CEO Tenure and its Influence on Sensitivity of Investment to Cash Flows: Evidence from Tehran Stock Exchange

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Abstract

Personal characteristics of management represent one of the factors affecting the company performance and reporting. Effects of management characteristics on different issues have been discussed in many researches. The characteristics are further affected by various factors. As management characteristics, CEO tenure can be associated with various consequences. One of the potential effects of personal characteristics of management is its impact on investment sensitivity to cash flow which is addressed in the present research where the subject is investigated during 2009-2013 period. The result shows that a significant association between CEO tenure and investment sensitivity to cash flow was not confirmed.

Keywords: *CEO tenure, investment sensitivity to cash flows.*

I. INTRODUCTION

Personal characteristics of management represent one of the factors affecting the company performance and reporting. Effects of management characteristics on different issues have been discussed in many researches. The characteristics are further affected by various factors. As management characteristics tenure can be associated with various consequences. One of the potential effects of personal characteristics of management is its impact on investment sensitivity to cash flow which is addressed in the present research.

Cash represents one of the most significant and even essential resources for any economic unit, so that establishing a balance between available cash and cash demands refers to one of the most important factors contributing to the continuation of the unit activity. Furthermore, cash flows play principle roles in many financial decisions, securities valuation models, investment plan assessment methods along with some of classic and modern management analyses. For those companies who suffer limited external funding, the company uses internal resources (i.e. company's cash) to undertake investments for which financial resources are needed, increasing the investment sensitivity to cash flows. Some researchers believe that, there are factors affecting the sensitivity.

II. LITERATURE REVIEW

A. PERSONAL CHARACTERISTICS OF CEO

In this section, the independent variable of the research, namely CEO tenure, is discussed with its various dimensions declared.

Optimism and overconfidence of management

Even though optimism is supposed to refer to a positive concept, it can bring about improper consequences for decisions. In financial and accounting literatures, management optimism is usually taken as a cause for overconfidence of the management. The two terms are sometimes used as synonyms, as one is a consequence of the other. Continuing with the paper, we begin with presenting behavioral financing which provides a scientific foundation for the subject matter of personal characteristics of management. Subsequently, perceptual errors in decision-making are investigated and, finally, optimism and overconfidence of manager is addressed.

B. Behavioral finance

Always looking forward to further recognize and express financial markets behaviors and event roots, financial research scholars have tried utilize behavioral sciences to explain the behavior exhibited by decision-makers in financial markets. Dominant paradigm in financial theories is to maximize expected utility and risk aversion, while empirical studies on real world cases have raised numerous attacks at modern financial theories and rational man assumption. Studies by psychologists show that, in practice, individuals may exhibit different behaviors than those outlined by modern financial theories for rational man (Fernandes*et al.*, 2009).

Although numerous definitions have been proposed for behavioral finance, no significant agreement can be observed among them. Taler defines behavioral finance simply as "intellectual finance" and claims that, sometimes, seeking a solution for an empirical (financial) problem, one should consider the possibility that some economic factors mail fail to exhibit purely rational behaviors in some cases (Taller, 1993). Oulsen (1998) stipulates that "behavioral financial does not try to either define rational behavior or tag decision-making as being biased or erroneous; it rather seeks to understand and predict financial market based on decision-making and psychological processes". The notable point is that, as of now, a comprehensive behavioral finance theory is yet to be proposed. Michael Pumpian (2006) divided the behavioral finance into two parts:

1. ***Macro-behavioral finance:*** where market disorderliness is studied and the phenomena indicating inefficiency of financial markets are addressed. In fact, issues such as over- and under-reactions, price bubbles, calendar effects, herd behavior, acceleration and reverse strategies effectiveness, etc. fall within the scope of this field of study.

2. ***Micro-behavioral finance:*** where behavioral biases of investors are studied. Overconfidence, mental accounting, etc. are some of the most well-known examples of the biases.

C. Common perceptual errors and prejudices in decision-making

Not only human being is confined with limited rationality, but also errors, prejudices, and biases are part of decision-makings, so that, it seems helpful for managers and employees to be informed about them. These errors and biases stem from the tendency of human being towards shortcuts and over-emphasizing on experience, groundless feelings, illusions, rules of thumb-based calculations, and generally, distance to reality. Even though such errors can bring in positive results in some cases, probability of negative results is still very high. Some of these errors are discussed briefly in the following (Gholipoor, 2007):

Projection: One of the common perceptual errors is that, individuals tend to evaluate those who enjoy similarities to themselves (in terms of race, religion, gender, age, education, political party, beliefs or values) as being superior over others.

1. ***Comparative effect:*** Tendency towards evaluating individuals, objects or events in comparison to features of other individuals, objects or events which

have been kept in mind because of their extremely positive features represents a comparative effect.

Escalation of commitment: One of other errors commonly occurred in decision-making is the tendency toward escalating a commitment. Escalation of commitment occurs when the decision trend and flow brings in a sequence of successive decisions. Escalation of commitment refers to the fact that, under this error, even when a decision proves to be wrong (as confirmed by evidences and consequences of the decision), the decision-maker insists and even escalates his/her commitment to follow the decision.

Confirmation bias (confirmation biasness): Confirmation bias refers to escalation of close commitments. Perception works selectively. Confirmation bias refers to a situation where an individual collects information confirming the decisions made by him/her on the past. In such a situation, those information that either deny or criticize and challenge the preceding decisions are ignored.

Support – adjustment error: Support error implies an individual's tendency to stabilize initial information as a starting point based on which subsequent adjustments are made.

