



Investigating the Impact of Management Characteristics on Final Value of Cash Considering the Components of Management Ability, Management Overconfidence, and CEO's financial Expertise

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ABSTRACT

The underlying philosophy of resource management is to create effectiveness and efficiency. Cash is one of the most important and basic resources of any economic unit, which is at the disposal of management and can be used to guide and control matters. These funds can be valued by shareholders more than their nominal value. The present study seeks to investigate the effect of management characteristics on the marginal value of cash. Selective components for management characteristics in this study included management ability, management overconfidence, and CEO financial expertise. The statistical population of this study was all companies listed on the TEHRAN stock exchange in the period 2009 to 2018. The statistical sample was selected by a systematic removal method with 172 companies. The statistical software used in this study was Eviews10 & Stata4. The research method was applied in terms of purpose and pre-event in terms of the data collection method. Data analysis was performed using the panel data technique. Managerial Overconfidence Excessive management trust and management ability were significantly associated with the marginal value of cash. There was no evidence of a relationship between the CEO's financial expertise and the marginal value of cash. According to the research results, it can be stated that the ability of management along with the excessive trust of management is one of the components affecting the marginal value of cash.

Keywords:

management ability, management overconfidence, CEO financial expertise, the marginal value of cash.

1. Introduction

Due to the undeniable importance of current assets, especially cash, in the profitability and survival of companies, many economic units devote a significant portion of their assets to it. Cash enters the for-profit unit through ordinary operations and other sources of financing and is used to carry out operations, pay dividends, repay debts, and develop the for-profit unit. The inflow and outflow of cash into each for-profit unit reflects management decisions about short- and long-term operational plans and investment and financing plans. The ability to access any for-profit unit in cash is the basis of many decisions and judgments about that unit. The determining factor in the amount of sufficient or excess retained cash, management decisions, and not facing risks, is information asymmetry. Accordingly, economic institutions hold a significant percentage of their assets in cash, and the decision to determine the number of cash reserves in companies has become one of the most important issues in the financing literature. Cash is an important source of domestic capital under the control of executives, meaning that the decision on how to conduct cash flow is at the discretion of managers (Liu and Mauer, 2011). The survival of a bank generally depends on how the bank manages its cash flow. Based on this view, research by Fazzari et al. (1988) and Jensen (1986) showed that the value of cash depends on its availability and how executives use it.

Marginal value cash

the marginal value of cash is the value of one rial of cash earned. In frictionless markets, the marginal value of one rial of cash for shareholders must be exactly equal to the nominal value of one rial (Pinkowitz, L. & Williamson, 2004). The reason for the equality of marginal value and nominal value in these markets is that frictionless markets are complete and efficient markets in which, in addition to having symmetrical information and no agency costs, the transaction cost is zero or small. In such markets, the benefits of earning one rial in cash are equal to the benefits of earning one rial in cash (Bates et al., 2011). On the other hand, the final cash rate reflects the changes in the marginal value of the cash with the level of holding the cash. In other words, this rate indicates a decrease in the marginal value of cash due to the increase in the

company's cash. There are certain costs involved in maintaining cash assets. Excessive cash holdings lead to agency conflicts between managers and shareholders, which increases management authority and may ultimately harm shareholders' interests. In other words, because cash has a low rate of return and affects the market return and tax performance of companies, its high maintenance can lead to opportunity costs for the company. On the other hand, not holding cash for companies that face financing constraints may lead to the loss of their investment opportunities and negatively affect the company's returns (Bolo et al., 2012). Therefore, various factors such as transaction costs, information asymmetries, and opportunity costs can affect cash holdings. Information asymmetry makes it difficult and costly for companies to raise cash. In this situation, the company manager may strengthen the company's cash assets and thereby reduce the costs of dependence on foreign financing (Fakhari and Taghavi, 2009). In a situation of information asymmetry, managers prefer to use internal cash resources instead of external sources. In other words, managers maintain and accumulate cash to deal with problems caused by information asymmetries, such as high capital expenditure rates and financing risk (Mehrani and Hesarzadeh, 2009). In general, in a situation of information asymmetry, managers tend to follow a kind of hierarchical policy in financing. This means that managers prefer internal sources to external sources that are sensitive to information.

Management Ability

Demerjian et al. (2012) stated that more qualified managers than less qualified managers can have a better understanding of technology and industry trends, reliable forecasts of product demand, investment in more valuable projects, and more effective management of their employees. Identifying a reliable measure of managerial ability is complex, simply because evaluating the reputation of a CEO is multidimensional. Previous research has used media quotes and industry-adjusted returns as indirect criteria for managerial ability. However, these indirect components have been criticized because, for example, abnormal stock returns include information beyond management control. In general, management ability is the level of skills, strength, competencies in the organization (Kamangari, 2011).

Many studies assume that companies have a neoclassical view of senior executives as substitute agents who do not have a distinctly different effect on firm outcomes (Witzel 2002). Studies in strategic management present a similar trend to the argument that managers were constrained to make homogeneous decisions through norms and culture (Liebersohn and O'Connor, 1972; Hannan and Freeman 1977) or because of their desire to follow foreign expectations by imitating others (Spender 1989; Chalmers and Godfrey 2004). Although this assumption is not common among managers and in business, at least it is thought that managers have their own style. Experimental cases show that there is a large part of heterogeneity in company strategies that can not be explained by factors at the company and industry level (Bradley et al., 1984; Titman and Wessels, 1988). In fact, most managers face uncertainty; They have to make complex decisions using complex information (Hambrick, 2007). As a result, they interpret these conditions with their own limited intellect and act based on their experiences, values, and personality (March and Simon, 1958).

