. The secondary important result is concerning the interaction between investment and ownership concentration. For all firms, for Shariah compliant firms and

Non-Shariah compliant firms, they are complementary mechanisms. The positive relationship supports the hypothesis that ownership concentration affect investment and then ownership concentration and investment are two complementary mechanisms to discipline managers.. Overall, the results of this study may be surmised to suggest that Ownership concentration affects directly and positively corporate investment and affect indirectly and positively value creation. The thirdly result indicate that the improvements in managerial ownership affect the value creation through investment. This improvement has reduced the importance of value creation. This is support the substitute hypothesis for all firms and for Shariah compliant firms. For Shariah compliant firms, the corporate governance improvements through ownership concentration affect value creation through investment. However, for Non-Shariah compliant firms, the corporate governance improvements through ownership concentration do not affect value creation through investment. The interactions of investment with members' number that composes the board, the separation in the functions of chairman and of CEO and the independent members that compose the board are positive and significant for all firms and for Shariah compliant firms. For Non-Shariah compliant firms, the only significant variable is members' number that composes the board. These significant coefficients will imply that the corporate governance improvements through members' number, the separation in the functions of chairman and of CEO and the independent members that compose the board affect value creation through investment. The coefficients are positive when we choose all Saudi Arabia Firms and Shariah compliant firms and insignificant only when we select Non- Shariah compliant firms.

Keywords: Corporate Investment, Corporate Governance, Value creation, Shariah Compliant and Non-Shariah Compliant Companies.

1. Introduction

As one of the most investigated fields in finance, agency theory has proved a highly influential lens for analyzing the effects of corporate governance mechanisms in order to create value. Corporate governance research focuses on the allocation of control with respect to aligning the incentives of relevant. Many corporate governance issues involve designing appropriate governance arrangements to address the tension between two key factors: incentivizing the relevant parties to work hard to increase overall firm performance ("value creation") and constraining or facilitating the relevant parties in the appropriation of firm value as private rewards for themselves ("value capture").

Value creation today is the primary criterion in the financial market. The idea of create value is not new. This concept has always existed in the minds of business leaders. Globalization and liberalization of financial markets gave more importance to the value creation topic. The determinants of value creation and value capture are a central interest for scholars of finance, strategy and organizations. Formal theorizing and empirical studies within this research stream focus on the efficiency of contracting and the resulting value creation.

On a theoretical level, this theme has been the subject of several researches: Modigliani and Miller (1961, 1966), Hax and Majluf (1984), Copleland, Koler and Murrin (1994)...These authors defined several levers of value creation. Among the important levels, there are four levers proposed by Rappaport (1986): Optimizing asset utilization, Link investment and value creation, Indexation of compensation on the value and Payment of cash flow to shareholders. According to Fuller (2001), the essence of investing is putting funds at risk with the hopes of receiving a greater amount in return. If this is accomplished, it can be said that one has created value.

Managers and executives choose investments that create value. Shareholders can replace the board if the corporation is under performing. All decisions take into account the objective of value creation.

On the empirical level, prior researches on value creation indicate that managerial decisions about investment and corporate governance mechanisms influence strongly value creation for stockholders(e.g., Mitton, 2004; Fan and Wong, 2002; Claessens, Djankov, Fan, and Lang, 2002; Lemmon and Lins, 2003; Joh, 2003; Baek, Kang, and Park, 2004; and Black, Jang, and Kim, 2006a). Many of these studies focus on the relation between corporate governance and equity valuation, and suggest that improved corporate governance practices result in an increase in firm value or stock price. Companies look to create value, for this reason they make appropriate strategies to attain this objective: an investment strategy and also a strategy for adopting better governance mechanisms to mitigate agency problems and to motivate managers to achieve the value creation objective.

While corporate governance generally affects firm value creation, however, it could also entail different consequences for corporate investment. The investment problem can be attributed to the firms' governance structures, as the agency theory predicts. Most prior research focuses on performance consequences of investment policy or governance structure. These studies do not examine whether a direct relation exists between governance structure and investment policy.

In this paper we are presented with a unique opportunity to test the corporate governance and corporate investment implications on value creation using data from the Saudi Arabia. This paper is also unique in that it is one of few studies to tackle the issue of capital structure determinants outside the US, especially among developing countries. Little evidence is available on whether firms' investment policies in Islamic market are related to their governance structures. Prior research has focused on traditional companies and to our knowledge no studies have been conducted in the context of Shariah compliant companies. Islamic finance is governed by the law of Shariah (Muslims' law) which basically prohibits the interest rate as well as a kind of 'structured' uncertainty within financial contracts called gharar). Islamic debt securities market was developed to meet diverse risk-return profiles and the needs of issuers and investors who looked for a type of asset that complied with Shariah (Islamic law). Conventional bonds that yield interest, or riba, are of course prohibited under Shariah law. Zaher and Hassan (2001) provide an extensive survey of the Islamic finance contracting literature.

Financial economists try to give an answer to the best way to create value? This research issue will cover the topic of value creation in Shariah compliant firms and in Non-Shariah compliant firms. Based on the problem above, we identify three questions: what is the effect of corporate investment on value creation in Shariah compliant companies and in Non-Shariah compliant companies? What is the relation between value creation and ownership structure (ownership concentration and managerial ownership), between value creation and board structure (board size, Board independence and Chairman-CEO duality), and between value creation and debt? How corporate governance affects directly and indirectly the value creation?

The first objective of this research is to provide empirical evidence on the direct effect of corporate governance, corporate investment and Shariah/Non-Shariah compliant companies on value creation. We specify criteria which capture various aspects of a firm's structure, policies and practices that constitute good governance. The second objective is to test the impact of ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and Chairman-CEO duality), Free Cash Flow, debt and corporate investment on value creation and simultaneously the impact of corporate governance mechanisms (ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and Chairman-CEO duality), Free Cash Flow, debt) on corporate investment. Applying the Shariah screening tests, we identify two sub-samples that represent distinct companies for Shariah compliant criteria: 308 firm-year observations in Shariah compliant group and 88 firm-year observations in Non-Shariah compliant group. The third objective is to determine how corporate governance improvements affect the investment' sensitivity to value creation.

This study examines the association between corporate investment and corporate governance practices in Saudi Arabia. The existing research on value creation is replete with evidence from the U.S. and developed markets. The scope of the majority of these studies is, however, limited to

developed country with little attention given to the emerging markets, which may explain the lack of consensus on the impact on value creation. The researchers have recently started looking at corporate investment policy of firms in emerging markets and increasingly recognized that value creation may be affected by corporate governance and corporate investment. But no studies have been conducted in an Islamic Interest-Free system. Our study intends to fill this gap with providing additional evidence of the effect of corporate governance mechanisms and corporate investment on value creation in Saudi Arabia. This study investigates the value creation implications of corporate investment and corporate governance by distinguishing two types of firms: Shariah Compliant and Non-Shariah Compliant Companies. Specifically, this study investigates whether the firms' equity and operating performance are affected by their capital investment and diversification policies, and whether these policies are related to governance characteristics (insider equity ownership, outsider board membership, and chief executive officer (CEO)…)

This study adopts a more integrated approach to examine the relation between the governance structure of 99 Saudi Arabia firms, their investment policies, and their performance during the period between the years of 2007 and 2010. This study use a panel dataset of non-financial firms listed on Saudi Arabia Stock Exchange. Based on a panel of 366 firm year observations of 99 Saudi firms, we provide a comparison between Shariah compliant firms and Non-Shariah compliant firms as regards corporate investment and corporate governance. The primary focus of this paper is on corporate governance and corporate investment in explaining value creation. To this end, I regress three models on empirical and theory suggested determinants of value creation widely used in prior literature.

The methodology to empirically test the proposed relationships is articulated into three steps:

In the first, Value creation is measured in direct relation to corporate governance mechanisms, corporate investment and Shariah/Non-Shariah compliant companies. We estimate one single equation multivariate models for value creation, where value creation is made to depend on corporate governance mechanisms, corporate investment and Shariah/Non-Shariah compliant companies. In the second, we investigate how corporate governance mechanisms interact with corporate investment and affect value creation. We examine whether investment decision is also influenced by corporate governance mechanisms to create value. A simultaneous equations approach particularly three stage least square (3SLS) is deemed to be appropriate on the basis of the interrelationships among corporate governance mechanisms and corporate investment and we explore the relation between value creation, investment, ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and Chairman-CEO duality), and debt policy. We compare the results obtained by using criteria of company's compliance with Shariah law. In the third, we estimate one single equation multivariate models to evaluate the corporate governance improvements affect on the value creation' sensitivity to investment by introducing the interaction terms in one single equation multivariate models for value creation. We compare the results obtained by using criteria of company's compliance with Shariah law.

The preliminary result indicate that investment affect positively value creation in the first model when analyzing the direct effect of these mechanisms. Ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and Chairman-CEO duality), Free Cash Flow and debt haven't a direct effect on value creation. The secondary result is concerning the interaction between investment and ownership concentration. Important finding from this study concerns investment and ownership concentration. For all firms, they are complementary mechanisms. For Shariah compliant firms and Non-Shariah compliant firms, the results are the similar to results for all firms. The positive relationship supports the hypothesis that ownership concentration affect investment and then ownership concentration and investment are two complementary mechanisms to discipline managers. This finding suggests that ownership structure, board structure and investment are three mechanisms for value creation. Overall, the results of this study may be surmised to suggest that ownership concentration affects directly and positively corporate investment and affect indirectly and positively value creation. The thirdly result indicate that the improvements in managerial ownership affect the value creation through investment. This

improvement has reduced the importance of value creation. This is support the substitute hypothesis for all firms and for Shariah compliant firms. For Shariah compliant firms, the corporate governance improvements through ownership concentration affect value creation through investment. However, for Non-Shariah compliant firms, the corporate governance improvements through ownership concentration do not affect value creation through investment. The interactions of investment with members' number that composes the board, the separation in the functions of chairman and of CEO and the independent members that compose the board are positive and significant for all firms and for Shariah compliant firms. For Non-Shariah compliant firms, the only significant variable is members' number that composes the board. These significant coefficients will imply that the corporate governance improvements through members' number, the separation in the functions of chairman and of CEO and the independent members that compose the board affect value creation through investment. The coefficients are positive when we choose all Saudi Arabia Firms and Shariah compliant firms and insignificant only when we select Non- Shariah compliant firms.

The paper proceeds with a discussion in the following section of the literature relevant to the corporate governance, corporate investment and value creation. Section Three presents an overview of Shariah governance system in Saudi Arabia. Shariah governance is considered as a peculiar exclusively component to Islamic countries. Section Four describes the data and methodology, followed by results of the comparative analysis, univariate analysis and regression tests of factors influencing value creation in Section Five. Section Six concludes with an overview of our findings, limitations of the study and suggestions for future research.

2. Literature Review

The literature on agency is rather voluminous and extensive. Since the focus of this paper is on the role of corporate governance and corporate investment in value creation, the review will include related theoretical and empirical evidence. Agency problems arise from the conflict of interest between management and stockholders. The literature on corporate governance emphasizes the mechanisms available to protect investors' rights (Shleifer and Vishny, 1997). A usual classification scheme makes a difference between external and internal control mechanisms. These internal and external governance mechanisms have an implication on the success of the company. The quality of corporate governance is supposed to contribute to the overall value creation process (Schleifer and Vishny, 1997). Corporate governance is not about enhancing shareholder value. It is about enhancing economic growth, entrepreneurship, innovation and value creation (Mayer, 2012). According to Akgiray (2012), "the original and most fundamental policy objective of corporate governance is to facilitate innovation, value creation and economic growth through private enterprise. The main tool for this is to create a legal and regulatory framework that provides growing companies with access to capital that ensures efficient re-allocation of productive resources between competing ends and promotes competent monitoring of corporate long term performance. Through these key functions, the design of the corporate governance framework influences every step of the investment process and must therefore be a key element of any public policy for economic growth and job creation".