Access error and formatting effect: Access error indicates an individual's tendency to make decisions and judge based on already prepared and available information.

Sample or representative error: It is the tendency of an individual to evaluate interests, viewpoints and capabilities of himself/herself to those of similar groups.

Chance – superstitions error: Human perception is more or less engaged affected by what is referred to as chance and superstitions. Of course, this is different across different cultural climates.

Backward prediction error or illusion: Backward prediction is the opposite of prediction. Sometimes people believe that they are able to properly predict consequences of an event.

Overconfidence: In this situation, an individual or a group feels like knowing and being capable of more than he/she/it really knows or is capable of; in such a case, complex and large issues and problems may be considered small and simple.

Effect of precedence and posteriority: both of precedence and posteriority may affect one's perception. Effect of precedence refers to a well-known

statement saying "the first confrontation and impression is the last confrontation", meaning that the very first impressions, feelings, and confrontations tend to long resist within the other person(s) mind(s), affecting his/her (their) perceptions.

Effect of gentleness and tendency to centrality: Gentleness is sort of personal characteristics based on which the person tends to asses other persons and events always positively. Gentle people usually avoid describing others negatively, and rather assess them, ignoring their real performances, as being of high-performance and positive in all aspects. Tendency to centrality refers to a personal characteristic whereby a person avoids extreme judgments and, ignoring real level of performance, evaluates any individual or event as being intermediate or neutral.

D. Debates on optimism

As a skill based on positive expectations, optimism tends to keep our perspective to better future firmly optimistic. In other words, optimism is the capability of looking at life cleverly and strengthening positive insights even at the incidence of misery and negative feelings. Optimists believe that good events are numerous and long lasting, while bad events tend to be of limited number and temporary. Even with no solution yet found for a problem, they are confident that the solution is definitely lied somewhere around and they are still able to have the problem controlled to some extent. Merriam Webster dictionary defines the term *optimism* as "principles or ideas indicating that, realty is basically good or seems to be desirable as much as one can imagine; tendency toward the most desirable structure against actions and events; minimizing contradictory aspects, provisions and possibilities; or prediction of the best possible outcomes".

Even though optimism is supposed to refer to a positive concept, it can bring about improper consequences for decisions. In financial and accounting literatures, management optimism is usually taken as a cause for overconfidence of the management. The two terms are sometimes used as synonyms, as one is a consequence of the other. Huang *et al.* (2010) believe that, managers' optimism is the same as the managers' self-confidence. The more optimistic a manager is to his/her own performance, the higher will be his/her level of self-confidence.

E. Overconfidence

The term *overconfidence* refers to concepts such as more-than-adequate confidence, too much confidence, overconfidence, more-than-adequate trust, overconfidence, etc. But, what is overconfidence anyway?

Overconfidence is one of the most significant concepts raised in modern behavioral finance which enjoys outstanding position both in financial theories and psychology. Overconfidence makes an individual overestimate his/her knowledge and skills, underestimates risks, feels like he/she has issues and events under his/her control, while these may prove to be wrong. Overconfidence is observed for most tasks; however, securities selection is a difficult task wherein the highest level of overconfidence have been observed (Novsinger, 2001). Overconfidence is not limited to investors; there are rather evidences indicating that, people (inclusive of individual investors, financial analyzers, managers, etc.) are prone to this perceptual error. However, in behavioral finance studies, most of investigations have had their focuses on overconfidence of investors. There are different types of overconfidence including:

1. *Wrong rating:* Sometimes referred to as "overconfidence in prediction, this is the most common type of overconfidence across the arena of financial literatures, wherein individuals tend to overestimate the accuracy of their knowledge and underestimate risk and variance of random variables, sticking to very narrow confidence intervals in their predictions.
2. *Unrealistic positive self-assessment or above-average effect:* In this type of overconfidence, individuals overestimate their levels of skillfulness.
3. *Illusion of control or unrealistic optimism:* Causes an individual to feel he/she is of control on issues, or at least can have them affected, while the reality may prove to be the opposite. Such individuals tend to overestimate their success probability.

F. Debates on CEO tenure

Today, management plays a determinant role in enhancing efficiency and productivity of companies. Among the four key factors of success in organizations, namely work force, capitals, raw material, and management, the role of management has become more important than any time before. In the highly competitive world of today, a great deal of pressure is applied to as quickly achieve desirable results as possible, which in turn is associated with quick decision-makings in which managers are of essential roles, so that a failure to achieve desirable results as quickly as possible may end up applying management changes in an organization. Once appointed to managerial positions, managers, expecting not long enough tenures for themselves, tend not to strictly

persuade shareholders' interests, but to focus on their short tenures to provide themselves with interests. As such, it may be the case that, managers avoid investing on long-term projects as they expect that such project will not have any returns during their supposedly short tenure. In other words, decisions which can be useful for personal interests of management may prove to be sub-optimal when looking from the company's point of view.

1. Early following their appointment at a given position, managers commonly pass a period of ineffectiveness, following which period of time, they begin to undertake activities of positive contributions. Now, if managers happen to be fired prior to this latter period, the company will be incurred by high costs. One of contradictions between a manager and the company's stakeholders is that, decision-making horizon of managers is of significantly more limited extend than that of the investors' investments. Managers may claim against the company is limited to their tenure; this may result in reduced interests for shareholders and reduced value of the company.

III. INVESTMENT SENSITIVITY TO CASH FLOW

A. DEFINITION OF CASH

In an economic context, cash includes bill, demand deposit account, and term banknotes. Although sometimes financial managers use the term cash to refer to short-term securities, but the short-term securities are generally taken as pseudo-cash (Ross, 1991).