Management Overconfidence

The cause of overconfidence is the peace that people get from it. Overconfidence increases over time as success is attributed to oneself. On the other hand, people seek to prove themselves to others in order to arouse their admiration, so they sometimes exaggerate their previous successes for others, which affects them internally and exacerbates the phenomenon of overconfidence. In other words, in the exaggerated expression of success, the individual himself is more influenced by his words. Studies in this area have shown that jobs that require judgment are more confident than other jobs. Also, the more specialized people are, the more they are exposed to overconfidence. Overconfident managers overestimate the future returns of business unit projects. Therefore, they may be more likely to estimate the probability and magnitude of positive shocks for future cash flows from these projects and less likely to be negative for negative shocks. They believe that the business unit under their management is undervalued in the capital market and prefer to use less outsourced financing sources. In other words, they are expected to distribute less cash.

Financial expertise of the CEO

In today's world, management plays a key role in increasing the efficiency and productivity of companies. Among the four key factors of success in organizations including labor, capital, raw materials, and management, today the role of management is more important than ever (Dianati Deilami et al., 2003). Although senior executives, especially CEOs, are thought to have a general outlook, their work history determines their life orientations, and these tendencies can influence the company's strategic choices (Hambrick & Mason, 1984). Song (1982) found that CEOs with executive experience were more likely than others to favor internally generated diversity, while CEOs with non-executive experience were more likely to diversify through learning. Tyler and Steinsma (1998) showed that managers with more technical work experience welcome potential technology contracts than their counterparts with other work experience. Barker and Müller (2002) argued that R&D costs are higher in companies whose CEOs have R&D experience. All of these studies show that the background of CEOs strongly influences company decisions.

Matsunaga et al. (2008) found that companies whose CEOs have financial knowledge provide more accurate profit-related tips and improve the quality of financial disclosure. They claim that the quality of a company's financial disclosure depends on the CEO's financial background. Problems are discovered and additional information found in the same executive context, and as a result, better decisions are made by managers with expertise and cognitive frameworks in relation to their work history (Hambrick and Mason, 1984).

Managers with financial experience who have always adhered to accounting prudence create a consistent work style. Besides, these managers are more likely to understand the role of financial disclosure in reducing information asymmetry between companies and investors (Matsunaga et al., 1984) and helping market participants assess company value (Houghton and Stocken, 2006). On the other hand, one of the main issues of stakeholder theory is related to managers' views on management and how the company is run (Callan and Thomas, 2011).

In this theory, the role of management leadership is considered important due to strategic decision making (Hambrick and Mason, 1984). Since the CEO's

ideal decisions constitute the leadership activities of managers, it is reasonable to expect the CEO to have a major impact on corporate issues, such as financial policies.

Research background

Aktas et al. (2019) in a study examined the effect of managers' overconfidence on cash marginal value. The results of their research indicated that managers' overconfidence has a significant negative effect on cash marginal value. Shin et al. (2018) in a study examined the effect of earnings quality on cash marginal value. The results of their research showed that high-profit quality increases the marginal value of cash. Gan and Park (2017) in a study examined the relationship between managers' ability and cash marginal value. They used the model of Demerjian et al. to measure the ability of managers. Their findings showed that managers with a higher ability make better use of cash in the company. They also found that in companies with more limited financing capacity, the management ability has a greater impact on their cash marginal value. Schauten et al. (2013) concluded in a study entitled "Corporate Governance and Cash Value Retained in Large European Corporations" that corporate governance has a direct effect on the amount of cash held. They also found that holding excess funds had a negative and destructive effect on corporate performance. Li and Powell (2011) studied the determinants of cash holdings in Australia and the impact of surplus cash holdings on shareholder wealth. The results showed that the temporary cash surplus generates higher returns than the permanent cash surplus. This means that the market fines companies for storing cash. Also, the marginal value of cash decreases with increasing cash balance and a longer retention period.

Parkhideh (2019) investigated the effect of regulatory incentives of institutional shareholders on the marginal value of cash in companies listed on the Tehran Stock Exchange over 10 years between 2007 to 2016. In this study, 110 of the existing companies were selected as the statistical population. Multivariate regression was used to test the hypotheses and t and F statistics were used to test the significance of the variables. Using the Durbin-Watson test, the model correlation was tested. The results showed that the regulatory incentives of institutional investors have a significant and direct effect on the marginal value of