2.1. Agency Theory

The importance of corporate mechanisms and its implications for the company has been widely studied in finance theory. Agency theory is one of the main theories that study formally this relationship and establishes the existence of interest conflict between owners and managers (principal and agent problem). Agency relationship is defined by Ross (1973) as a link between two or more parts, one designated as the "agent", acting as the representative of the other, named the "principal". However, monitoring and controlling the agent is expensive as the agent can engage in decision making and behaviors that may be inconsistent with maximizing shareholder wealth (Daily et al., 2003). Thus, owners have as their main objective profits maximization, but due to incomplete information they

cannot make contracts that allow them to eliminate the managerial discretion (Jensen and Meckling, 1976). It also creates information asymmetries that make it possible for agents to engage in activities that, if left unchecked, would threaten firm performance and may ultimately harm the welfare of owners and agents alike. Information asymmetries and incentives therefore combine and pose a moral hazard to principals, which owners can reduce by monitoring agents conduct, gaining access to their firms' internal information, and providing incentives that encourage agents to act in the owners' best interests (Schulze et al., 2001). In this sense, the separation between ownership and control has as a main challenge to avoid possible opportunistic behavior of managers that tends to reduce the firm value. In this respect, the literature on corporate governance emphasizes the mechanisms available to protect investors' rights (Shleifer and Vishny, 1997).

A usual classification scheme makes a difference between external and internal control mechanisms. Whereas the market for corporate control is widely known as being the most outstanding external mechanism (Jensen, 1986), there is a number of possible internal mechanisms such as ownership structure and board that have been proved to discipline managers (Jensen, 1993).

In agency theory, if adequate constraints do not exist to curtail managers' discretion to pursue their own interests as opposed to those of the firm's shareholders, scale/scope decisions may destroy economic value (Seth and Dastidar, 2009). The quality of corporate governance is supposed to contribute to the overall value creation process (Schleifer and Vishny, 1997).

2.2. Corporate Governance and Value Creation

2.2.1. Value Creation

McTaggart, Kontes and Mankins (1994) define value creation as managing the performance of individual business units with respect to the cash flow generated or rates of return earned over time. Morck et al. (1988) and McConnell and Servaes (1990), and many others, are contributions to explain firm value as an outcome of corporate governance mechanisms and corporate investment. There is abundant prior literature on corporate governance systems and firm value (e.g., Mitton, 2004; Fan and Wong, 2002; Claessens, Djankov, Fan, and Lang, 2002; Lemmon and Lins, 2003; Joh, 2003; Baek, Kang, and Park, 2004; and Black, Jang, and Kim, 2006a). Many of these studies focus on the relation between corporate governance and equity valuation, and suggest that improved corporate governance practices result in an increase in firm value or stock price. While corporate governance generally affects firm value creation, however, it could also entail different consequences for corporate investment. The investment problem can be attributed to the firms' governance structures, as the agency theory predicts. Little evidence is available on whether firms' investment policies in Islamic market are related to their governance structures. Most prior research focuses on performance consequences of investment policy or governance structure.

2.2.2. Ownership Structure

In a modern corporate environment where there is a large separation between ownership and management, conflicts of interest can arise between managers, inside owners (controlling shareholders), and outside shareholders, such as minority shareholders. Referring to this problem, Jensen and Meckling (1976) describe the firm as a nexus of contracting relationships among individuals. However, when the manager makes a decision, it tends to be in favor of the agent, rather than of the firm. La Porta et al. (2000) illustrated that managers may take advantage of their authority to benefit themselves by diverting firm assets to themselves through theft, excessive salaries or sales of assets at favorable prices to themselves. Accordingly, the ownership structure in large firms may influence value creation. Firms with strong governance are those with governance mechanisms that align the interests of managers and shareholders and designed to reduce agency problems between shareholders and managers. These governance characteristics are ownership concentration and managerial ownership (Jensen and Meckling, 1976).

The role of ownership structure (Morck et al., 1988) in monitoring management and so improving firm performance has been largely investigated in empirical corporate governance literature.

The corporate governance literature argues that increasing stock ownership by managers and directors can be an effective control mechanism designed to reduce the moral hazard behavior of firm managers. The presence of shareholders holding a high proportion of the firm's capital constitutes another way to mitigate the effects of the separation of ownership and control on firm value. Firms with blockholder ownership are expected to have less agency problems.

Most of the papers based on ownership structure have considered the ownership structure as an exogenous or explanatory variable. In fact, most of this topic concerning literature has analyzed the positive effect that managerial ownership has on value creation (Morck et al., 1988; McConnell and Servaes, 1990).

Empirical findings yield mixed results mainly due to the predominance of agency costs which vary according to different economic settings. Morck et al., (1988), McConnell and Servaes, (1990), Stulz, (1988), Hill and Snell, (1988), Gompers et al. (2004) and many other find that ownership concentration seems to alleviate agency costs and aligns the interests of both managers and shareholders. They have generally found that ownership concentration has a positive effect on corporate performance in economic settings where ownership is generally dispersed, such as in the United States. However, empirical findings in some US studies show that at certain levels of concentration, the positive impact of ownership concentration on firm value reverses and becomes negative (Morck et al., 1988; McConnell and Servaes, 1990; Hermalin and Weisbach, 1991; Gompers et al, 2004). At higher levels of concentration, agency problems associated with entrenchment seem to reverse the effect of the concentration of ownership on value creation. In other countries away from US, empirical research find a negative relationship between ownership concentration and firm performance (Cronqvist and Nilsson, 2003; Classens et al., 2002). However, Demsetz and Lehn (1985) suggest that in countries where firms are widely-held and where shares are granted to managers in order to align their interests with those of shareholders, the concentration of ownership should be treated as endogenous to firm performance in equilibrium. In support of Demsetz and Lehn (1985) and Kole (1994) finds reverse causality between ownership concentration and firm value. Some other papers are involved in other corporate finance issues such as the link with investment risk (Agrawal and Mandelker, 1987), with leverage (Agrawal and Mandelker, 1987; Agrawal and Nagarajan, 1990) or with dividend payout (Chen and Steiner, 1999).

H_1: The value creation is positively associated with managerial ownership.

H_2: The value creation is positively associated with ownership concentration.

2.2.3. Board Structure

Board of directors may play a central role in monitoring managers (Fama, 1980). Board size, board composition and the leadership structure of the board are important characteristics that affect the effectiveness of the board in monitoring management (Jensen, 1993). The role of board structure (Baysinger and Butler, 1985; Rechner and Dalton, 1991; Yermack, 1996, Eisenberg et al., 1998, and Bhagat and Black, 2002) in monitoring management and so improving firm performance has been largely investigated in empirical corporate governance literature. Firms with strong governance are those with small boards that are more difficult for insiders to manipulate (Jensen (1993) and Yermack (1996)), boards that are dominated by non-executives or outsiders (Weisbach (1988) and Brickley, Coles, and Terry (1994)), and board with separation of CEO and president functions.

2.2.3.1. Board Size

The size of the board of directors depends on the complexity of business and the availability of relevant experience and skills set. A board with very few members may not be equipped to deliver the governance roles that are expected. Large boards may also at times be non-functional and may not help in mitigating the agency conflicts between managers and shareholders. Agency models suggest that large boards may destroy corporate value. Kiel and Nicholson (2003) find evidence which contradicts theoretical prediction as board size is found to have positive impact on market-based firm performance. Their finding however may be explained by the size of the board of the studied firms which is

approaching the normative best practice guidelines. Lipton and Lorsch (1992) recommend an average of 8 members in the board for board effectiveness.

H_3: The value creation is negatively associated with board size.

2.2.3.2. Chairman-CEO Duality

One of the key monitoring mechanisms advocated by the agency perspective is the separation of the roles of CEO from chairperson. If the two roles are not separated, this means that the CEO also chairs the group of people in charge of monitoring and evaluating the CEO's performance, and hence duality exists. This situation also gives rise to possible conflict of interest and may impair the independence of the monitoring group. This is because in such situation, the ability of the CEO/Chairperson to exercise independent self-evaluation is questionable (Rechner and Dalton, 1989). Fosberg and Nelson (1999) discovered that firms that switch to the dual leadership structure (separated roles between the CEO and the chairman) to control agency problems experienced a significant improvement in performance which is measured by the operating income before depreciation, interest and taxes to total assets ratio. On the contrary, Rechner and Dalton (1989) found no significant difference between shareholders returns of companies with CEO duality and those that separate the two roles. Dahya et al. (1996) and Kyereboah-Coleman and Biekpe (2006/2007) argue that giving too much power to one person is undesirable as it can create problem in controlling the decision making process.

H_4: The value creation is positively associated with separation role of Chairman-CEO.

2.2.3.3. Board Independence

An independent non-executive director is defined as independent directors who have no affiliation with the firm except for their directorship (Clifford and Evans, 1997). As indicated by Belden et al. (2005), it is believed that the outside directors on the company board tend to reduce the agency cost in the firm. They also noted that the outside directors represent the shareholders effectively and ensure their rights in the company. Furthermore, it was cited by Bathala and Rao (1995) that the firm with a high debt ratio indicated high risk and this led to an agency problem. To avoid this problem, non-executive directors should be included on the board to protect shareholders' rights. External board membership ensures proper management supervision and limit managerial opportunism (Munter and Kren, 1995). The argument for the need of independent non-executive directors on the board substantiated from the agency theory which states that due to the separation between ownership and control, managers (given the opportunity) would tend to pursue their own goals at the expense of the shareholders (Jensen and Meckling, 1976). Empirical studies have found that increased outsiders on the board are likely to promote decisions that are in the interests of external shareholders (Brickley et al., 1997; Weisbach, 1988). Evidently, stock market reacts favorably to the appointment of additional outside directors (Rosenstein and Wyatt, 1990). This positive role has been challenged by managerial hegemony theory which views directors as passive instruments (Kyereboah-Coleman and Biekpe, 2006/2007; Coles et al., 2001). This is also supported by Dahya and McConnell (2003) who found evidence in the UK that investors appear to view appointments of outside CEOs as good news, and this is reflected in the announcement period stock returns. However, Agrawal and Knoeber (1996) discovered a significant negative relationship between board outsider and firm performance. This is also supported by the findings of Bhagat and Black (1999) who established that firms with majority outside directors perform worse than other firms. These studies show that independent non-executive directors do not necessarily have positive impact on firm performance, implying that in these cases perhaps the independent non-executive directors do not play their roles effectively.

H_5: The value creation is positively associated with board independence.

2.2.4. Financial Leverage

Both types of system, Islamic and interest-based, issue credit to finance assets of the firm. The difference is that the interest-based banks treat the amount advanced (equivalent to the purchase price) as principal loan while Islamic banks treat the amount due at maturity (selling price) as principal loan.

The principal has to be the amount that a bank advances in favor of the customer and not the amount the bank expects to retrieve. In this way it is clear that the profit added to the principal is nothing but riba. It is also true because Islamic system uses the same formulas and annuity tables for computing amount due and monthly installments for bai-muajjal and ijarah transactions which are used by the interest-based banks.

Debt in Islamic finance will have the same consequences as the debt in the conventional system, and can therefore be seen as a governance mechanism. It may have a monitoring role in reducing the agency costs of free cash flow. According to Jensen and Meckling (1976), Jensen (1986) and Stulz (1988), financial leverage has an important role in monitoring managers thus reducing agency costs arising from the shareholder-manager conflict. Iturriaga and Crisóstomo (2010) find that leverage plays a dual role: whereas it negatively affects the value of firms with growth opportunities, it positively affects the value of firms without growth opportunities.