B. SIGNIFICANCE OF CASH

Cash comprises primary element of current assets and is the most important component of working capital of profit units, so that, it facilitates and enables the continuation of activities and realization of objectives of the units. Contribution of cash funds to the administration of profit units is as large as it is a necessary practice to be informed about the situation of cash when it comes to financial and principal decisions made in the profit unit. Most of decisions made by managers are somehow related to cash funds; therefore, it is necessary for financial managers to, first, have an eye on cash funds as one of the pillars of financial planning, and second, apply efficient and effective cash management (Nikoomara*et al.*, 2001). Whether a profit unit survives or fails is largely dependent on cash flows.

C. CASH FLOW

Cash flow refers to increases or decreases in the volume of cash funds as a result of either transactions with either a real individual or legal person independent of legal personality of the business unit of interest, or other events (Iranian Accounting Standard No. 2).

D. Significance of cash flows

Cash flows are among the most fundamental events taken place in a business unit, based on which accounting measurements are made. Furthermore, creditors and investors are thought to make their decisions based on cash flows. Cash flows are of significance in that they demonstrate general capacity to pay, and can easily be transferred, through business transactions, to different organizations or individuals, so as to meet their specific needs or acquire goods or services (Hatefi, 2014).

E. Significance of operating cash flows

Cash flows derived from operating activities are among the principle indexes used to evaluate how adequate cash flow is resulted from operations if the business unit to repay loans, maintain operating power of the business unit, and distribute dividends, making new investments possible without needing to external financial funds. If a company seeks to survive in business arena, the long-term cash flows derived from is operating activities should turn out positive. A company with negative cash flows derived from its operating activities cannot supply required funds from internal resources, so that it should look for other resources from which to provide the required cash; in fact, capacity of a company to provide cash via investment or financial activities is, to a great extent, dependent on its capacity to produce cash from normal operating activities. Creditors and shareholders prefer not to invest on a company that fails to produce adequate cash from its operating activities and cannot provide any certainty about successful payment of dividends, interests and debts on due dates. Among different cash flows of a business unit, those derived from operating activities are of significant importance, as they are results of main revenue-generating activities of the business unit (HojjatiFard, 2013).

F. Investment

Various definitions have been proposed for investment. Investment can be defined as the postponing of present consumption aiming at further affordance in terms of consumption in future. Also, investment is to purchase assets or securities with proportional expected returns and risks. Investment refers to the purchase of assets or securities which, as time passes, bring about some revenues and enhance value for the investor. In a more precise definition, however, which encompasses the above description as well, investment is the flow of costs spent on the enhancement or stabilization of the volume of real capital. In fact, an even more precise definition that is

also inclusive of the above description is the flow of expenditures allocated to the plans on the production of goods which are not intended to be promptly consumed. Such investment plans can have the form increase in either of material capital, human capital, or inventories. Indeed, investment is a flow with its volume determined by all of the plans with positive net present values (NPV) or an internal rate on investment (ROI) exceeding the interest rate. Among these two factors, the former is known as NPV criterion, with the latter one referred to as ultimate ROI. Investment has been categorized based on different approaches:

- *Based on investment subject:* Based subject, investments can be divided into two groups: real investment and financial investment.
- *Based on investment term or interval:* Based on time, one can categorize investments into short-term (lasting a maximum of 1 year) and long-term (lasting longer than 1 year) investments.
- *Based on associated investment vulnerability or risks:* Since potential interests from an investment are supposed to be realized in future and there is no certainty about the realization of such interests, various types of investments are said to be engaged with levels of unrealized interests for the investor – i.e. risk. Based on the extent to which future interest turn out to be unrealized (risk), one can distinguish three types of investments from one another: investment with proportional risk; investment with relatively higher risk (speculation); and highly vulnerable or risky investment (gambling).

G. Efficient investment Indicators

NPV represents one of the best measures to assess investment plans. NPV of a given plan is defined as NPV of expected cash inflows (discounted by a rate indicating associated risk cash flows in future) minus NPV of total funds invested in the present. In other words, for any activity requiring cash inflows and outflows within a period of time, NPV equals to NPV of cash inflows minus NPV of total cash outflows. Given net total investment is made at the time zero, NPV can be defined as total NPV of cash inflows minus the investment. In order to calculate NPV in capital budgeting, the minimum rate of return is employed. NPV can be interpreted via several approaches (Asadi, 2011):

1. If value of NPV is positive (i.e. greater than zero), the corresponding investment plan has its rate of return exceeding the minimum desired rate in market.

2. If value of NPV turns out to be zero, the corresponding investment plan has its rate of return equal to the minimum desired rate.
3. If value of NPV is negative (i.e. smaller than zero), the corresponding investment plan has its rate of return below the minimum desired rate.

H. Investment sensitivity to cash flows

Definition of sensitivity: The term sensitivity has been defined differently in different scientific scopes. However, in a general view, sensitivity can be seen as the reaction or response of one thing to another thing. Accordingly, investment sensitivity to cash flows can be defined as follows:

"Changes in investment level (capital expenditures) of a firm in response to changes in cash flows of the firm".

The above argument is related to corporate investment and financing literatures. Investment sensitivity to cash flows is one of the criterions utilized to measure financial limitations.

The most comprehensive yet explicit definition for financial limitation is that, companies are supposed to be within the scope of financing when there is gap between their internal and external costs of allocated funds. Of major reasons why internal financing costs differ from external equivalents is the information asymmetry and representative problems. With information asymmetry, investors do not adequately access to status of capital projects of companies, and as such, they may charge higher rates of return to invest on the companies. Representative problems bring about an atmosphere of distrust between a company's managers and investors.