cash. Also, the investment incentives of institutional investors have a significant and direct effect on the marginal value of cash. Shariati (2019) examined the effects of real profit management on the marginal value of companies' cash by considering the moderating roles of agency costs and information asymmetry in companies listed on the stock exchange. The statistical sample of this research was 96 companies in the period 1389 to 1396. The results of the statistical analysis of the research hypotheses showed that there is a negative and significant relationship between real profit management and cash marginal value. Also, the results indicate that agency costs and information asymmetry have a moderating role in the relationship between real profit management and the marginal value of companies' cash. Salimi and Khakzad Kahagh (2019) investigated the effect of earnings quality on the level of holding the company's surplus cash and their marginal value in the Tehran Stock Exchange. The study population of member companies of the Tehran Stock Exchange concerning special restrictions, from which a sample of 120 companies active in the Tehran Stock Exchange was selected. The scope of the research includes seven years based on the financial statements of the studied companies during the years 2009 to 2017. The results show that maintaining excess cash has a significant and positive effect on the value of the company. Also, earnings quality has a statistically significant effect on the relationship between holding excess cash and company value. Also, the quality of profit does not have a statistically significant effect on the value of the company. Keyghobadi (2019) examined the effect of earnings quality on the level of cash holding with emphasis on the moderating role of managers' ability. Based on this, the data of 165 companies active in the Tehran Stock Exchange between 2012 and 2017 were selected as the research sample. Research findings indicate that earnings quality affects the level of cash holdings. Managers' ability also affects the relationship between earnings quality and the level of cash holding.

Research Hypotheses

Hypothesis 1: There is a significant relationship between management ability and the marginal value of cash.

Hypothesis 2: There is a significant relationship between management overconfidence and the marginal value of cash.

Hypothesis 3: There is a significant relationship between CEO financial expertise and the marginal value of cash.

Research methodology

This research is applied in terms of research purposes. The descriptive method will be used to express the results in relation to the sample and the inductive inference method will be used to generalize the results to the statistical population. Therefore, the research method in terms of inference is descriptive-analytic (inductive). It is a post-event in terms of research design because the performance information of companies based on historical financial statements was used in data collection. The statistical population of the study was all companies listed on the Tehran Stock Exchange in the period 2009 to 2018 after applying the conditions. The above conditions are as follows:

- 1) The date of their acceptance in the Securities Exchange Organization must have been before 2009 and they must be in the list of listed companies by the end of 2018.
- 2) In order to increase comparability, their fiscal year should end in March.
- 3) They should have not changed their activity or their financial year during the desired periods.
- 4) They should not be part of investment companies and financial intermediaries (investment companies were not included in the statistical community due to the difference in the nature of activity with other companies).

The number of sample companies is 172 companies.

Research regression models

Model (1) was used to test the first research hypothesis.

$$\begin{aligned}
 R - ER_{it} = & \alpha + \beta_1 TALENT_{i,t} * \frac{\Delta C_{it}}{M_{it-1}} + \beta_2 TALENT_{i,t} \\
 & + \beta_3 \frac{\Delta C_{it}}{M_{it-1}} + \beta_4 \frac{\Delta E_{it}}{M_{it-1}} + \beta_5 \frac{\Delta NA_{it}}{M_{it-1}} \\
 & + \beta_6 \frac{\Delta D_{it}}{M_{it-1}} + \beta_7 \frac{\Delta C_{it-1}}{M_{it-1}} + \beta_8 LEV_{it-1} \\
 & + \beta_9 CEO\ Powe_{i,t} + \beta_{10} InsOwn_{i,t} \\
 & + \beta_{11} ManOwn_{i,t} + \beta_{12} CentOwn_{i,t} \\
 & + \beta_{13} BrdDobl_{i,t} + \beta_{14} BrdIndep_{i,t} \\
 & + \beta_{15} CC_{SCORE}_{i,t} + \beta_{16} UC_{SCORE}_{i,t} \\
 & + \beta_{17} DISWEAK_{i,t} + \varepsilon_{it}
 \end{aligned}$$

Model (2) was used to test the second research hypothesis.

$$\begin{aligned}
 R - ER_{it} = & \alpha + \beta_1 OverconfidentCEO_{i,t} * \frac{\Delta C_{it}}{M_{it-1}} \\
 & + \beta_2 OverconfidentCEO_{i,t} + \beta_3 \frac{\Delta C_{it}}{M_{it-1}} \\
 & + \beta_4 \frac{\Delta E_{it}}{M_{it-1}} + \beta_5 \frac{\Delta NA_{it}}{M_{it-1}} + \beta_6 \frac{\Delta D_{it}}{M_{it-1}} \\
 & + \beta_7 \frac{\Delta C_{it-1}}{M_{it-1}} + \beta_8 LEV_{it-1} \\
 & + \beta_9 CEO\ Powe_{i,t} + \beta_{10} InsOwn_{i,t} \\
 & + \beta_{11} ManOwn_{i,t} + \beta_{12} CentOwn_{i,t} \\
 & + \beta_{13} BrdDobl_{i,t} + \beta_{14} BrdIndep_{i,t} \\
 & + \beta_{15} CC_{SCORE}_{i,t} + \beta_{16} UC_{SCORE}_{i,t} \\
 & + \beta_{17} DISWEAK_{i,t} + \varepsilon_{it}
 \end{aligned}$$

Model (3) was used to test the third research hypothesis.