According to Mansi, Maxwell, and Miller (2004) and Klock et al. (2005), the debt market is a natural setting to examine the economic impact of corporate governance because; (1) debt represents a significant portion of the value of a typical corporation, and debtholders can provide an equilibrium point between shareholders and managers; (2) the information environment in the debt financing market is characterized by credit rating agencies and banks; and (3) debt pricing is relatively well defined and has small measurement errors compared with equity pricing.

For Shariah Compliant companies, the intervention of the debt market is limited and Shariah Compliant companies with good governance are those that apply the rules of Shariah, are those directed and controlled according to Shariah standards.

H_6: The value creation is positively associated with financial leverage.

2.2.5. Free Cash Flow

Jensen (1986) defined free cash flow as the cash flow in excess of the funds required for all projects with a positive net present value (NPV). He demonstrated that as the free cash flow increases, it raises the agency conflict between the interests of managerial and outside shareholders, leading to a decrease in the performance of the company. While shareholders desire for their managers to maximize the value of their shares, the managers may have a different interest and prefer to derive benefits for themselves. Jensen's free cash flow hypothesis has been supported by subsequent studies by Jensen et al. (1992) and Smith and Watts (1992). La Porta et al. (2000) added that when a firm has a free cash flow, its managers will engage in wasteful practices, even when the protection for inventors improves.

H_7: The value creation is negatively associated with free cash flow.

2.3. Corporate Investment and Value Creation

Empirical studies show that investment has a positive impact on economic growth, on firm value (Lev and Sougiannis, 1996; Chan et al., 2001; Johnson and Pazderka, 1993; Cho, 1998), and on firm performance (Hill and Snell, 1988; Lau, 1998). Most prior research focuses on performance consequences of investment policy or governance structure. Empirical studies generally find that investment intensity has a significantly positive effect on the performance of firms.

H_8: The value creation is positively associated with corporate investment.

Neoclassical investment theory suggests that investments are made up to the point where the marginal rate of return equals the opportunity cost of capital. This would be the case in a friction free world without any informational asymmetries or agency problems. Modigliani and Miller (1958) formulate a simple model based on the assumption that managers maximize the wealth of their shareholders and they invest until the point where their cost of capital equals the marginal returns on investment. In the absence of agency problems, investment decisions and firm performance should be expected to be independent from the structure and concentration of ownership. However, the rise of the modern corporation, with its separation of owners and financiers from the management, has created a set of agency problems that can cause investment decisions to deviate from what is expected from neoclassical models. Numerous empirical studies show that agency conflicts may limit investment.

Agency theory predicts that a manager's incentive for making optimal investment decisions is positively associated with their stake in a firm's equity. From this perspective, ownership concentration may reduce the conflict of interests between managers and shareholders and motivate managers to pursue value-enhancing investment. Thus, ownership concentration may be considered as a corporate governance mechanism to reduce agency costs associated with manager-shareholder conflicts (Villalonga and Amit, 2006) that may induce sub-optimal investment decisions.

Hill and Snell, (1988), Cho, (1998) and others show a positive relationship between ownership concentration and R&D investment. Yafeh and Yosha (2003) find that ownership concentration has a significantly negative effect on R&D investment. Gugler, Mueller and Yurtuglu (2004) analyze the relationship between corporate governance, ownership structures, and investment performance including R&D activity on a sample of firms from 61 different countries. They show that in countries with relatively weaker legal governance systems, widely-held firms have a better investment performance than closely-held ones. Morck et al. (2002) report that firms are mainly family-controlled and have very little incentive to invest in R&D activities. Di Vito, Laurin and Bozec (2010) examine the relationship between ownership concentration and R&D activity in Canada, and find that the concentration of ownership has a negative impact on the intensity of R&D investment and on R&D outcomes as measured by the number of patents granted. However, to our knowledge, no other study directly analyzes the interrelations between corporate ownership structures, R&D investment and firm performance in economic settings such as Saudi Arabia, which is what we examine in this study.

With regard to board governance, researchers have investigated the usefulness of a board of directors as a monitoring devise as they communicate the shareholders' objectives and interests to managers. But no study is interested to examine the indirect impact of board governance on firm value through its interaction with investment. This study is also interested to examine the indirect impact of board governance on firm value through its interaction with investment. This is due to the fact that it is the directors that communicate the shareholders' objectives and interests to managers, implying that to a great extent the former has influence on the major decisions made by latter, including those involving investments.

Hypotheses are therefore:

H_9: Corporate governance mechanisms affect positively/negatively corporate investment.

H_{10}: Corporate governance improvements affect positively/negatively the value creation' sensitivity to investment.

3. Shariah Governance in Saudi Arabia

Shariah governance system as defined by The IFSB Guiding Principles on Shariah Governance System in Institutions Offering Islamic Financial Services (IFSB-10) refers to a set of institutional and organizational arrangements to oversee Shariah compliance aspects in Islamic Financial Institutions (IFIs) (Zulkifli, 2010).

Shariah governance is a component that is peculiar exclusively to Islamic countries. In the Muslim countries, Shariah stands as either a binding or persuasive source of legislation, its role in the legislative and regulatory development in such countries is highly significant. According to Shariah scholars, the objective of corporate governance "is to ensure 'fairness' to all stakeholders to be attained through greater transparency and accountability". Good governance is consistent with Islamic principles, such as preventing gharar (risk, uncertainty, and hazard) and avoiding business transactions that cause injustice in any form to any of the parties.

The hearts of corporate governance are structures and processes that require individuals participating in corporate enterprise to exercise professional discretion in a way that demonstrates integrity, judgment, and transparency. These principles are central to Shariah and Islamic finance.

The various principles of good governance and codes of best practice developed internationally over the last decade can be seen as embodying the notion that best practice is not just about attaining maximum profitability or economic efficiency or fair dealing, but is about endeavoring to make sure

that companies are directed and controlled according to moral standards acceptable to the general community (Gooden, 2001). In Islamic markets, companies with good governance are those that apply the rules of Shariah, are those directed and controlled according to Shariah standards.

The Zulkifli (2010)'study identifies five Shariah governance models in the context of regulatory perspective: Reactive Approach, passive approach, Minimalist Approach, Pro-Active Approach and Interventionist Approach. According to Zulkifli (2010), "The passive approach is exclusive to Shariah governance model in Saudi Arabia. Saudi Authority Monetary Agency (SAMA) treats IFIs equal to their conventional counterparts. SAMA has yet to issue legislation pertaining to Islamic finance and guidelines on Shariah governance system. There is no national Shariah advisory board or any institutions to be the sole authoritative body in Islamic finance. The existing Shariah governance system as practiced by IFIs in the Kingdom is a product of self initiative rather than regulatory requirement or regulator's direction ».

For these reasons, we must define a set of criteria to differentiate between different Saudi firms on grounds of Shariah governance. In 2006, the Islamic Financial Services Board (IFSB) in Malaysia adopted the principles of corporate governance issued by the Organization of Economic Cooperation and Development (OECD) and the Basel Committee and issued its Guiding principles that should be committed by the management of Islamic financial institution toward the stakeholders. The document sets out seven guiding principles of prudential requirements in the area of corporate governance for institutions offering only Islamic financial services (IIFS). Also, The Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI) prepares accounting, auditing, governance, ethics and Shariah standards for Islamic financial institutions and the industry. AAOIFI has issued a total of 42 standards covering the areas of accounting, auditing, ethics, and governance for Islamic financial institutions.

In practice, there are Islamic Market Indexes that defined the screening criteria for equities that streamlines the process for determining Shariah compliance for publicly-listed companies (Dow Jones Islamic Indexes, Global Islamic Index Series (GIIS), S&P 500 Shariah, FTSE Global Islamic Index Series…).

We try to make a compromise between the criteria adopted in calculating indices "Islamic" in the international markets. Before a security can be classified "Shariah compliant", it must pass two levels of screening. Each level consists of proprietary formulas and associated tests based on criteria established by prominent Shariah scholars.

- The first test, an Industry Test, screens the core businesses of companies for compliance (The core activities of the companies should not be Shariah incompatible: Financial services based on interest; gambling;).
- The second test is comprised of a series of five Financial Tests. Companies that generate interest income or incur interest expense below certain benchmarks are classified as compliant. The five Financial Tests are:
    1. Debt to Total Assets: Debt to Asset ratio should be less than 33%.
    2. Non-compliant Investments to Total Assets: The ratio of non compliant investments to total assets should be less than 33%.
    3. Non-compliant Income to Total revenue – Purification of Non-compliant income: The ratio of non compliant income to total revenue should be less than 5%.
    4. Illiquid Assets to Total Assets: The ratio of illiquid assets to total assets should be at least 20%.
    5. Net Liquid Assets to Share Price: The market price per share should be greater than the net liquid assets per share calculated as: (Total Assets – Illiquid Assets – Total Liabilities) divided by number of shares.
- These tests incorporate and refine the screens introduced by the Dow Jones Islamic Market Index's Shariah Board in 1998 and later by FTSE.

Companies that pass both the Industry Test and Financial Test are included in the Shariah compliant group. Sometimes, companies have Data Unavailable for many reasons, for example

financial data is incomplete and it's not possible de conduct these two test. We can use the information in Tadawul. Some mutual Fund invests in listed equity securities that comply with Shariah-guidelines and form part of Tadawul all share index and provide a list of those companies.

H_{11}: The value creation is positively associated with Sahriah governance.

4. Data and Methodology

4.1. Sample Selection

Our sample consists on firms listed on the Saudi Stock Exchange. Data are hand-collected. For our research setting, we combine two data sources: The website "argaam.com" for data relating to companies and corporate governance mechanisms in the financial reports of listed companies in the market and also the website "tadawul.com" for information on prices and stock returns. The analysis is about the period from 2007 to 2010. The year 2006 serves to calculate some parameters that are variations. We have constructed a data panel of non-financial quoted Saudi companies for the period ranging from 2007 to 2010. Our initial sample consisted of 150 firms listed on the Saudi Stock Exchange.

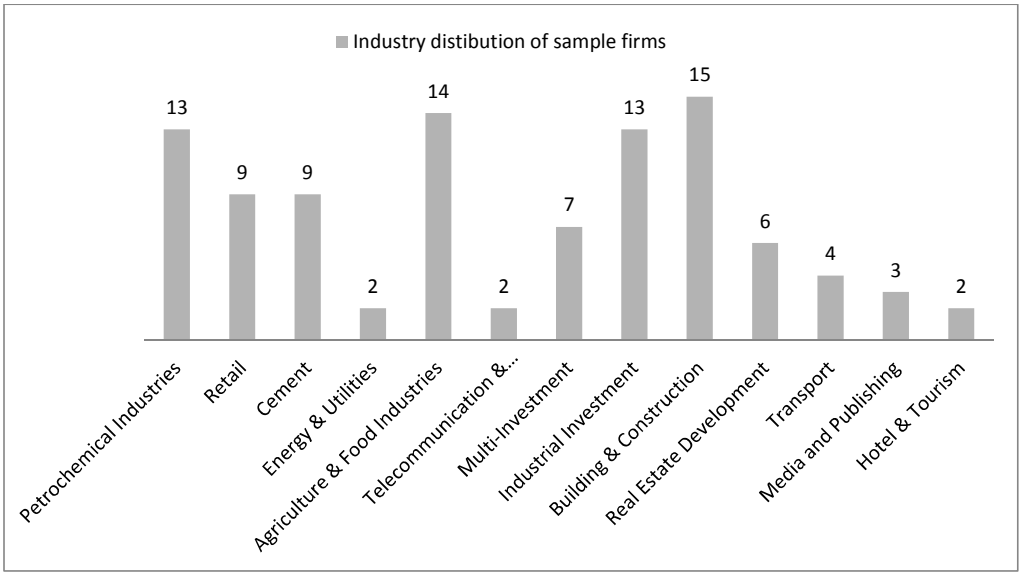
In the first step, we exclude all firms categorized as “Financials” and focus exclusively on non-financial firms because banks and insurances are subject to specific rules and regulations and their leverage is severely affected by exogenous factors (Following Rajan and Zingales, 1995).