I. Effect of personal characteristics of manager on investment sensitivity to cash flows

Financial literature believes that, a company's investments are sensitive to access to internal cash flows. Within a rational framework, such a sensitivity may result in reduced agency costs and associated problems with information asymmetry. On the other side of this rational framework, some researchers believe that, optimism or overconfidence tendencies serve a controlling role in financial and investment decision-making processes. Within this behavioral framework, a new method generally known as "behavioral financing" believes that, managerial optimism is a factor than can result in sensitivity of investment to internal cash flows. The term investment sensitivity to cash flows refers to percent changes in capital expenditures of companies against percent changes in cash flows. Roll (1986) predicted that,

managerial overconfidence can affect company's decisions. Hitten (2002) proposes a simple model. He (she) predicts that, optimist managers tend to see external financing as too expensive, because, upon their optimistic biasness, capital market may underestimate value of their company's shares. He (she) predicts that a company's investment is sensitive to the level of internal cash flows. This may raise some problems in investment policy of the company, causing either over-investment or under-investment when high or low internal cash flows are available to the company, respectively. Hitten (2002) further related optimism of CEO to financing decisions. Optimistic managers believe that, the company's projects tend to be better than those may actually be when the projects are under their control. In such a case, the managers are likely to achieve higher expected returns on these projects as compared to actual values of the projects. Companies will use their internal cash flows to finance investment opportunities, because it seems to be of low cost to undertake internal financing according to optimistic managerial tendencies, and this will lead to so-called investment cash flow phenomenon. Some researchers such as Lin and Xuan (2011) and Ben Mohamed *et al.* (2014) empirically investigated investment sensitivity to cash flows under managerial optimism, and suggested that, optimism can basically increase investment sensitivity to cash flows, and hence explained why a company fails to achieve an optimum investment strategy and cannot be traded at is optimal value. On the other hand, some characteristics of CEO can explain investment sensitivity to cash flows.

III. RESEARCH BACKGROUND

A. DOMESTIC RESEARCH BACKGROUND

In a research entitled as "investigation of relation between effective factors and investment sensitivity to cash flows in listed firms on Tehran Stock Exchange", Hosseinpoor (2005) addressed relations between size, added value, percent dividend paid by, and activity history of company and investment sensitivity to cash flows. He (she) found significant positive relations between size, added value, ratio of dividends paid by company and investment sensitivity to cash flows, while activity history of the company was of no significant association with investment sensitivity to cash flows.

Kashanipoor*et al.* (2010) undertook a research entitled as financial limitations and investment sensitivity to cash flows across Tehran Stock Exchange where they used panel data to investigate 9 firms during 2002 – 2008 period. The research results indicated that, those companies with financial limitations, rather than those without such limitations, exhibit higher

investment sensitivity to cash flows and put a great deal of emphasize on internal cash flows when it comes to investment decisions.

The research by Shams Laialestani*et al.* (2010) is among the first researches wherein personal characteristics of managers were analyzed. Their findings showed a significant inverse relation between manager's deal of experience and risk-taking characteristics. The relation between herding behavior and experience was further found to be significant and direct, while experience was related via an inverse significant relation to overconfidence.

In their research entitled as role of cash reserves in determining investment sensitivity to cash flows in listed firms on Tehran Stock Exchange, Arabsalehi and Ashrafi (2011) studied 72 firms during 1999 – 2008. The research findings were indicative of positive role of cash reserves in reducing investment sensitivity to cash flows in the firms. On the other hand, so particular superiority was observed in using optimum cash reserve model rather than classic measures of financial limitation.

Hejazi*et al.* (2012), in their research, concluded that, a negative significant correlation exists between unmanaged operating cash flows and debt cost. They further found a positive and significant association between managed (abnormal) cash flows and debt cost. The larger (negative) correlation between unmanaged operating cash flows and debt cost, as compared to the (positive) correlation between managed cash flows and debt cost, which is evident from regression factors, indicates low capabilities of managers in managing and manipulating cash flows.

DianatiDeylami*et al.* (2012) investigated effect of management tenure on firm value, agency costs, and information risk. They believed that, tenure serves as a measure to evaluate decision horizon of CEO. Their empirical tests showed that, long-term tenure of CEO is significantly associated with information risk and value of the firm; however, no significant correlation was observed between CEO tenure and agency costs.

In his (her) research entitled as empirical study of the association between investment sensitivity to cash flows and accounting conservancy (effective contracts or falsification of information systems?), Hasani (2013) used multi-variable regression on panel data to study listed firms on Tehran Stock Exchange during 2004 – 2010. The results showed a negative and significant relation between investment sensitivity to cash flows and accounting conservancy, so that,

companies with higher degrees of conservative reporting tend to exhibit lower investment sensitivity to cash flows.

In their research entitled as effect of financial limitations and preserved cash on investment sensitivity to cash flows, Haghighat and Zargar (2013) investigated the subject matter of investment sensitivity to cash flows and effect of financial limitations and cash in 130 firms during 2002 – 1390. Their research results indicate a positive and significant association between capital expenditures and cash flows.

Rahimian and Janfada (2014) undertook a research entitled as corporate leadership system and financial limitations (investment sensitivity to cash flows). Results of this research indicate that, number of major shareholders and independency of boards of directors of listed firms on Tehran Stock Exchange imposes an incremental and significant effect on financial limitations of the firms.