$$\begin{aligned}
 R - ER_{it} = & \alpha + \beta_1 Fin\ Exp_{i,t} * \frac{\Delta C_{it}}{M_{it-1}} + \beta_2 Fin\ Exp_{i,t} \\
 & + \beta_3 \frac{\Delta C_{it}}{M_{it-1}} + \beta_4 \frac{\Delta E_{it}}{M_{it-1}} + \beta_5 \frac{\Delta NA_{it}}{M_{it-1}} \\
 & + \beta_6 \frac{\Delta D_{it}}{M_{it-1}} + \beta_7 \frac{\Delta C_{it-1}}{M_{it-1}} + \beta_8 LEV_{it-1} \\
 & + \beta_9 CEO\ Powe_{i,t} + \beta_{10} InsOwn_{i,t} \\
 & + \beta_{11} ManOwn_{i,t} + \beta_{12} CentOwn_{i,t} \\
 & + \beta_{13} BrdDobl_{i,t} + \beta_{14} BrdIndep_{i,t} \\
 & + \beta_{15} CC_{SCORE}_{i,t} + \beta_{16} UC_{SCORE}_{i,t} \\
 & + \beta_{17} DISWEAK_{i,t} + \varepsilon_{it}
 \end{aligned}$$

How to measure research variables

Independent variables

Management ability

In this study, to measure management ability, the model presented by Demarjian et al. (2012), which is based on accounting variables, was used. In this model, the management ability is calculated by using the efficiency of the company as a dependent variable and controlling the intrinsic characteristics of the company.

In order to measure the efficiency of Demarjian et al. (2012), they used the data envelopment analysis (DEA) model. Data Envelopment Analysis Pattern is a statistical pattern that is used to measure the performance of a system using input and output data. In the model used in this research, Demarjian et al. (2012) considered sales revenue as output and the other 7 variables (i.e. cost of goods sold, general, administrative and sales costs, net assets, machinery and equipment, operating rent, research and

development costs, goodwill, and intangible assets) as input information.

In this regard, $OPLEAST_t$, $COGS_t$, $SAEXP$, RD_t , PPE_t and $INTGAT_t$ are the cost of goods sold, sales and administrative costs, research and development costs, net fixed assets, net operating rents, and intangible assets, respectively.

Firm Efficiency

$$= \frac{SALES_t}{COGS_t + SAEXP_t + RD_t + PPE_t + OPLEAST_t + INTGAT_t} \quad (4)$$

$$Firm\ Efficiency_i = \beta_0 + \beta_1 \ln(\text{Total Assets}_i) + \beta_2 \text{market Share}_i + \beta_3 \text{Positive Free Cash Flow}_i + \beta_4 \ln(\text{Age}) + \beta_5 \text{Foreign Currency Indicator}_i + \varepsilon_i \quad (5)$$

Firm Efficiency: The efficiency of a company that is calculated using the data envelopment analysis method.

Total Assets: is the sum of assets that can be extracted from the forms.

Market Share: The market share of each company, which is obtained by dividing the company's sales at the end of year t by the total industry sales at the end of year t.

Positive Free Cash Flow: Free positive cash flows. If the company has a positive cash flow, the free cash flow ratio is one, otherwise, it will be zero. Free cash flows are calculated as follows:

(Free cash flow = operating profit before depreciation - tax payable - interest payable - dividend payable)

Age: The number of years of activity of the company. The value of this variable is from the year of establishment to the desired year.

Foreign Currency Indicator: foreign currency. This variable is a two-dimensional variable that is measured as follows: If the company in question has exports, this variable will be equal to one, otherwise, it will be equal to zero.

In this model, the dependent variables of company performance and F Currency and Age, FCF, M Share, T Assets are respectively company size, company market share, free cash flow, number of branches and currency index. The model regression test (23) then determines the manager's unique management ability

or performance through the residual value (ε_i) each year.

Management overconfidence

The following five criteria are used to measure managerial overconfidence. If at least three of the five criteria are one, the number one is given, and otherwise zero (Bon Kim et al., 2014).

The first criterion, over-investment (**OverInv_{i,t}**):

According to the research of Ahmed & Duellman (2013) is the concept of investment surplus that is obtained from the regression of asset growth relative to sales growth at the industry level as described in Equation (6). If the remainder of Equation (6) is positive for the company, it means that the company has made too much investment and the variable **OverInv_{i,t}** is considered one, and otherwise the zero (Bon Kim et al., 2014).

$$ASSET.GR_{i,t} = \beta_0 + \beta_1 SALES.GR_{i,t} + \varepsilon_t$$

$ASSET.GR_{i,t}$: Asset growth in year t:

$$\left(\frac{ASSETS_t}{ASSETS_{t-1}} \right) - 1$$

$SALES.GR_{i,t}$: Sales growth in year t:

$$\left(\frac{SALES_t}{SALES_{t-1}} \right) - 1$$

investment and the variable **OverInv_{i,t}** is considered one, and otherwise the zero (Bon Kim et al., 2014).

The second criterion, the sum of net cash flows:

It is a fictitious variable. If the net cash flow of company i in fiscal year t is greater than the average of the net cash flow of the same period of the relevant industry companies of the sample member, it indicates more than managerial confidence and takes the number one, otherwise, the number is zero (Bon Kim et al., 2014).

The third criterion, the debt-to-equity ratio:

It is a fictitious variable. If the debt-to-equity ratio of company i in fiscal year t is greater than the median debt-to-equity ratio of the same period as the relevant member industry, it indicates managerial overconfidence and is given the number one, otherwise zero. The debt to equity ratio is defined as the sum of long-term and short-term debt divided by the market value of equity (Bon Kim et al., 2014).