In the second step, we limit our sample to companies for which annual reports were available. The final sample consisted of 99 firms with a total of 396 firm year observations (see figure 1).

We apply two screening test. Companies that pass both the Industry Test and Financial Test are included in the Shariah compliant group. Applying the Shariah screening tests, we identify two sub-samples that represent distinct companies for Shariah compliant criteria: 308 firm-year observations in Shariah compliant group and 88 firm-year observations in Non-Shariah compliant group.

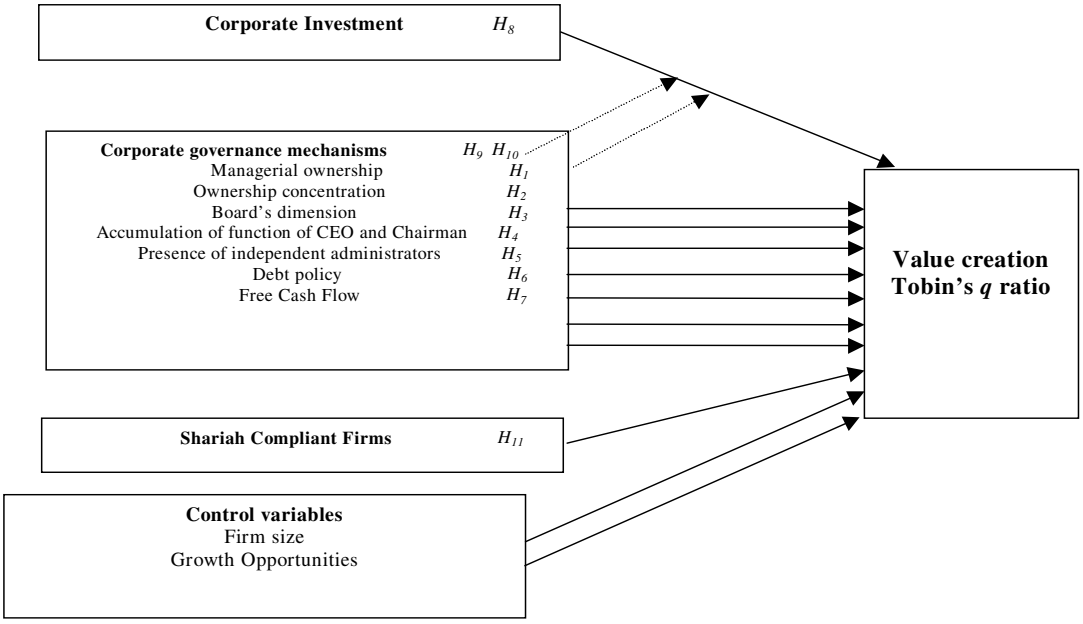
The specific research questions that we investigate are as follows: what is the effect of corporate governance and corporate investment on value creation in Islamic framework? What is the relation between ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and Chairman-CEO duality) and corporate investment and their impact on value creation? How corporate governance improvements affect the value creation’ sensitivity to investment?

Figure 1: Industry Distribution of Sample Firms



4.2. Hypotheses

This research proposed these hypotheses:



4.3. Research Objectives

The specific objectives of this research are:

1. To provide empirical evidence on the direct effect of corporate governance, corporate investment and Shariah/Non-Shariah compliant companies on value creation. We specify criteria which capture various aspects of a firm's structure, policies and practices that constitute good governance.
2. To test the impact of ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and Chairman-CEO duality), Free Cash Flow, debt and corporate investment on value creation and simultaneously the impact of corporate governance mechanisms (ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and Chairman-CEO duality), Free Cash Flow, debt) on corporate investment. Applying the Shariah screening tests, we identify two sub-samples that represent distinct companies for Shariah compliant criteria: 308 firm-year observations in Shariah compliant group and 88 firm-year observations in Non-Shariah compliant group.
3. To determine how corporate governance improvements affect the value creation' sensitivity to investment.

4.4. Methodology

The First Model: OLS Model

For this first equation, we use OLS regression with value creation (Tobin's q ratio) as the dependent variable and the independent variables are ownership variables, board variables, corporate investment variable, Shariah/Non-Shariah compliant companies' variables, Free Cash Flow variable, debt variable and control variables. The model is presented below:

$$Tobin's\ q\ ration_{it} = \alpha_1 + \alpha_2\ MOWN_{it} + \alpha_3\ CONC_{it} + \alpha_4\ TCA_{it} + \alpha_5\ DUAL_{it} + \alpha_6\ INDEP_{it} + \alpha_7\ INV_{it} + \alpha_8 S\text{-}Compliant_{it} + \alpha_9 FCF_{it} + \alpha_{10}\ DEBT_{it} + \alpha_{11}\ SIZE_{it} + \alpha_{12}\ TANG_{it} + \alpha_{13}\ INDUS_{it} + \varepsilon_{1IT} \quad (1)$$

Subscript i and t refer to firm and year. ε_{1IT} denotes the error terms.

In this model, we use the final sample consisting of 99 firms with a total of 396 firm year observations.

Te Second Model: The Simultaneous Equations Model

To explain the direct and indirect role of corporate governance mechanisms in value creation, we introduce simultaneous equations. As consequence, panel data and regression analysis were used. A simultaneous equations approach particularly three stage least square (3SLS) is deemed to be appropriate on the basis of the interrelationships among the agency-cost-reducing mechanisms and corporate investment. This study uses a two-equation model with Value creation, ownership structure, board structure, corporate investment, Free Cash Flow, debt and control variables. Also, ownership structure, board structure and corporate investment are simultaneously determined. Thus, the method of equation jointly done to analyze the endogenous that occur in this research with the function and the system of equations is follows:

$$Tobin's\ q\ ration_{it} = \beta_1 + \beta_2\ MOWN_{it} + \beta_3\ CONC_{it} + \beta_4\ TCA_{it} + \beta_5\ DUAL_{it} + \beta_6\ INDEP_{it} + \beta_7\ INV_{it} + \beta_8 FCF_{it} + \beta_9\ DEBT_{it} + \beta_{10}\ SIZE_{it} + \beta_{11}\ TANG_{it} + \beta_{12}\ INDUS_{it} + \varepsilon_{2it} \quad (2)$$

$$INV_{it} = \beta_{13} + \beta_{14}\ MOWN_{it} + \beta_{15} CONC_{it} + \beta_{16} TCA_{it} + \beta_{17} DUAL_{it} + \beta_{18} INDEP_{it} + \beta_{19} SIZE_{it} + \varepsilon_{3it} \quad (3)$$

Subscript *i* and *t* refer to firm and year. ε_{it} denotes the error terms.

Applying the Shariah screening tests, we identify two sub-samples that represent distinct companies for Shariah compliant criteria: 308 firm-year observations in Shariah compliant group and 88 firm-year observations in Non-Shariah compliant group. We compare the results of two-samples.

The Third Model: OLS Model

To determine how corporate governance improvements affect value creation' sensitivity to investment, we estimate one single equation multivariate models by introducing the interaction terms. We compare the results obtained by using criteria of company's compliance with Shariah law. For this equation, we use OLS regression with value creation (Tobin's q ratio) as the dependent variable and the independent variables are interactions variables. The model is presented below:

$$Tobin's\ q\ ration_{it} = \gamma_1 + \gamma_{21}\ MOWN * INV_{it}\ \gamma_3\ CONC * INV_{it} + \gamma_4\ TCA * INV_{it} + \gamma_5\ DUAL * INV_{it} + \gamma_6\ INDEP * INV_{it} + \gamma_7\ FCF * INV_{it} + \gamma_8\ DEBT * INV_{it} + \gamma_9\ SIZE_{it} + \gamma_{10}\ TANG_{it} + \gamma_{11}\ INDUS_{it} + \varepsilon_{4it} \quad (4)$$

Subscript *i* and *t* refer to firm and year. ε_{it} denotes the error terms.

Applying the Shariah screening tests, we identify two sub-samples that represent distinct companies for Shariah compliant criteria: 308 firm-year observations in Shariah compliant group and 88 firm-year observations in Non-Shariah compliant group. We compare the results of two-samples.

Table 1: Definition of the variables

Variables associated to value creation		
Value creation	**Tobin's *q* ratio**	**Tobin's *q* ratio**
Variables associated to corporate governance		
Ownership structure	Managerial ownership MOWN	Percentage of share owned by directors $MOWN = \frac{\text{AMMOUNT OF SHARES OWNED BY DIRECTORS}}{\text{TOTAL OF SHARES}}$
	Ownership concentration CONC	Percentage of share owned by the largest five shareholders in a firm. $CONC = \frac{\text{AMMOUNT OF SHARES OWNED BY THE 5 SHAREHOLDERS}}{\text{TOTAL OF SHARES}}$
Board structure	Board's dimension TCA	Number of member that integrate the board.
	Accumulation of function of CEO and Chairman DUAL	Dichotomy variable (Dummy) that will be 1 when there is separation of functions, 0 otherwise.
	Presence of independent administrators INDEP	Proportion of the extern and independent administrators. $INDEP = \frac{\text{NUMBER OF THE INDEPENDENT ADMINISTRATORS}}{\text{NUMBER OF MEMBER THAT INTEGRATE THE BOARD}}$

Table 1: Definition of the variables – continued

Free Cash Flow	FCF	$FCF = \frac{CF}{\text{Tobin } Q_{t-1}}$
Debt policy	DEBT	$DEBT = \frac{\text{BOOK VALUE OF TOTAL DEBT}}{\text{BOOK VALUE OF TOTAL ASSETS}}$
Shariah Compliant Firms	S-Compliant	Dichotomy variable (Dummy) that will be 1 when Companies (that pass both the Industry Test and Financial Test) are included in the Shariah compliant group, 0 otherwise.
Variable associated to corporate investment		
Investment	INV	$INV = \ln \frac{\text{TOTAL ASSETS}_t}{\text{TOTAL ASSETS}_{t-1}}$
Control variables		
Firm size	SIZE	Log (Total Assets)
Industry classification	INDUS	Dichotomy variable (Dummy) that will be 1 if the firm belongs to the industry sector and 0 otherwise.
Fixed Assets	TANG	$TANG = \frac{\text{FIXED ASSETS}}{\text{TOTAL ASSETS}}$

4.5. Definition of Variables: the Variables used in the Study are Summarized in the Table (1).

In the first model, endogenous variables (dependent) is Value Creation and the nine exogenous variables (independent) are corporate governance variables, corporate investment variable and Shariah compliant variable. Exogenous variables include also debt ratio (DEBT) and level of free cash flow (FCF).

In the second model using a simultaneous equation, endogenous variable for the first equation is Value Creation and the eight exogenous variables are corporate governance variables, corporate investment variable, debt ratio (DEBT) and level of free cash flow (FCF). For the second equation, corporate investment is the endogenous variable and exogenous variables are corporate governance variables, debt ratio (DEBT) and level of free cash flow (FCF).

For the last model, endogenous variable is Value Creation and exogenous variables are interactions variables between corporate governance variables and corporate investment variable ((MOWN*INV), (CONC*INV), (TCA*INV), (DUAL*INV) and (INDEP*INV)). Exogenous variables include also interactions variables between debt ratio and corporate investment (DEBT*INV) and level of free cash flow (FCF*INV) and corporate investment.