B. FOREIGN RESEARCH BACKGROUND

Fazari et al. (1988) argued that, those firms that are engaged with financial limitations may put a larger deal of emphasize on cash flows, due to expensive nature of foreign financing. As such, companies of financial limitations are expected to have higher investment sensitivity to cash flows, as compared to those firms with no financial limitations.

Kaplan and Xinglas (1997) challenged findings of Fazari et al. They used annual reports of the 49 firms recognized by Fazari et al. as firms with financial limitations to have the firms further analyzed. They grouped the firms into three groups: financially limited firms, possibly financially limited firms, and firms of no financial limitation. They showed that the firms with no financial limitations exhibit higher investment sensitivity to cash flows, as compared to financially limited firms. They argued that, financially limited firms are not necessarily of higher investment sensitivity to cash flows; i.e. investment sensitivity to cash flows cannot be taken as an evidence confirming the existence of financial limitations.

Kadapakkam*et al.* (1998) investigated investment sensitivity to cash flows across 6 members of the organization of economic cooperation development (OECD). They began with showing that investment is affected by internal cash funds (cash flows). Subsequently, using three criteria to measure firms, firms were separated into two classes of small and large firms, respectively. In contrary to expectations, they found that investment sensitivity to cash flows in the large firms was higher than that in the small firms. They related these findings to considerations regarding management representative and highly flexible nature of large firms in terms of investment timing.

Minton and Schrand (1999) showed that higher fluctuation of cash flows is related to lower levels of investment on capital expenditures as well as research and development and advertising expenditures.

Cleary (1999) used a large sample of American firms (including 1317 companies) confirmed the results previously reported by Kaplan and Xinglas. Since then, subject matters of financial limitations and investment sensitivity to cash flows have been widely studied. Some studies have confirmed the findings of Fazari et al. while there are other studies emphasizing the findings of Kaplan and Xinglas.

Hovakimian (2001) distinguished three groups of firms, namely the firms with high, low, and negative investment sensitivity to cash flows. He (she) found that, considering financial limitations, cash flows and growth opportunities, investment sensitivity to cash flows follows a non-uniform trend.

Moyen (2003) tried to match the findings of Fazari et al. to those of Kaplan and Xinglas. He (she) proposed two model: a model without financial limitations wherein companies were able to undertake external financing, and a model with financial limitations wherein companies were unable to undertake external financing. Accordingly, using low dividends to recognize financially limited firms, the results of Fazari et al. were confirmed, while the findings of Kaplan and Xinglass were agreed when the model with financial limitations was employed.

In a research, Almida*et al.* (2004) suggested that, financially limited firms exhibit positive investment sensitivity to cash flows, while cash reserves of firms with no financial limitations is not systematically related to cash flows.

Hovakinian and Hovakinian (2005) showed that, at lower and higher levels of cash flows, investment sensitivity to cash flows is related to minimal- and over-investments, respectively.

Laindres (2005) investigated effect of financial limitations on desirable timing of investment, suggesting that, one can affect both financial limitations at investment level and investment sensitivity to cash flows derived from existing assets by changing desirable time of investment. His (her) model suggested a positive association between a firm investment and

cash assets. He (she) showed that, investment sensitivity to cash flows decreases as the level of cash assets is raised. He (she) further indicated that, financially limited firms of large cash assets and low external financing costs tend to undertake larger investments. For such companies, investment sensitivity to cash flows is negatively related to external financing costs.

Pawlina and Renneboog (2005) investigated investment sensitivity to cash flows across a large sample of British companies and showed that, investment is highly correlated to cash flows. They found that, the observed high correlation was mainly stemmed from agency costs of free cash flows. Arslan et al. (2006) considered the relation between financial limitations and investment sensitivity to cash flows putting an emphasize on the preservation of cash as a factor differentiating financially limited firms from firms of no financial limitations. Their analyses were undertaken on an emerging market (Turkey) for prior to and during a financial crisis. Being aligned with their expectations, their results indicated that, compared to companies of no financial limitations, financially limited firms' exhibit higher investment sensitivity to cash flows. Furthermore, their results indicate cash preservation as an effective factor for companies, particularly during a financial crisis.

Tsay et al. (2006) studied CEO tenure against firm performance in 18 family firms in Taiwan. The results indicated that, the firms had their performances reduced as CEO tenure lengthened. Their research observations further showed that, CEO ownership was of no effect on CEO tenure. Another outcome of the research was that, agency theory may not serve as an interpretation for CEO tenure and performance across the studied firms.

Agca and Mozumdar (2007) studied investment sensitivity to cash flows of American manufacturing companies in relation with five factors related to imperfections of capital market cash flows, organizational ownership, analyzers, bond ranking, and antitakeover amendments. They found that, the sensitivity have followed an increasing trend throughout time. In addition, they concluded that, investment sensitivity to cash flows tends to reduce with increasing cash flows, organizational ownership, corporate analyzers, antitakeover amendments, and the existence of bond ranking. General observations suggest that, investment sensitivity to cash flows tends to reduce with the factors reducing imperfections across capital market.

Ascioglu*et al.* (2007) expressed that, information asymmetry results in reduced investment and increased sensitivity of capital expenditures to fluctuations in internal funds. In accordance to theoretic predictions, their results indicate that, average capital expenditures and investment sensitivity to cash flows tend to become lower and higher, respectively, as probability of informed transactions increases.

Results of the research by RanjayDeMelo et al. (2008) implies that, managers tend to allocate higher ratios of cash to smaller firms of higher research and development expenditures, lower net working asset, and lower leverage; therefore, amount of cash fund is correlated to the extent to which a company has access to external finances.