The debt to equity ratio is defined as the sum of long-term and short-term debt divided by the market value of equity (Bon Kim et al., 2014).

The fourth criterion, dividend policy (DIVYLD):

It is a fictitious variable. If the company has not distributed cash dividends, it is equal to one, otherwise, it is equal to zero. Dividend returns are zero (Bon Kim et al., 2014).

The fifth criterion, the capital expenditures ratio ($CAPEX_{i,t}$):

This criterion is a fictitious variable according to Malmandir Witt (2005). If the ratio of capital expenditures of company i in fiscal year t is greater than the median capital expenditures of the same period of the companies in the relevant industry, it indicates managerial overconfidence and adopts one, otherwise zero. The ratio of firm capital expenditures in year t is calculated based on Equation (4) from the division of capital expenditures into the total assets of firm i at the end of year t-1.

$$\left(\frac{C}{A}\right)_t = \frac{C.E_t}{TA_{t-1}} \quad (7)$$

$C.E_t$: Capital expenditures, expenditures spent on the purchase or improvement and upgrading of productive assets such as machinery, commercial and manufacturing buildings, vehicles, etc. in year t. This is calculated from the net difference between the carrying amount of fixed assets at the beginning and end of the financial period plus depreciation expense.

TA_{t-1} : Total assets at the end of year t-1

Financial expertise of the CEO

(FinExp): An imaginary variable, and if the CEO has the experience of accounting title, chief financial officer or chief accounting officer, it is equal to one and otherwise zero.

Control variables

Unconditional conservatism

The criterion of unconditional conservatism, based on the Givoly and Hayn (200) accruals, is derived from Equation (8):

$$UC_SCORE = (-1) \frac{ACC_{i,t}}{ASET_{t-1}}$$

In this regard, $TA_{i,t}$ represents the sum of accruals that can be calculated as follows:

$$TA_{i,t} = (\Delta CA_{i,t} - \Delta CASH_{i,t}) - (\Delta DCL_{i,t} - \Delta STD_{i,t}) - DEP_{i,t} \quad (19)$$

In Equation (8) and (9) the variables are as follows:

$\Delta CA_{i,t}$: Change in current assets of the current year compared to the previous year.

$\Delta CASH_{i,t}$: Change in cash this year compared to the previous year.

$\Delta DCL_{i,t}$: Change in current year debt compared to the previous year.

$\Delta STD_{i,t}$: Change in the short-term share of long-term debt this year compared to the previous year.

$DEP_{i,t}$: Depreciation cost of tangible and intangible assets this year.

Conditional conservatism

The model used to calculate the conditional conservatism variable is Watts (2003), which estimates the conditional firm-year conservatism measure based on the modified Basso model. According to the research (Ahmad and Diolman, 2012) in algebraic form, this model is as follows:

$$\begin{aligned} \frac{EPS_{i,t}}{Pti_{i,t-1}} = & +\gamma_0 + \gamma_1 DT_{i,t} + \gamma_2 Ret_{i,t} + \gamma_3 DT_{i,t} \\ & * Ret_{i,t} + \gamma_4 MC_{i,t} + \gamma_5 LEV_{i,t-1} \\ & + \gamma_6 MTB_{i,t-1} + \gamma_7 DT_{i,t} * MC_{i,t-1} \\ & + \gamma_8 DT_{i,t} * LeV_{i,t-1} + \gamma_9 DT_{i,t} \\ & * MTB_{i,t-1} + \gamma_{10} Ret_{i,t} * MC_{i,t-1} \\ & + \gamma_{11} Ret_{i,t} * lev_{i,t-1} + \gamma_{12} Ret_{i,t} \\ & * MTB_{i,t-1} + \gamma_{13} DT_{i,t} * Ret_{i,t} \\ & * MC_{i,t-1} + \gamma_{14} DT_{i,t} * Ret_{i,t} \\ & * MC_{i,t-1} + \gamma_{15} DT_{i,t} * Ret_{i,t} \\ & * MTB_{i,t-1} + \varepsilon_{i,t} \end{aligned}$$

where $EPS_{i,t}$ is earnings per share and $Pti_{i,t-1}$ is stock prices nine months before the end of the fiscal year. $MC_{i,t}$: The natural logarithm of the market value of equity to the book value of the stock of company i per year. $MTB_{i,t}$: The ratio of market value to the book of equity to the market value of equity of company i in year t. $LEV_{i,t}$: Debt ratio to Company i assets at year end t. $D_{i,t}$: The duct variable is equal to 1 if $RET < 0$, otherwise it is equal to zero.

$RET_{i,t}$: stock returns of company i during the year t . The stock returns for the period beginning nine months before the end of the fiscal year and ending three months after the end of the fiscal year.

Then, using the estimates made in the annual regression model of Equation (10) and deriving the required coefficients, the measurement of Watts conditional conservatism (2009) is estimated as follows:

$$CC_Score_{i,t} = \gamma_3 DT_{i,t} * RET_{i,t} + \gamma_{13} DT_{i,t} * Ret_{i,t} \\ * MC_{i,t-1} + \gamma_{14} DT_{i,t} * Ret_{i,t} \\ * Lev_{i,t-1} + \gamma_{15} DT_{i,t} * Ret_{i,t} \\ * MtB_{i,t-1}$$

Institutional Ownership, $InsOwn$ (Institutional Investor Ownership Rate): The percentage of shareholder ownership of companies such as banks, insurance companies, and investment firms.