This study measures firm value creation using Tobin's *q*. This last is measured like Dennis and al. (1994) which is market value of equity divided by book value of equity. We define ownership concentration, CONC, as the percentage of common shares held by shareholders owning more than 5% of outstanding common shares. This 5% threshold level is also used by prior research to define substantial shareholdings (e.g., Eng and Mak, 2003).

In order to analyze managerial ownership, MOWN, we have used proportion of shares held by Board of Directors (BOD) and Executive Officers (see, e.g., Rozeff, 1982; Jensen and al., 1992; and Holder and al., 1998). It has been argued that agency costs may be reduced if insiders (managers, directors, and other executive officers) increase their ownership in the firm, because this can help to align the interests of both managers and shareholders (Jensen and Meckling, 1976).

Board's dimension, TCA, is measured by the number of members that integrate the board. Presence of independent administrators, INDEP, is measured by the proportion of the extern and independent administrators. Accumulation of function of CEO and Chairman, DUAL, is a dichotomy variable (Dummy) that will be 1 when there is separation of functions, 0 otherwise.

Investment decision's influence on the firm value is examined by estimating the impact of increment of the investment undertaken by a company[1] (Ruzita and al., 2010). Investment variable is the Napierian logarithm of total assets at *t* divided by total assets at *t-1*.

[1] Ruzita and al., 2010, "Investment, Board Governance And Firm Value: A Panel Data Analysis", Provided by World Business Institute, Nov 2010.

Shariah Compliant Firms is a Dichotomy variable (Dummy) that will be 1 when Companies (that pass both the Industry Test and Financial Test) are included in the Shariah compliant group, 0 otherwise.

Free cash-flow risk, FCF, is defined as cash flow per unit of asset. Our measure of free cash flow risk develops from Miguel and Pindado (2001), Miguel and al. (2005) and Nekhili and al. (2009), by multiplying free cash flow by the inverse of the Tobin Q. This last is measured like Dennis and al. (1994) which is market value of equity divided by book value of equity. Also, in accordance with Nekhili and al. (2009), we consider the Tobin Q at the year t-1. The authors argue that investments that are determined at the year t concern growth opportunities relative at the year t-1. In Crutchley and Hassen's (1987) study, free cash flow is defined as the funds available to managers before discretionary capital investment decisions. This includes net income, depreciation, and the interest expense of the firm. Lehn and Poulsen (1989) measure free cash flow as the operating income before depreciation minus taxes, interest expenses, and preferred and common dividends. Some authors define it as the operational income before depreciation, capital expenditures and taxes, divided by the book value of total asset In order to eliminate any size effect (Lang and al., 1996). I follow the existing literature to define the free cash flow variable as operating income before depreciation net of taxes, interest expenses and common and preferred dividends. This approximately represents the discretionary internal funds that can be accessed by managers. The cash flow measure multiplied by the inverse of Tobin's *q* at the year *t-1* constitutes le free cash flow risk.

Debt ratio, DEBT, is defined by some authors as the ratio between the market value of long term debt and the market value of equity plus the market value of long term debt (Benett and Donnelly, 1993; Huang and Song, 2006). We use the book value of long-term debt to the book value of total assets since most of the arguments in financial theory are related to this type of debt (Miguel and Pindado, 2001; Lang and al., 1996). According to Jensen and Meckling (1976), Jensen (1986) and Stulz (1988) financial leverage has an important role in monitoring managers thus reducing agency costs arising from the shareholder-manger conflict.

Finally, we enter control variables into our model that is usually considered in some research. These variables are size (SIZE) computed as the natural log of the total value of assets, fixed assets (TANG) and industry classification (INDUS).

3.4. Descriptive Statistics

Table (2), table (3) and table (4) show the statistic descriptive of the characteristic of the endogenous and exogenous variables for the three model (value creation, ownership structure, board structure, corporate investment, Shariah Compliant Firms, debt policy, Free Cash Flow, Firm size, Industry classification and Fixed Assets). It is mainly about the average values, the standard deviation as well as the minimal and maximal values of distributions.

Table 2: Descriptive Data for Final Sample of 99 Firms (396 firm year observations)

Panel A: Descriptive Data for Continuous Variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
TOBINSQ	2.04	1.72	9.65	0.54	1.29	396
MOWN	0.10	0.07	0.67	0.00	0.12	396
CONC	0.36	0.35	0.95	0.00	0.23	396
TCA	7.4	7.00	12.00	4.00	1.64	396
INDEP	0.3	0.33	1.00	0.00	0.15	396
INV	0.55	0.54	2.26	-0.61	0.54	396
FCF	0.02	0.01	1.90	-0.26	0.10	396
DEBT	0.16	0.06	0.50	0.00	0.56	396
SIZE	6.2	6.17	8.50	4.77	0.70	396
TANG	0.4	0.40	0.93	2.56E-05	0.24	396

Note: All Jarque-Bera statistics are significant at 1% level. Throughout N = 396 observations

Panel B: Descriptive Data for Dummy Variables

Variables	Mean	No. of firms coded "1"	No. of firms coded "0"
SCOMPLIANT	0.7	308	88
DUAL	0.8	330	66
INDUS	0.3	152	244

Mean value of value creation (Tobin's *q*) is 2.04 for all firms (Shariah compliant firms and Non-Shariah compliant firms). When we separate firms with criteria of Shariah, mean value of value creation for Shariah compliant firms is 2.13. But for Non-Shariah complaint firms, mean value of value creation is 1.99. The Tobin's *q* values consistently remains close to 2 for all firms, for Shariah compliant firms and for Non-Shariah compliant firms (respectively with an average of 2.04, 2.13 and 1.99) indicating that in most years, the firms' market values are slightly higher than their book values.

Table 3: Descriptive Data for Shariah Sample of 77 Shariah compliant Firms (308 firm year observations)

Panel A: Descriptive Data for Continuous Variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
TOBINSQ	2.13	1.80	9.65	0.54	1.37	308
MOWN	0.10	0.07	0.67	0.00	0.13	308
CONC	0.33	0.30	0.70	0.00	0.22	308
TCA	7.34	7.00	12.00	4.00	1.61	308
INDEP	0.36	0.33	1.00	0.00	0.16	308
INV	0.59	0.59	2.26	-0.61	0.55	308
FCF	0.03	0.02	1.90	-0.25	0.11	308
DEBT	0.06	0.04	0.32	0.00	0.06	308
SIZE	6.02	6.01	7.37	4.77	0.49	308
TANG	0.39	0.38	0.92	2.56E-05	0.21	308

Note: All Jarque-Bera statistics are significant at 1% level. Throughout N = 308 observations

Panel B: Descriptive Data for Dummy Variables

Variables	Mean	No. of firms coded "1"	No. of firms coded "0"
DUAL	0.84	260	48
INDUS	0.31	96	212

Table 4: Descriptive Data for Non-Shariah Sample of 22 Non-Shariah compliant Firms (88 firm year observations)

Panel A: Descriptive Data for Continuous Variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
TOBINSQ	1.99	1.72	5.86	0.54	1.08	88
MOWN	0.13	0.06	0.67	0.00	0.19	88
CONC	0.30	0.26	0.66	0.00	0.23	88
TCA	7.38	7.50	11.00	4.00	1.65	88
INDEP	0.35	0.36	0.85	0.00	0.17	88
INV	0.54	0.54	1.76	-0.61	0.53	88
FCF	0.04	0.02	1.90	-0.25	0.20	88
DEBT	0.08	0.05	0.32	0.00	0.08	88
SIZE	6.03	6.03	7.37	5.02	0.52	88
TANG	0.39	0.38	0.92	0.00	0.23	88

Note: All Jarque-Bera statistics are significant at 1% level. Throughout N = 88 observations

Panel B: Descriptive Data for Dummy Variables

Variables	Mean	No. of firms coded "1"	No. of firms coded "0"
DUAL	0.82	73	15
INDUS	0.27	24	64

While analyzing the ownership structure we ascertain that, on average the managerial ownership (MOWN) for all firms holds around 10.71 % of the capital of the firms. For Shariah compliant firms, on average the managerial ownership (MOWN) holds around 10 % of the capital of the firms and for Non-Shariah complaint firms, on average the managerial ownership (MOWN) holds around 13 % of the capital of the firms. The distribution of managerial ownership (MOWN) is skewed. The average managerial holding is 10.71%, 10% and 13% respectively for all firms, for Shariah compliant firms and for Non-Shariah compliant firms but the median is less than 1%. Minimum and maximum values of the stocks owned by directors (managerial ownership) are 0 % and 67.32 % respectively. The standard deviations are 12.67% for all firms, 13% for Shariah compliant firms and 19% for Non-Shariah compliant firms. We also verify that the variable that represents the major shareholders, who hold at least 5 % of the capital (CONC), in these firms, was quite concentrated, as on average (36.08 %) for all firms, 33% for Shariah compliant firms and 30% for Non-Shariah compliant firms, with a maximum that reaches 95% for all firms, 70% for Shariah compliant firms and 66% for Non-Shariah compliant firms, almost more than two thirds of the capital, belongs to the blocks of shareholders. This means that ownership concentration is very high in Saudi Arabia listed firms, in Shariah compliant firms and in Non-Shariah compliant firms compared to Anglo-Saxon countries in particular. Demsetz and Lehn (1985) examine the ownership structure in 511 large US firms. They report that on average the five largest owners together held 24.8 percent and the top 20 shareholders 37.7 percent. Frequently 20 percent is assumed to be more than enough to control a firm (See Morck et al. (2005)).

Concerning the members' number that composes the board (TCA), we can affirm that despite the fact that an ideal number does not exist, the average is within the expected values. In details, our sample presents an average of 8 members in the board which is within the size recommended by Lipton and Lorsch (1992) for board effectiveness with a maximum that reaches 12 members and minimum 7 members for all firms and for Shariah compliant firms. Similarly, for Non-Shariah compliant firms, the average is 8 members in the board with a maximum that reaches 11 members and minimum 7 members. The variable that measures the percentage of not executive and independent members (INDEP) indicates that, for all firms, for Shariah compliant firms and for Non-Shariah compliant firms, on average one third of the members of the board are not executive members, fact that also agrees with the recommendations of corporate governance. Additionally, for all firms, for Shariah compliant firms and for Non-Shariah compliant firms, in a majority number of firms (83.33 %), the functions of chairman and of CEO (DUAL) were separated.

For investment, there is no significant difference between the mean for three groups. For all firms, the mean value is 0.55. For Shariah compliant firms, the mean value of investment is 0.59. And for Non-Shariah compliant, the mean value is 0.54.

For Shariah compliant firms, leverage is stable and remains around 6 %, and for Non-Shariah compliant firms leverage remains around 8 %. The mean value is 0.16 for all firms. We verify that 16.4% of the liabilities of the firms are represented by the long term debt obtained. It shows that the firms in Saudi Arabia use debt not so much for financing their activity. Minimum value of using debt is 0 (0%) and maximum value is 0.50 (50.2%) with standard deviation is 0.56 (56%). This is consistent with results found in earlier studies (cf. Krishnan and Moyer, 1997; Deesomsak et al., 2004). This relatively low debt usage could be partly due to the characteristics of these firms. Firms are Shariah-compliant, which implies that these firms must abide to the 33% maximum debt ratio, could also be the other explanation behind the low leverage. In this study, 77.77% of the studied firms are Shariah compliant.

Similarly, free-cash-flows average is 2% for all firms, 3% for Shariah compliant firms and 4% for Non-Shariah compliant firms. The free-cash-flows do not explain the high investment.