George *et al.* (2008) took a sample of 339 Indian firms during 1995 – 2000 and showed that, financial limitations (including business group, ownership structure, financial leverage, firm size, and firm age affect investment sensitivity to cash flows in listed firms on Mumbai Stock Exchange.

Denis and Sibilkov (2009) demonstrated that, in both financially limited firms and those of no financial limitations, preserved cash is more related to higher levels of investment; that s, regardless of financial limitations, the more preserved cash attained by a company, the larger investment will be put in place by the company.

Duchin*et al.* (2010) investigated effect of financial crisis on investments decisions made by different companies, and found that, companies refer to their internal cash flows when it comes to financing investment projects, increasing investment sensitivity to internal cash flows.

Zhang (2010) investigated effect of CEO tenure on his/her remuneration structure. In his (her) opinion, the relation between CEO remuneration and tenure can provide a good basis upon which to put on test different things including managerial power effect, portfolio consideration effect, training effect, and effect of professionalism concerns. He (she) concluded that, for external executives, early in their tenure, equity-based remuneration increases, and for internal executives, the remuneration tends to decrease late in their tenure.

Wang et al. (2010) used CEO turnover to suggest that, following the so-called Sarbanes-Oxley act, CEOs have become significantly risk-averse. They have provided evidences indicating effective nature of represented financial statements on CEO tenure and turnover; this can be explained by escalated

surveillance activities according to the Sarbanes-Oxley act.In some cases, it seems that the act has weakened the control of board of directors on CEO tenure and effect of firm performance on risk-aversion. Even thoughSarbanes-Oxley act contributed into risk-aversion of CEOs, it has rather imposed insignificant effect on correctness and transparency of financial reporting.

Harford et al. (2012) found that, companies which enjoy longer investment opportunities tend to preserve greater deals of cash. They further found that, companies which enjoy longer investment opportunities tend to pay lower dividends.

Al McLiland et al. (2012) investigated professional horizon and tenure of CEO on future performance of companies. They believed that, CEOs of short-term professional horizons (measured based in their ages) tend to follow risk-averse strategies which, on average, brings about negative effect on future performance of the company. In addition, they believed that, due to its associated power, higher levels of CEO's ownership may strengthen the relation. Using this paradigm, lengthened CEO tenure may damage future performance of company, particularly across dynamic industries. Anyway, there is chance that this paradigm fails to negatively affect the performance at static companies.

In a research on corporate leadership system and investment sensitivity to cash flows, Francis *et al.* (2013) addressed the effect of corporate leadership system in financial limitations. They conducted the research using data from 14 countries and concluded that, better corporate governance may lower the dependence of companies to internal cash flows, reducing financial limitations.

Ben Mohamed *et al.* (2014) undertook a research entitled as CEO characteristics and ownership and investment sensitivity to cash flows, where they investigated the association between CEO characteristics and ownership in one hand and investment sensitivity to cash flows on the other hand, considering managerial optimism across a sample of 475 firm-year records of American companies. Their findings cleared that, CEO ownership and optimism can explain investment strategy of the firm and affects investment sensitivity to cash flows.

C. RESEARCH METHODOLOGY

In terms of objective, the present study is an applied research because investigates relations among a set of variables across securities market, and expressing the relations, provides some recommendations to improve

current status. This research follows a comparative – inductive approach and falls within the scope of correlational researches (regression analysis in particular).

Spatial scope of the present study encompasses listed firms on Tehran Stock Exchange headquartered within Islamic Republic of Iran.

Temporal scope of this research includes 2009 – 2013 period.

In the present research, systematic elimination approach has been followed to determine statistical samples. For this purpose, those firms across the statistical population that possess the following conditions are taken as statistical sample, with the remaining firms eliminated.

D. RESEARCH VARIABLES

In the present research, fixed asset investment is taken as dependent variable, with operating cash flows, managerial optimism, and CEO tenure taken as independent variables. Besides, in order to control contributions from different factors into the relation between dependent and independent research variables, Tobin's Q ratio is further introduced into the model.

As the dependent variable in the present research, fixed asset investment (I) is measured by the ratio of fixed asset capital expenditures to book value of assets throughout the period of interest:

$$I = \frac{Fixed\ asset\ capital\ expenditure}{Book\ value\ of\ assets}$$

Independent variables: The following four independent variables were used in the present research:

- ✓ Net cash flows (CF): Net cash flows derived from operating activities which is extracted from the company's statement of cash flows.
- ✓ Growth opportunities (Tobin's Q): It is the same as market value-to-book value ratio and can be determined as follows:

$$Tobin's\ Q = \frac{Stock\ market\ value + Book\ value\ of\ debts}{Book\ value\ of\ debts}$$

- ✓ Managerial optimism: It is a binary variable. If CEO is recognized as being optimistic, the variable is set to 1; otherwise, the variable is set to 0. Optimism index stems from internal transactions of CEO. Knowing that, the utilization of this method is associated with some problems including failure to access related information, one can follow an alternative approach to determine managerial

optimism where sales prediction by management is considered. If management predicts that volume of sales at the year t + 1 is likely to be higher than actual sales at the year *t*, the management is considered to be optimistic.

✓ CEO tenure: It refers to the number of years during which an individual works as CEO.

In the present research, in order to examine how tenure is related to investment sensitivity to cash flows, the following model was used:

$$I_{it} = \beta_0 + \beta_1 Q_{it-1} + \beta_2 CF_{it} + \beta_3 Optimism_{it} + \beta_4 Q_{it-1} CF_{it} + \beta_5 Optimism_{it} CF_{it} + \beta_6 Tenure_{it} + \beta_7 Tenure_{it} CF_{it} + \varepsilon_{it}$$

Where:

Q_{it-1}:   Market value-to-book value ratio (growth opportunities) at the start of the period.