Ownership Focus, $CentOwn$: Set the percentage of the three major shareholders as ownership focus.

Managing Ownership, $ManOwn$: The percentage of stock ownership held by the company's management.

Board Independence, $BrdIndep$: The sum of the percentage of non-executive board members to the total board members.

Board dual responsibility, $BrdDobl$: The virtual variable is equal to 1 if the CEO is also the chairman or vice-chairman of the board and otherwise 0.

The weakness of the internal control system

To calculate the measurement of internal control weakness, the following regression model has been used. "It should be noted that the results of this model as the outputs of internal control weakness with independent variables of regression models. "The relevant will be tested."

$$DISWEAK = \beta_0 + \beta_1 MKTVAL_{it} + \beta_2 FT_{it} + \\ \beta_3 SALESGRWTH_{it} + \beta_4 MTB_{it} + \beta_5 LOSS_{it} + \\ \beta_6 ZSCORE_{it} + \beta_7 INV_{it} + \beta_8 LEVERAGE_{it} + \varepsilon_{it} \quad (12)$$

The terms of the regression model are described in detail below:

$DISWEAK$: Significant weaknesses in internal controls are derived from the report of independent auditors. Due to the fact that in the audit report, only

the weaknesses with the importance of the company's internal controls are presented as a condition and all the weaknesses that the auditor has already addressed in the management letter are avoided, in this study, all clauses related to the weaknesses of internal controls were considered as important weaknesses of internal controls. A number of important weaknesses in internal control in the audit report of companies listed on the Tehran Stock Exchange were extracted during the research period. Therefore, in this study, significant weaknesses are the weaknesses that the auditor points out in his report and are usually remedied during the fiscal year and in some cases are not remedied. For example, weaknesses in accounts receivable, inventory, assets, taxes, or, for example, items related to board decisions, and these weaknesses exist at the level of the company's accounts and at the level of the company itself.

$MKTVAL$: Logarithm of stock price multiplied by the number of available stocks

FT : The index variable is one, if the company has a non-zero exchange rate in that year, otherwise it is zero. Using the accompanying notes of the financial statements, the profit and loss due to foreign exchange were identified and, if any, given the number one and otherwise zero. Companies that have foreign sales and have diversified operations in other countries are expected to need stronger internal control and are usually expected to have more weaknesses in these companies due to their more complex operations. Are their internal controls.

$SALESGRWTH$: Income growth obtained from the revenue figure in the base year minus the previous year divided by the base year.

MTB : is obtained from the following relation ratio.

$$MTB = \frac{\text{Market price per share}}{\text{Book value per share}}$$

$LOSS$: Index variable equal to 1 if the company has a loss report, otherwise zero. According to the profit and loss statement of the companies, the profit and loss of the company were determined.

Z score (Altman Z): Altman studies are one of the most valuable studies in the field of bankruptcy and financial crisis. In 1968, Altman used the multi-audit analysis method to select financial ratios. In this way, he selected five ratios out of 22 financial ratios that he considered to be the best financial ratios to predict

bankruptcy, which he considered to be the best bankruptcy forecaster. The five combined ratios are liquidity, profitability, leverage ratios, debt repayment ability, and activity ratios. Altman combined these five ratios to create the function that performed best among the other financial ratios. In this study to measure the likelihood of fraudulent financial reporting, the modified Altman model followed by Razali and Arshad (2014) and the Altman Iranianized model by Roodpashti et al. (2009) were used for emerging markets according to the following model.

$$Z = 1.2x_1 + 1.4x_2 + 3.3x_3 + 0.6x_4 + 0.99x_5$$

X_1 = Total Assets / Working Capital

X_2 = Total accumulated assets / profits

X_3 = Total assets / income before interest and taxes

X_4 = Debt Office Value / Equity Market Value

X_5 = total assets / total sales

In this model:

if: $Z < 1.18$ *Financially distressed company*

if: $1.81 < Z < 2.675$ *distressed and poor financially*

if: $Z > 2.675$ *financially*

In this study, the value of the Z-Score model, in terms of predicting the likelihood of financial distress and determining the bankruptcy status of companies in the statistical population of the study were divided into two categories according to the following relationship: The first category, healthy companies, i.e. companies with a Z-Score value of more than 2.99, is assumed to be less likely to be financially distressed. The second category of financially distressed companies in the financial distress range of bankruptcy, i.e. companies that generally have a Z-score less than or equal to 2.99, is assumed to have financial distress.

The inventory ratio is calculated as follows:

$$INV = \frac{\text{Inventory}}{\text{Total assets}}$$

The financial leverage ratio is calculated as follows:

$$LEVERAGE = \frac{\text{Long-term debt} + \text{current debt}}{\text{Total assets}}$$

Research dependent variable

marginal value cash

The dependent variable in this model is surplus stock returns ($R - ER_{it}$) in which R_{it} is the stock return of company i in fiscal year t and ER_{it} is the expected return on the stock of company i in fiscal year t . As can be seen, all variables except financial leverage were divided over the capital market value in the previous year (M_{it-1}). This standardization prevents the results from being influenced by large corporations in the sample.