According to table (2), (3) and (4), for all firms, mean, minimum and maximum values of size (SIZE) measured by the natural log of the total value of assets are respectively 6.25, 8.5 and 4.77. Results are similar for Shariah compliant firms and Non-Shariah compliant firms. Mean value of fixed assets (TANG) is 41.82%. For all firms, fixed assets represent 41.82% of total assets. For Shariah compliant firms and Non-Shariah compliant firms, results are similar and are 39%. Finally, 38% of

firms belong to the industry sector (INDUS) for all firms, 31% for Shariah compliant firms and 27% for Non-Shariah compliant firms.

3.5. Analysis of Correlations

Table (5) reports correlation statistics among variables used in various analyses. Multicollinearity refers to a situation in which two or more explanatory/independent variables in multiple regression models are highly correlated. It can be detected through analyzing the Pearson correlation matrix. If the Pearson correlation coefficient exceed 0.7 (limit fixed by Kervin (1992)), we conclude the presence of multicollinearity.

All ownership structure variables (CONC and MOWN) are positively correlated with value creation (Tobin's *q*). Pearson correlation coefficients of ownership concentration and managerial ownership are respectively 0.19 and 0.01. The interpretation is that increases in ownership concentration and in managerial ownership precede increases in value creation.

For board structure variables, (TCA), (DUAL) and (INDEP) are positively correlated with value creation (Tobin's *q*). Investment and compliance with Shariah are positively correlated with value creation. Among the independent variables, Debt ratio (DEBT) and FCF are negatively correlated with value creation (Tobin's *q*) (-0.03). The interpretation is that increases in debt ratio and in FCF precede decreases in value creation (Tobin's *q*).

For control variables, (SIZE) is negatively correlated with value creation and (TANG) and (INDUS) are positively correlated with value creation.

Results in table (3) indicate that all Pearson correlation coefficients are less than 0.7. These statistically correlations, however, have not created any serious problem of multicollenearity as regression diagnostics for the main analysis do not indicate the existence of any such problems. Thus, we conclude the absence of a multicollinearity problem.

Table 5: The correlation matrix of the independent variables

	TOBINSQ	MOWN	CONC	TCA	DUAL	INDEP	INV	SCOMPLIANT	FCF	DEBT	SIZE	TANG	INDUS
TOBINSQ	1												
MOWN	0.01	1											
CONC	0.19	0.10	1										
TCA	0.07	-0.08	0.12	1									
DUAL	0.06	-0.01	-0.04	0.11	1								
INDEP	0.01	0.03	-0.08	-0.07	-0.00	1							
INV	0.93	-0.03	0.20	0.07	0.06	0.03	1						
SCOMPLIANT	0.12	0.03	-0.18	-0.10	0.05	0.10	0.13	1					
FCF	-0.05	0.03	0.06	-0.04	0.02	0.02	-0.03	0.07	1				
DEBT	-0.03	0.00	0.17	0.17	0.02	-0.16	0.00	-0.07	-0.07	1			
SIZE	-0.24	0.08	0.45	0.12	0.05	-0.08	-0.23	-0.05	-0.02	0.05	1		
TANG	0.14	0.04	0.19	0.11	-0.08	0.01	0.15	-0.15	-0.05	0.25	0.12	1	
INDUS	0.00	-0.08	-0.04	0.13	0.14	-0.08	0.00	-0.27	-0.07	0.31	0.23	0.30	1

4. Empirical Results and Discussion

4.1. Univariate Analysis

Table (6) presents univariate test results on differences in means and medians of firms' value creation based on Shariah compliance criteria.

As shown in this table, value creation (Tobin's *q*) is significantly higher in Shariah compliant firms than in Non-Shariah compliant firms in terms of both mean values. Hence, firms operating in accordance with Shariah tend to create more value. When analyzing difference in members' number that composes the board (TCA) and in independence of the board, we observe significantly same result in means and medians. Other important result is the difference between Shariah compliant firms and Non-Shariah compliant firms in terms of ownership concentration (CONC). Firms in accordance with Shariah

present a percentage of ownership concentration equal to 33% but Non-Shariah compliant firms present a percentage of ownership concentration equal to 30%. This difference is significant at 0.1%.

We observe also that firms in accordance with Shariah differ to Non-Shariah compliant firms in term of debt ratio (DEBT). 6% is the debt ratio in Shariah compliant firms and 34% is the debt ratio in Non-Shariah compliant firms. This result confirms the Shariah role in reducing debt.

Corporate investment (INV) appears an important variable in distinguishing Shariah compliant firms and Non-Shariah compliant firms. The investment means are respectively 0.59 and 0.54 for Shariah compliant firms and Non-Shariah compliant firms. For control variables (SIZE, TANG and INDUS), results are significantly similar for Shariah compliant firms and Non-Shariah compliant firms.

Table 6: Univariate Analysis Based on Shariah compliance criteria

	Shariah compliant firms	**Non-Shariah compliant firms**		
	Mean	**Mean**	**t-statistics**	**z-statistics**
	(Median)	(Median)		
Tobin's *q*	2.13 (0.00)	1.99 (1.72)	2.59***	6.73***
MOWN	0.10 (0.07)	0.13 (0.06)	0.65	0.43
CONC	0.33 (0.30)	0.30 (0.26)	3.72***	13.85***
TCA	7.34 (7.00)	7.38 (7.50)	2.18**	4.78**
DUAL	0.84 (1.00)	0.79 (1.00)	1.07	1.16
INDEP	0.36 (0.33)	0.35 (0.36)	2.01*	4.05*
INV	0.59 (0.59)	0.54 (0.54)	2.69***	7.25***
FCF	0.03 (0.02)	0.04 (0.02)	1.48	2.21
DEBT	0.06 (0.04)	0.34 (0.05)	22.79***	519.63***
Size	6.02 (6.01)	6.03 (6.03)	14.87***	221.32***
TANG	0.39 (0.38)	0.39 (0.38)	3.07***	9.46***
INDUS	0.31 (0.00)	0.27 (1.00)	5.73***	32.88***

4.1. Multivariate Analysis

The results of that research will be classified into three categories:

The first category will specify if value creation is positively or negatively related to corporate governance mechanisms, to corporate investment and to compliance with Shariah. This category concerns the effectiveness of governance mechanisms namely the ownership structure and the structure of the board on the resolution of agency problems.

The second category of results concerns the impact of corporate governance mechanisms and corporate investment on value creation and simultaneously the impact of corporate governance mechanisms on corporate investment. The results will provide which mechanisms can influence value creation directly and indirectly. Results will also attest if there is a difference between companies which comply with Shariah and others companies. The review of the empirical literature treating the role of ownership structure and board structure, as mechanism of resolution of agency conflicts between shareholders and managers due to the overinvestment problem brings us to note the absence of relation with those mechanisms and corporate investment and the empirical result ambiguousness

don't seem again today to permit to succeed to the relation between corporate governance mechanisms and corporate investment and impact on value creation. It is therefore useful to spread knowledge on this topic and to see if the same factors keep in a different environment different to conventional system such the one of Islamic system.

The third category of results concerns the effect of Corporate Governance improvements on value creation' sensitivity to corporate investment. The empirical literature has treated these mechanisms without considering their interactions. Our results conclude about the meaning of interaction and thus allow raising issues related to the effectiveness of these mechanisms. The effects of complementarity and substitutability may exist between these three mechanisms.

4.1. The Direct Effect of Governance Mechanisms, Corporate Investment and Shariah/Non-Shariah Compliant Companies on Value Creation: a Single Equation Model

Starting by estimating panel regression of the single value creation equation, the single regression model can not address the interaction of ownership structure, board structure and corporate investment. However it can test on the governance capacity of the three mechanisms, therefore provides a benchmark to compare with simultaneous regression results.

Table (7) presents the results of equation (1).

Table 7: Regression results of model 1 The direct effect of governance mechanisms, corporate investment and Shariah/Non-Shariah compliant companies on value creation in a Single Equation Model

variable	Coefficient	Std. Error	t-Statistic	Prob.
constant	1.37***	0.35	3.914914	0.0001
MOWN	-0.17	0.19	-0.942118	0.3467
CONC	0.11	0.12	0.910390	0.3632
TCA	0.009	0.01	0.642110	0.5212
DUAL	0.02	0.06	0.411416	0.6810
INDEP	-0.23	0.15	-1.575165	0.1160
INV	2.21***	0.05	44.13396	0.0000
SCOMPLIANT	-0.20**	0.09	-2.228051	0.0265
FCF	-0.30	0.22	-1.332947	0.1833
DEBT	-0.73***	0.25	-2.928531	0.0036
SIZE	-0.05	0.05	-1.148649	0.2514
TANG	0.08	0.11	0.768698	0.4425
INDUS	0.01	0.05	0.189297	0.8500
R-squared		0.87		
Adjusted R-squared		0.87		
F-statistic		221.75		
Prob (F-statistic)		0.00		

* p .05 ** p .01 *** p .001

The quality of the model was analyzed through the relative measures of quality of the adjustment R^2 and R^2 adjusted, as well as through the test of statistical inference of F, which p-value is very small. In this situation, we can verify that the quality of the adjustment is high as 87% of the variation is explained by the model. In our case, the R^2 value of 87% means that our line is a very good fit to our data.

The F-test which tests the hypotheses proposed in the methodology, verified globally the consistence and reliability of the model that is F-statistic = 221.75, with a p-value =0.00. In this case, a very high level of signification has been associated, which leads to the rejection of the possible one nullity of all the coefficients of the parameters of the independent variables, and it allows us to interpret the results of the sample.

4.1.1. The Direct Impact of Ownership Structure on Value Creation

In this study, we introduce two ownership structure variables: managerial ownership (MOWN) and ownership concentration (CONC) with respectively α_2 and α_3 as coefficients that measure the effect of these two variables on value creation. The value creation hypotheses (H_1 and H_2) predict higher ownership concentration and managerial ownership leads to a higher value creation ($\alpha_2 > 0$ and $\alpha_3 > 0$).

In table (7), the results indicate that α_2 and α_3 are respectively negative and positive. In order to analyze managerial ownership (MOWN), we have used proportion of shares held by Directors. The findings in table (7) suggest that there is not a significant impact of managerial ownership which serves as a monitoring device to mitigate agency problem between owner and principal. A negative relationship between value creation and managerial ownership across is not consistent with the interpretation that managerial ownership create firm's value (α_2= -0.17). By this, value creation will be as bigger as for firms with low percentage of shares held by Directors. Our results are not consistent with Jensen and Meckling's convergence of interest' hypothesis which suggest that managerial ownership serves to align the interests of mangers and outside shareholders. But, the direct effect of managerial ownership on value creation is not statistically different from zero (probability= -0.94). The results do not support the hypothesis H_1 and are in contradiction with literature on managerial ownership. The corporate governance literature argues that increasing stock ownership by managers and directors can be an effective control mechanism designed to reduce the moral hazard behavior of firm managers. The presence of shareholders holding a high proportion of the firm's capital constitutes another way to mitigate the effects of the separation of ownership and control on firm value. Firms with blockholder ownership are expected to have less agency problems. Most of empirical research has analyzed the positive effect that managerial ownership has on value creation (Chen, 1990; Morck et al., 1988; McConnell and Servaes, 1990). In the empirical research of Agrawal and Jayaraman (1994), the authors conclude that the relative costs of agency decrease when connected with managerial ownership. Also, McConnell and Servaes (1995) demonstrate that the relation between the managerial ownership and the value of a firm is higher in firms with weak opportunities of growth.