CF_{it}:   Cash flows derived from operations of the company *i* at the financial year *t*.

$Optimisim_{it}$:   Optimism of CEO of the company *i* at the financial year *t*.

$Tenure_{it}$:   Tenure of CEO of the company *i* at the financial year *t*.

IV. RESEARCH QUESTIONS AND HYPOTHESES

The present research seeks answer to the question that, do CEO tenure affect investment sensitivity to cash flows in listed firms of Tehran Stock Exchange?

Accordingly, the research question is established as follows:

✓ Is there a significant relationship between CEO tenure and investment sensitivity to cash flows?

Considering the above question, the research hypothesis is set as follows:

✓ *Hypothesis: There is a significant association betweenCEO tenure and investment sensitivity to cash flows.*

In order to investigate the research hypothesis and put it on test, descriptive statistics and panel data regression were used, respectively.

V. DESCRIPTIVE STATISTICS

The first step towards undertaking a statistical analysis is to determine summarized characteristics of

data and calculate descriptive indices. Such an analysis is aimed at recognizing internal relationships among variables and demonstrate the behavior exhibited by trials, so as to prepare for statistical analysis and identify descriptive characteristics to be further analyzed. Descriptive indices of interest included average, median, standard deviation, minimum, and maximum, as reported in Diagram 4-1. It is worth noting that, in the present research, data from 75 firms (375 observations) during 2009 – 2013 was investigated.

Diagram 4-1. Descriptive statistics of the research variables.

Variable	Notation	Mean	Median	Maximum	Minimum	Standard Deviation	Kurtosis	Skewness
Investments in Fixed Assets	I	0.036	0.027	0.374	-0.148	0.073	-1.717	21.533
Net Cash Flows	CF	0.028	0.027	0.651	-0.735	0.152	0.211	4.810
Growth Opportunity	Q	1.9	1.4	3.4	1.2	1.5	3.085	10.053
Manager's Optimistic	Optimism	0.69	0.67	1	0	0.19	-0.852	1.726
Tenure	Tenure	3.21	3.02	9	0.8	2.37	0.667	2.577

On average, ratio of fixed asset investment by the studied firms during the studied period to assets at the beginning of the studied period was found to be 0.036. This was while the ratio was calculated to be up to 37% in some cases. One of the explanations which can be provided in this regard is the use of historical values which have resulted fixed assets of the firms to be reflected in historical cost, while capital expenditures are incurred and performed at present values. Furthermore, to have the variables standardized, net operating cash flow was divided by book value of assets at the beginning of the studied period to not only discount, but also standardize large figures. Also, market-to-book value ratio of the firms was found to be 1.9 indicating a wide distance between historical and present values. Moreover, on average, predicted profit of 69% of the studied firms exceeded actual profit gained in the preceding year, so that, one may perceive

and evaluate the firms' managements as being optimistic, based on theoretical foundations previously described in the present research. Average CEO tenure was also about three years.

VI. CORRELATION BETWEEN PRINCIPAL RESEARCH VARIABLES

Diagram 4-2 provides Pearson correlation coefficient matrix for the research variables. These coefficients serve as criteria to measure direction and magnitude of relation between two variables. The closer the value of ρ to 1, the more the two variables are related to one another along positive direction; i.e. x increases with y. On the other hand, the closer the value of ρ to -1, the more the two variables are related to one another along negative direction; i.e. x increases as y decreases. For the cases where ρ is zero or close to zero, x and y are said to be not correlated.

Diagram 4-2. Pearson correlation coefficients between research variables.

	I	CF	Q	Op	T
I	1.000000	0.061559	-0.083522	0.150337	-0.473408
CF		1.000000	0.007679	0.041910	0.103479
Q			1.000000	0.050343	-0.023478
Op				1.000000	-0.043891
T					1.000000

In cases where more than one independent variable exists, the variables can be correlated to one another, in which case a multi-collinearity emerges and destructs statistical value of the coefficient of determination practically.

In the present research, since all of the assessed coefficients were significant and distinctive, one can argue that no significant collinearity exists between variables.

VII. HETEROSCEDASTICITY TEST

Heteroscedasticity test is one of the tests to be conducted on panel data. Among the tests commonly used to discover heteroscedasticity of variance, White test is useful because of limited assumption taken when it comes to the shape of heteroscedasticity, so that, it is more commonly used by researchers (Aflatooni and Nikbakht, 2010).

It should be noted that, null hypothesis of this test represent heteroscedastic variances. White test results for the four models of the present research are presented in Diagram 4-3. As can be seen, the research models have no heteroscedasticity problem; hence,

ordinary least squares (OLS) regression method is used to have the models fitted.

Diagram 4-3. White test results at the confidence level of 95%.

Model	Confidence Level	F Statistic
No. 1	0.7163	0.641

VIII. CHOW AND HAUSMAN TESTS

In order to choose a data analysis model and use pool and panel data, Chow test is employed. Null hypothesis of this test implies the use of pool data, while the opposite hypothesis indicates the use of panel data. Panel data can be used in either of two forms: fixed effects and random effects. Hausman test is utilized to determine whether to use fixed or random effects. Null hypothesis of this test implies using random effects, with the opposite hypothesis corresponding to fixed effects (Aflatooni and Nikbakht, 2010).

Diagram 4-4. Chow test results (F limer).