R_{it} : The stock return of the company, which is calculated according to the conditions of our country through model (14).

$$R_{i,t} = \frac{(p_{i,t} - p_{i,t-1}) + \text{cash profit} + \text{stock bonus} + \text{right priority}}{P_{i,t-1}}$$

In formula (2), $R_{i,t}$ is the stock return of company i in year t , and $p_{i,t}$ is the year-end price and $p_{i,t-1}$ is the year-end price.

ER_{it} : is the expected return of shareholders, which is calculated using the capital asset pricing model as follows:

$$ER_{it} = R_F + \beta(R_M - R_F)$$

In this R_F model, the risk-free rate of return is determined by the central bank based on the annual bank interest rate. β is the systematic risk factor and R_M is the expected rate of return from the market portfolio. Market price index returns are used to calculate R_M . How to calculate the systematic risk is as follows:

$$\beta_{it} = \frac{\sigma(r_{it} - R_M)}{\sigma * \sigma(R_M)} \quad (16)$$

ΔC_{it} : One-year changes in cash balance (the difference between cash balance of the first period and the end of the period)

ΔE_{it} : One-year changes in earnings before interest and taxes.

ΔNA_{it} : One-year changes in fixed asset balances are evident.

ΔD_{it} : One-year changes in paid dividends.

ΔC_{it-1} : One-year changes made to the previous year's cash balance

LEV_{it-1} : The company's financial leverage in the previous year.

Descriptive Statistics

Table (1) shows the descriptive statistics of research variables including mean, maximum, minimum, standard deviation. As shown, over-investment averages 43%. This number indicates that 43% of the sample observations had a positive residual difference in the regression of sales growth rate to the asset growth rate. Net cash flow also shows that 43% of our observations had higher net cash flow than the middle of their industry. The debt-to-equity ratio also shows that about 50% of companies in the years under review have a higher debt-to-equity ratio than the middle of the industry. Also, about 7% of the total observations in the period under review did not have profit sharing

and the capital expenditure ratio was 24% of the observations higher than the middle of the industry. According to the method of measurement, managers' overconfidence that there are at least three of the five components under study, it can be seen that 20% of managers have total uncertainty in the total observations. The CEO's financial expertise averages 18%. This number indicates that 5% of the sample observations are slightly higher than the industry average. Data envelopment analysis was used to measure management ability. The results show that the average management ability is 0.0004 and the highest is equal to 35% and the lowest is equal to -0.40 and its dispersion rate is 9%. The results show that the average return on the stock is negative 5% and its dispersion rate is 1.228%.

Table 1. Descriptive statistics of variables

Description	Mean	Middle	Maximum	Minimum	Standard deviation
Too much investment	0.437	0.000	1.000	0.000	0.496
Net cash flow	0.434	0.000	1.000	0.000	0.495
Debt to equity ratio	0.503	1.000	1.000	0.000	0.500
Profit sharing policy	072	0.000	1.000	0.000	0.372
Proportion of capital expenditures	242	0.000	1.000	0.000	0.428
Excessive trust of managers	209	0.000	1.000	0.000	0.407
Financial expertise of the CEO	051	0.000	1.000	0.000	0.510
Management ability	0.0004	-0.001	0.359	-0.404	0.093
Excess stock returns	-0.056	-0.181	148.10	-489.18	1.228
Conditional conservatism	0.0002	-0.001	1.675	-6.363	0.254
Unconditional conservatism	0.003	0.004	2.439	-1.517	0.173
Institutional ownership	0.592	0.704	1.000	0.000	0.317
Concentration of ownership	0.701	0.756	1.000	0.000	0.216
property management	0.627	0.690	0.999	0.000	0.259
Independence of the board	0.689	0.800	1.000	0.000	0.181
Altman Index	0.403	0.000	1.000	0.000	0.491
Weakness of internal control system	1.389	1.000	12.000	0.000	1.842
Number of observations	1720	1720	1720	1720	1720

Testing research hypotheses

Testing the first hypothesis

Analysis of variance

To investigate the heterogeneity of variance in this study, the likelihood ratio (LR) test was used. According to the results of this test, which are given in Table (2), in the first model of the research, there is no

problem of variance inequality (because the calculated probability or p-value is greater than 0.05).

Table (2). Analysis of variance

Hypothesis Zero (H_0)	Chi-square statistic	p-value	Test result
The variances are the same	1.413	0.1260	Existence of model homogeneity of variance

Determine composite data

Table (3) shows the results of the Chow test (F-statistic) related to the first hypothesis about the research model. The results show that the pooling data method should be used.

Table (3). F (Lemer) test results for choosing the combined method (Pooling) or combined (Panel)

Hypothesis Zero (H_0)	statistic	Degree of freedom	p-value	Test result
Selecting Pooling Data	0.8229	171	0.9489	Using Pooling Data

Testing the model and the first research hypothesis

Test regression model assumptions

The Durbin-Watson statistic, after estimating the coefficients, shows a value of 2.08, which means that there is no continuous correlation in the disturbance component. Consequently, the problem of serial autocorrelation is not observed in this hypothesis. Given the value of the significant level obtained for the F statistic of 0.0000, it can be claimed that the fitted regression model is significant. According to the coefficients of determination of fitted models, it can be claimed that about 11% of the changes in the dependent variable of the model are explained by independent variables. According to the last column, the value of VIF for all independent variables is less than 5 ($VIF < 5$), there is no collinearity between the independent variables, so the fitted model is valid.