The results for the second hypothesis are also shown in Table (7). Ownership concentration has the positive predicted sign in value creation equation (α_3= 0.11) and is not statistically significant. The results demonstrate that companies characterized by the presence of a large blockholder have higher value creation. Our results are consistent with Berger and al. (1997), Miguel and al. (2005), McConnell and Servaes (1995), and Andrés and al. (2005) who note that the ownership concentration affects it positively the performance of the firms with weak opportunities of growth. Similarly, Morck et al., (1988), McConnell and Servaes, (1990), Stulz, (1988), Hill and Snell, (1988), Gompers et al. (2004) and many other find that ownership concentration seems to alleviate agency costs and aligns the interests of both managers and shareholders. They have generally found that ownership concentration has a positive effect on corporate performance in economic settings where ownership is generally dispersed, such as in the United States. Our hypothesis H_3 concerning the relation between ownership concentration and value creation is therefore none confirmed because the direct effect of ownership concentration on value creation is statistically insignificant.

4.1.2. The Direct Impact of Board Structure on Value Creation

Three proxy variables for board structure are used: number of directors (TCA), the split of the roles of the chief executive officer and chairman (DUAL) and proportion of nonexecutive directors (INDEP). α_4, α_5 and α_6 are the coefficients that measure the effect of these three variables on value creation. The value creation hypothesis H_3 predicts that a board of great dimension decreases the value creation ($\alpha_4 < 0$). The value creation hypothesis H_4 predicts that the accumulation of functions of the CEO and the chairman decreases the value creation ($\alpha_5 > 0$). The value creation hypothesis H_5 predicts that the presence of external and independent administrators reduces the agency problem and increases the value creation ($\alpha_6 > 0$).

In table (7), the results indicate that α_4 is positive. A board with a high number increase value creation as predicted by Forbes and Milliken (1999): firms that have more members within the board

have potentially bigger conflicts. But, the effects of board size on value creation in our study are not statistically different from zero (probability= 0.52). The results do not support the hypothesis H_3.

According to Jensen (1986), the separation of the CEO and the Chairman limit the costs of agency relative and affect positively value creation. Our result confirms this proposal (α_5= 0.02) but this result is not statistically different from zero.

Contrary to our expectations and previous empirical evidence, the sign on the presence of external administrators and independents coefficient α_6 is negative which means that firms with higher proportion of external administrators and independents have less value creation. But this negative coefficient is not statistically different from zero. Our results are not consistent with empirical research of Richardson (2002) and Lasfer (2002) who explain that the presence of external administrators and independents offers to the advice of administration a bigger experience and a bigger independence from the management team, allowing the improvement of its role as controller of discretionary funds. The results do not support the hypotheses H_3, H_4 and H_5.

4.1.3. The Direct Impact of Investment on Value Creation

As shown in table (7), we find a significantly positive relationship between investment and value creation. These results support H_8. They show that for Saudi Arabia firms involved in industries that are active in R&D, the investment is positively associated with Tobin's *q*. Our results support empirical studies that show that investment has a positive impact on economic growth, on firm value (Lev and Sougiannis, 1996; Chan et al., 2001; Johnson and Pazderka, 1993; Cho, 1998), and on firm performance (Hill and Snell, 1988; Lau, 1998).

4.1.4. The Direct Impact of Shariah Compliance on Value Creation

In Islamic markets, companies with good governance are those that apply the rules of Shariah, are those directed and controlled according to Shariah standards. When testing equation (1), we observe a statistically negative relationship between the Shariah compliance and Tobin's *q* variables. Our results indicate a significant relationship between Shariah compliance and value creation but do not support our hypothesis H_{11}.

4.1.5. The Direct Impact of Debt Policy and Free Cash Flow Risk on Value Creation

In equation (1), the coefficient α_9 measures the effect of free cash flow on value creation. The coefficient α_{10} measures the effect of leverage on value creation. The value creation hypothesis predicts higher free cash flow leads to a lower Tobin's *q* and higher leverage leads to a higher Tobin's *q* ($\alpha_9 < 0$ and $\alpha_{10} > 0$). As shown in regression 1 of table (7), the findings suggest that there isn't a significant impact of free cash flow which has the negative predicted sign in value creation equation (α_9= -0.3).

The findings in table (7) suggest that there is a significant impact of leverage which serves as a monitoring device to mitigate agency problem between owner and principal. The leverage variable has the negative predicted sign in value creation equation (α_{10}= -0.73) and is statistically significant at the 0.001 level.

The results further do not confirm the hypothesis H_6. Our hypothesis H_7 concerning the relation between free cash flow and value creation is therefore not confirmed. In sum, our results do not indicate that debt plays a critical role in reducing the agency costs in Saudi Arabia firms and in creating value.

For control variables in the equation (1), firm size is negatively associated with value creation. Fixed assets and industry classification are positively associated with free cash flow risk. The coefficients of size, fixed assets and industry classification are respectively α_{11} =-0.05, α_{12} =0.08 and α_{13}=0.01 but these coefficients are not significant.

4.2. Complementarity or Substitutability Effects on Value Creation of Ownership Structure, Board Structure and Corporate Investment: Simultaneous Equations

Results from the single equation regression indicate that only investment, compliance with Shariah and debt influence value creation. This single equation regression tests the direct impact of all variables.

The key question is whether ownership structure and board structure affect directly corporate investment and indirectly value creation.

To test the hypothesis, I estimate a simultaneous equation system with Value creation (Tobin's q) and investment (INV) as endogenous variables, which allows me to jointly test the governance capacity of corporate investment as well as their interaction with other corporate mechanisms and the direct and indirect role of corporate governance mechanisms in value creation.

Table 8: Regression results of model 2 Effects of Corporate Governance Mechanisms and Corporate Investment on Value Creation

	Panel A					
	Model 2					
	All firms		**Shariah compliant firms**		**Non-Shariah compliant firms**	
Explanatory Variables	**Coeff**	**T-stat**	**Coeff**	**T-stat**	**Coeff**	**T-stat**
MOWN	-0.21	-1.17	-0.33	-1.59	-0.06	-0.37
CONC	0.11	0.90	0.02	0.19	0.06	0.34
TCA	0.008	0.56	0.01	0.93	0.01	0.81
DUAL	0.007	0.11	0.15	1.86	0.12	1.40
INDEP	-0.22	-1.47	-0.30	-1.70	-0.34	-1.52
INV	2.20***	44.58	2.34***	39.65	1.99***	26.25
FCF	-0.32	-1.42	-0.25	-1.05	-0.10	-0.64
DEBT	-0.38*	-1.98	-1.39***	-3.02	-0.86	-1.87
SIZE	-0.02	-0.57	0.005	0.076	0.06	0.76
TANG	0.06	0.62	0.10	0.75	0.08	0.54
INDUS	0.01	0.35	-0.07	-1.06	0.05	0.55
R-squared		0.87		0.87		0.92
Adjusted R-squared		0.86		0.86		0.91

* p .05 ** p .01 *** p .001

Table 8: Regression results of model 3 Effects of Corporate Governance Mechanisms on Corporate Investment

Panel B						
	Model 3					
	All firms		**Shariah compliant firms**		**Non-Shariah compliant firms**	
Explanatory Variables	**Coeff**	**T-stat**	**Coeff**	**T-stat**	**Coeff**	**T-stat**
MOWN	-0.17	-0.88	0.05	0.26	-0.22	-0.88
CONC	0.90***	7.75	0.90***	6.79	0.74***	3.26
TCA	0.02	1.45	0.004	0.24	0.03	1.05
DUAL	0.14*	2.15	0.03	0.38	-0.12	-0.92
INDEP	0.13	0.87	0.05	0.32	0.12	0.41
SIZE	-0.32***	-8.27	-0.41***	-6.77	-0.52***	-5.11
R-squared		0.19		0.19		0.31
Adjusted R-squared		0.18		0.17		0.26

* p .05 ** p .01 *** p .001

In designing the simultaneous equations framework, I treat value creation (represented by Tobin's q) and investment as jointly determined. A Three Stage Least Square (3SLS) estimation procedure is adopted. I run the following regression system. This study uses a two-equation model with Value creation, ownership structure, board structure, corporate investment, Free Cash Flow, debt and control variables. Also, ownership structure, board structure and corporate investment are simultaneously determined. Thus, the method of equation jointly done to analyze the endogenous that occur in this research with the function and the system of equations is follows:

Applying the Shariah screening tests, we identify two sub-samples that represent distinct companies for Shariah compliant criteria: 308 firm-year observations in Shariah compliant group and 88 firm-year observations in Non-Shariah compliant group. We compare the results of two-samples.

The substitution hypothesis implies a negative relationship between investment and ownership structure and between investment and board structure. That means $\beta_{14} < 0, \beta_{15} < 0, \beta_{16} < 0, \beta_{17} < 0 \, and \, \beta_{18} < 0$. The substitution hypothesis means that ownership structure and board structure affect negatively corporate investment. However, the complementarity hypothesis implies a positive relationship between investment and ownership structure and between investment and the structure of the board. That means $\beta_{14} > 0, \beta_{15} > 0, \beta_{16} > 0, \beta_{17} > 0 \, and \, \beta_{18} > 0$. The complementarity hypothesis means that ownership structure and board structure affect positively corporate investment. Table (8) reports the 3SLS results of the joint estimation of value creation and investment. Results are presented at panel A and panel B of Table (8).

Each equation has its unique instrument variables, which are drawn from prior literature, to satisfy the identifying restrictions and the identification test indicates the models are over-identified.

A simultaneous linear equation model is identified if all the equations are identified. An equation is over-identified if (number of exogenous variables of the model- number of exogenous variables introduced in an equation)> (number of endogenous variables introduced in an equation-1).

4.2.1. The Impact of Ownership Structure, Board Structure, and Corporate Investment on Value Creation

Table (8) panel A summarizes the results for the regression analyses on equation (2). We can verify that the quality of the adjustment for the group containing all firms is high as 87 % of the variation is explained by the model. For Shariah compliant group, the quality of the adjustment is high as 87 % of the variation is explained by the model. For Non-Shariah compliant firms, the quality of the adjustment is very high as 92 % of the variation is explained by the model. The R-square value shows that for the three groups the equations fit the data very well.

The results in table (8) panel A lead to two important conclusions. First, they support the value creation hypothesis of investment. The value creation equation shows high investment leads to higher value creation (β_6= 2.2 for all firms, β_6= 2.34 for Shariah compliant group and β_6= 1.99 for Non-Shariah compliant group), and the positive effect of investment on value creation is significant at 0.1% level. This result is similar for Shariah compliant group and Non-Shariah compliant group. Therefore, the result that investment affects positively value creation is robust to the single equation method and also to the three-stage simultaneous equations method (which controls for endogeneity). Our results support empirical studies that show that investment has a positive impact on economic growth, on firm value (Lev and Sougiannis, 1996; Chan et al., 2001; Johnson and Pazderka, 1993; Cho, 1998), and on firm performance (Hill and Snell, 1988; Lau, 1998). Second, the value creation equation shows high leverage leads to lower value creation (β_9= -0.38 for all firms, β_9= -1.39 for Shariah compliant group and β_9= -0.86 for Non-Shariah compliant group), and the negative effect of leverage on value creation is significant only for all firms and for Shariah compliant firms. Therefore, our results further confirm the value creation hypothesis H_8 and contradict the hypothesis H_6.

4.2.2. Interaction between Corporate Governance Mechanisms and Corporate Investment: Complementarity or Substitutability?

Table (8) panel B summarizes the results for the regression analyses on equation (3). We can verify that the quality of the adjustment for the group containing all firms is low as 19 % of the variation is explained by the model. For Shariah compliant group, the quality of the adjustment is low as 19 % of the variation is explained by the model. For Non-Shariah compliant firms, the quality of the adjustment is also low as 31 % of the variation is explained by the model. The R-square value is low for the three groups.