Chaw Test	Confidence Level	F Statistic
	0.000	4.38

Hausman test is used to distinguish fixed effects from random ones. Diagram 4-5 represents corresponding chi-squared statistics and significance level to Hausman test. As the null hypothesis (implying the use of panel data and random effects) was rejected and the opposite hypothesis (implying the use of panel data and fixed effects) was confirmed, the model was set to use panel data and fixed effects before being used in the present research.

Diagram 4-5. Hausman test results.

Hausman Test	Confidence Level	$\chi 2$ Statistic
	0.0097	20.186

IX. MODEL FITTING RESULTS

Diagram 4-5 comes with the results of model fitting for the main research model. Also reported in the diagram are other informations about the model including *F*-statistics, Durbin–Watson statistic, and adjusted coefficient of determination.

Diagram 4-6. Modell fitting results.

$I_{it} = \beta_0 + \beta_1 Q_{it-1} + \beta_2 CF_{it} + \beta_3 Optimism_{it} + \beta_4 Q_{it-1}CF_{it} + \beta_5 Optimism_{it}CF_{it} + \beta_6 Tenure_{it} + \beta_7 Tenure_{it}CF_{it} + \varepsilon_{it}$				
Variable	Coefficient	Standard Error	T-statistic	Significant Level
Const	0.510	0.077	6.635	0.000

ant				
Q	-0.005	0.007	-1.942	0.044
CF	0.027	0.004	2.137	0.032
Optimism	0.014	0.008	1.715	0.046
Q * CF	0.0002	0.010	0.327	0.746
OP * CF	0.032	0.061	2.065	0.046
T	-0.019	0.157	-1.651	0.099
T * CF	-0.166	0.121	-0.899	0.382
R2	0.58	Adjusted R2		0.55
F Statistic F Prob.	15.48 (0.000)	Durbin-Watson		1.62

Based on theoretical foundations of the research, in behavioral finance, it is believed that, management characteristics act as a factor that can result in investment sensitivity to internal cash flows. According to the Hypothesis in this research, a significant direct association was expected between investment sensitivity to cash flows and CEO tenure. Accordingly, in the Hypothesis, sum of β_7 and β_3 should be greater than β_3 ($\beta_3 \leq \beta_3 + \beta_7$); in other words, β_7 is positive, it should be greater than β_3.

T-statistic and significance level of research variables indicate whether a significant association exists with the dependent variable at 95% confidence level, and if such an association exists, in which direction it works. If significance level falls below 5% ($p < 0.05$), the corresponding association is recognized as being significant, otherwise it is statistically insignificant. As is evident in the above table, at the confidence level of 95%, the first, second, third, and fifth variables are significantly associated with the dependent variable, with no significant association observed for either of the fourth, sixth, and seventh research variables. The sign of variable coefficients represent the direction along which the corresponding variable is associated with the dependent variable. Durbin-Watson statistic was calculated to be 1.6. As the statistic falls within 1.5 – 2.5, no first order high autocorrelation exists between the remaining components of the model. Fisher's *F*-statistic and corresponding significance level also show that the entire model is statistically significant. Indicating explanatory power of the independent variables, coefficient of determination was found to be 0.55 for the studied model in this research. Coefficient of determination represents how powerful are independent and control variables in explaining the dependent variable.

Analysis of hypotheses test results: As indicated by the results of model fitting, corresponding coefficient to cash flow (β_3) was calculated to be 0.027 and statistically significant. Furthermore, corresponding coefficient to management optimism (β_5) was calculated to be 0.032 and statistically significant. Furthermore, being negative, β_7, which corresponds to concurrent effect of cash flows and CEO tenure, refers to an insignificant association; hence the Hypothesis (there is a significant association between CEO tenure and investment sensitivity to cash flows) is rejected; i.e. longer CEO tenure may not contribute to increased investment sensitivity to cash flows.

X. HYPOTHESIS-BASED RECOMMENDATIONS

1. **Recommendations for boards of managers and shareholders of firms.** Board of managers of firms are recommended to be curious about possible consequences of CEO tenure and account for this issue in their decisions regarding the appointment, retention, or dismissal of executives. The more informed the decisions made on general assembly of firms in the presence of shareholders, the larger contributions it may provide into future performance of the firms. Moreover, paying attention to management optimism should be respected by potential and actual shareholders when evaluating investment on and financing different firms.
2. **Recommendations for regulatory bodies.** State regulatory bodies such as Securities and Stock Exchange Organization are recommended to account for the impacts of CEO tenure when codifying regulatory processes and rules.
3. **Recommendations for researchers.** Researchers are recommended to further study various behavioral dimensions of management in decisions while having a look on personal characteristics of managers. If possible, they should introduce these factors into their research models to represent and control their effects.

RECOMMENDATIONS FOR FUTURE RESEARCH

1. Investigation of effects of other behavioral biases and management characteristics on investment sensitivity to cash flows.
2. Investigation of effects of personal characteristics of management on investment sensitivity to cash flows.
3. Investigation of management optimism on financing policies of firms.
4. Investigation of effect of management optimism on debt dues.
5. Investigation of effect of CEO tenure on financing policies of firms.
6. Investigation of effect of CEO tenure on debt dues.
7. Investigation of effect of CEO tenure on firm performance.

XI. RESEARCH LIMITATIONS

The present research did not dealt with any limitation that can keep the researcher from continuing the research; however, users may respect the followings when planning to generalize the findings:

1. One of the limitations suffered by most of accounting and financial researches (inclusive of the present research) is the issue of inflation. Accounting data of firms are typically maintained at finished costs. This may distort the results, as the accounting information-based ratios will be affected by inflation phenomenon.
2. The existence of outliers within the applications provided in Stock Exchange Library is perceived as a limitation.

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