The results in table (8) panel B lead to two important conclusions. The first finding is concerning the interaction between investment and ownership concentration. As shown in table (8) panel B, The investment equation predicts that high ownership concentration leads to higher investment. For all firms, β_{15}= 0.9 means that investment and ownership concentration are complementary mechanisms. For Shariah compliant firms and Non-Shariah compliant firms, the results are the similar to results for all firms. Those positive coefficients are significant at 0.1%. The

positive relationship supports the hypothesis that ownership concentration affect investment and then ownership concentration and investment are two complementary mechanisms to discipline managers. Ownership concentration affects directly and positively corporate investment and affect indirectly and positively value creation. For other variables, the results are not statistically significant. H_9 is confirmed only for ownership concentration.

The second finding is concerning the direct impact of firm size as control variables in the equation (3). Firm size is negatively associated with investment for the three groups.

4.3. Effects of Corporate Governance Improvements on Value Creation' Sensitivity to Corporate Investment

Table (9) reports the regression coefficients estimated from several different models. The results are about the effect of corporate governance improvements on value creation' sensitivity to corporate investment of Saudi Arabia firms. The object of this investigation is to conclude on how corporate governance improvements affect value creation' sensitivity to corporate investment of Saudi Arabia firms focusing on the coefficients on the interactive variables. This is another test of the substitute and the complementary models building on the Jensen (1986) free cash flow theory. Hence a testable implication of the model is that an improvement in corporate governance will increase the sensitivity of value creation to corporate investment.

The first column reports the effect of corporate governance improvements on value creation' sensitivity to corporate investment for all firms. Column 2 reports the effect of corporate governance improvements on value creation' sensitivity to corporate investment for Shariah compliant firms, and the column 3 reports results the effect of corporate governance improvements on value creation' sensitivity to corporate investment for Non-Shariah compliant firms.

We can verify that the quality of the adjustment for the three groups is high as 86% of the variation is explained by the model for all firms, 85% for Shariah compliant firms and for Non-Shariah compliant firms. In our case, the R^2 value of 85% means that our line is a very good fit to our data.

The F-test which tests the hypotheses proposed in the methodology, verified globally the consistence and reliability of the model that is F-statistic = 239.30 for all firms, with a p-value =0.00. For Shariah compliant firms, F-statistic is equal to 181.46 and p-value is equal to 0.00. For Non-Shariah compliant firms, F-statistic is equal to 65.27 and p-value is equal to 0.00. In this case, a very high level of signification has been associated, which leads to the rejection of the possible one nullity of all the coefficients of the parameters of the independent variables, and it allows us to interpret the results of the sample.

Table 9: Regression results of model 4 Effects of Corporate governance improvements on value creation' sensitivity to corporate investment

	Model 4					
	All firms		**Shariah compliant firms**		**Non-Shariah compliant firms**	
Explanatory Variables	**Coeff**	**T-stat**	**Coeff**	**T-stat**	**Coeff**	**T-stat**
MOWN*INV	-0.87***	-3.17	-0.89***	-2.91	-0.57	-1.62
CONC*INV	0.94***	6.52	1.00***	6.01	0.42	1.80
TCA*INV	0.17***	11.36	0.20***	11.04	0.20***	6.51
DUAL*INV	0.34***	3.68	0.22*	2.04	-0.14	-1.01
INDEP*INV	0.68***	3.29	0.54*	2.32	0.52	1.11
FCF*INV	-3.08***	-4.22	-3.26***	-3.93	-0.71	-0.95
DEBT*INV	-0.86***	-3.20	-0.10	-0.16	0.77	0.70
SIZE	-0.11***	-2.73	-0.08	-1.24	-0.09	-0.96
TANG	-0.06	-0.60	-0.12	-0.84	-0.32	-1.63
INDUS	-0.05	-0.98	-0.09	-1.38	0.07	0.64
R-squared	0.86		0.85		0.85	
Adjusted R-squared		0.85		0.85		0.85
F-statistic		239.30		181.46		65.27
Prob(F-statistic)		0.00		0.00		0.00

* p .05 ** p .01 *** p .001

The interaction of investment with the seven measures of the corporate governance improvements shows mitigated results by comparison between results for all firms, results for Shariah compliant firms and results for Non-Shariah compliant firms.

The managerial ownership interactions with investment coefficients are negative and significant in the columns 1 and 2 but negative and insignificant in column 3. The improvements in managerial ownership affect the value creation through investment. This improvement has reduced the importance of value creation. This is support the substitute hypothesis for all firms and for Shariah compliant firms and confirms our hypothesis H_{10}. For the ownership concentration, the interactions with investment coefficients are positive and significant in the columns 1 and 2 but positive and insignificant in column 3. For Shariah compliant firms, the corporate governance improvements through ownership concentration affect value creation through investment. However, for Non-Shariah compliant firms, the corporate governance improvements through ownership concentration do not affect value creation through investment. This is support the complementarity hypothesis for all firms and Shariah compliant firms: Ownership concentration improvements affect positively value creation' sensitivity to corporate investment and confirm our hypothesis H_{10}.

The interactions of investment with members' number that composes the board, the separation in the functions of chairman and of CEO and the independent members that compose the board are positive and significant for all firms and for Shariah compliant firms. For Non-Shariah compliant firms, the only significant variable is members' number that composes the board. These significant coefficients will imply that the corporate governance improvements through members' number, the separation in the functions of chairman and of CEO and the independent members that compose the board affect value creation through investment. The coefficients are positive when we choose all Saudi Arabia Firms and Shariah compliant firms and insignificant only when we select Non- Shariah compliant firms. This is support the complementarity hypothesis for all firms and for Shariah compliant firms and confirms our hypothesis H_{10}.

For Free Cash Flow policy, free cash flow interactions with investment coefficients are negative in three columns but significant only in columns 1 and 2. For Shariah compliant firms, the corporate governance improvements through Free Cash Flow policy affect negatively value creation through investment. This is support the substitute hypothesis for all firms and for Shariah compliant firms and confirms our hypothesis H_{10}.

For debt policy, debt interactions with investment coefficients are negative in columns 1 and 2 but positive in column 3. However, the coefficients are significant only in columns 1. This is support the substitute hypothesis for all firms and confirms our hypothesis H_{10}.

The negative coefficients make the evidence that when better alternative corporate governance mechanisms become available, value creation' sensitivity is affected negatively by improvements on corporate governance mechanisms to corporate investment. Alternatively, the positive coefficients make the evidence that when better alternative corporate governance mechanisms become available, value creation' sensitivity is affected positively by improvements on corporate governance mechanisms to corporate investment.

5. Conclusion and Implication

According to the agency theory, managers' objectives differ from those of shareholders. High managerial discretion may lead managers to over-invest when a firm also lacks efficient monitoring mechanisms. Managers also can undertake investments that cannot maximize shareholders' value. This behavior is known as overinvestment problem in the literature associated with the free cash flow agency problem. The limitation of this problem depends on the efficiency of governance mechanisms. Both ownership structure and board structure have the potential to attenuate the agency problem and create firm' value. Corporate investment has a positive impact on economic growth, on firm value (Lev and Sougiannis, 1996; Chan et al., 2001; Johnson and Pazderka, 1993; Cho, 1998), and on firm performance (Hill and Snell, 1988; Lau, 1998). In this paper the three mechanisms are explored jointly to analyze their effectiveness to create value. Their interactions are also investigated to determine the direct and indirect effect of ownership structure and board structure on value creation.

The preliminary result indicate that investment affect positively value creation in the first model when analyzing the direct effect of these mechanisms. Ownership structure (ownership concentration and

managerial ownership), board structure (board size, Board independence and Chairman-CEO duality), Free Cash Flow and debt haven't a direct effect on value creation. The secondary result is concerning the interaction between investment and ownership concentration. Important finding from this study concerns investment and ownership concentration. For all firms, they are complementary mechanisms. For Shariah compliant firms and Non-Shariah compliant firms, the results are the similar to results for all firms. The positive relationship supports the hypothesis that ownership concentration affect investment and then ownership concentration and investment are two complementary mechanisms to discipline managers. This finding suggests that ownership structure, board structure and investment are three mechanisms for value creation. Overall, the results of this study may be surmised to suggest that ownership concentration affects directly and positively corporate investment and affect indirectly and positively value creation. The thirdly result indicate that the improvements in managerial ownership affect the value creation through investment. This improvement has reduced the importance of value creation. This is support the substitute hypothesis for all firms and for Shariah compliant firms. For Shariah compliant firms, the corporate governance improvements through ownership concentration affect value creation through investment. However, for Non-Shariah compliant firms, the corporate governance improvements through ownership concentration do not affect value creation through investment. The interactions of investment with members' number that composes the board, the separation in the functions of chairman and of CEO and the independent members that compose the board are positive and significant for all firms and for Shariah compliant firms. For Non-Shariah compliant firms, the only significant variable is members' number that composes the board. These significant coefficients will imply that the corporate governance improvements through members' number, the separation in the functions of chairman and of CEO and the independent members that compose the board affect value creation through investment. The coefficients are positive when we choose all Saudi Arabia Firms and Shariah compliant firms and insignificant only when we select Non- Shariah compliant firms.

Our paper contributes to the literature in many aspects. First, our study enhances the literature that studies the impact of corporate governance mechanisms and corporate investment on value creation in Islamic market, by testing simultaneously three corporate governance mechanisms that is ownership structure (ownership concentration and managerial ownership), board structure (board size, Board independence and CEO-chairman duality), corporate investment and debt policy. Second, the existing research on value creation is replete with evidence from the U.S. and developed markets. The scope of the majority of these studies is, however, limited to developed country with little attention given to the emerging markets, which may explain the lack of consensus on value creation framework. The researchers have recently started looking at corporate value creation of firms in emerging markets and no studies have been conducted in an Islamic Interest-Free system. Our study intends to fill this gap with providing additional evidence of the effect of corporate governance mechanisms and corporate investment on value creation in Saudi Arabia. Third, our results provide supplement support for interactions between these mechanisms and corporate investment. While corporate governance generally affects firm value creation, however, it could also entail different consequences for corporate investment. The investment problem can be attributed to the firms' governance structures, as the agency theory predicts. Little evidence is available on whether firms' investment policies in Islamic market are related to their governance structures. Most prior research focuses on performance consequences of investment policy or governance structure. These studies do not examine whether a direct relation exists between governance structure and investment policy. This study adopts a more integrated approach to examine the relation between the governance structure of 99 Saudi Arabia firms, their investment policies, and their performance during the period between the years of 2007 and 2010. Forth, it sheds additional light on value creation by providing evidence from an Islamic companies by distinguish Shariah compliant companies and Non-Shariah compliant companies. Major theoretical explanations on value creation have been tested and corroborated in USA and developed countries, but not in Islamic framework.

The Companies listed on Saudi Stock Exchange can use the result of this research for improving their performance. Shareholders in listed companies are often unable to monitor their investments closely. So, corporate governance mechanisms can mitigate the agency problems (Easterbrook (1984) and Jensen (1986)). Corporate governance mechanisms are needed to reduce the information asymmetries between shareholders and stakeholders on the one hand and the directors and managers on the other. Indeed, it is widely

acknowledged among regulators and academics that principal-agency based regulation is crucial for the development of robust financial markets.

The future Investors can use the result to evaluate the nature of agency problems in the company they wish to invest, and therefore can know the effectiveness of the governance system in the resolution of agency conflicts between shareholders and managers and can evaluate the performance of the company.

Credible and well functioning capital markets are a prerequisite for the development and sustainability of a private enterprise sector. And the prime objective is to make sure that corporations get access to the capital they need for innovation, job creation and growth. For this markets need to have a robust framework of corporate governance rules and regulations that provides investors with confidence in the system and entrepreneurs with the incentives to develop their businesses make investment and create value. Our research contributes to the development of Islamic financial markets by analyzing the mechanisms of governance to limiting agency problems and encouraging investment in order to create value. For other Researchers, this research can be used as a comparative study in order to face the same problem more deeply or it can be used as a basis for doing in depth ongoing research.

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