The result of the research hypothesis test

There is a significant relationship between management ability and cash marginal value.

H_0 : There is no significant relationship between management ability and the marginal value of cash.

H_1 : There is a significant relationship between management ability and cash marginal value.

To test the research hypothesis, the estimated coefficient of the variable Talent* Δ c (management

ability * cash changes in the current year), which is regressed on the return on surplus stock returns. In the table, this indicates a significant relationship with the marginal value of cash in listed companies at the level of error 0.05. Because the calculated p-value for the coefficient of this independent research variable was less than 0.05. Therefore, at the 5% error level, it can be said that there is a significant relationship between management ability and cash marginal value. As a result, the research hypothesis is confirmed at an error level of 5%. The results in the table showed a positive relationship between management ability and the marginal value of cash in the surveyed companies. In other words, increasing the management capability in the sample companies leads to increasing the marginal value of cash. Regarding the results of other control variables, it can be seen that changes in earnings and cash in the current period and changes in tangible fixed assets had an error level of less than 5%. This indicates a significant relationship with the dependent variable. Also, the power of the CEO and institutional ownership in Tehran Stock Exchange companies, along with conditional and unconditional conservatism, have a significant relationship with the dependent variable.

Testing the second hypothesis

Analysis of variance

According to the test results shown in Table (5), in the second model of the research, there is a problem of variance inequality (because the calculated probability or p-value is less than 0.05). To solve this problem, the estimated generalized least squares (EGLS) method was used.

Determining mixed data

The table below shows the results of the Chow test (F-statistic) related to the second hypothesis about the research model. The results show that the pooling data method should be used.

Table 4. Summary of statistical results of the model test and the first research hypothesis

Variable	Coefficient	Standard deviation	T-test	Significance level	VIF
y-intercept	0.271	0.113	-2.389	0.01770	-
Talent	0.599	0.211	832	0.0047	1.051
Talent * Δ c	0.627	0.121	211	0.000	1.069
Δ C	-1.109	0.344	221	0.0013	1.334/1
Δ E	210/3	0.181	792	0.0000	1.694/1

Variable	Coefficient	Standard deviation	T-test	Significance level	VIF
ΔNA	0.418	0.076	475	0.0000	1.115
ΔD	0.592	0.299	977	0.0482	04.04
ICi, t-1	0.258	0.104	473	0.0135	1.583
LEV	0.136	0.091	1.485	1376/0	1.144
Ceo power	0.117	0.059	969	0.0490	04.04
Insown	-0.216	0.06	3.272	0.0011	1.609
Manown	0.155	0.099	1.556	0.1197	2.59
Centown	-0.092	0.122	-0.757	0.4487	2.129
brdindep	0.165	0.099	1.659	0.0972	1.068
Cc score	-0.446	0.05	4/654	0.0000	1.121
UCscore	0.55	0.126	713/4	0.0000	1.607
Disweak	0.01	0.010	1.460	0.144	1.104
Statistic of F. Fisher	15.215		Durbin-Watson Test		2.085
The significance level of F. Fisher	0.0000		The adjusted coefficient of determination		0.1168

Table No. (5). Analysis of variance

Hypothesis Zero (H ₀)	Chi-square statistic	p-value	Test result
The variances are the same	1.421	0.1228	Existence of model homogeneity of variance

Table (6). F (Lemer) test results for choosing the combined (Pooling) or mixed (Panel) method

Hypothesis Zero (H ₀)	statistic	Degree of freedom	p-value	Test result
Selecting Pooling Data	0.8221	171	0.9499	Using Pooling Data

Testing the second model and hypothesis of the research

Testing regression model assumptions

After estimating the coefficients, the Durbin-Watson statistic shows a value of 2.205, which means that there is no sequential correlation in the disturbance component. Consequently, the problem of serial autocorrelation is not observed in this hypothesis. Given the value of the significant level obtained for the F statistic of 0.0000, it can be claimed that the fitted regression model is significant. According to the coefficients of determination of fitted models, it can be claimed that about 11% of the changes in the dependent variable of the model are explained by independent variables. Given the last column, where the VIF value for all independent variables is less than 5 (VIF <5), there is no alignment between the independent variables; therefore, the fitted model is valid.

The result of the research hypothesis test

There is a significant relationship between management overconfidence and cash marginal value.

H₀: There is no significant relationship between management overconfidence and cash marginal value.

H₁: There is a significant relationship between management overconfidence and cash marginal value.

To test the research hypothesis, the estimation coefficient of the variable Overconfident CEO * Δc (Excessive management confidence * cash changes in the current year), which is regressed on the excess return of stock stocks, has been used. In the table, this indicates a significant relationship with the marginal value of cash in listed companies at the error level of 0.05, because the p-value calculated for the coefficient of this independent variable of the research was less than 0.05. Therefore, at the 5% error level, it can be stated that there is a significant relationship between management overconfidence and the marginal value of cash. As a result, the research hypothesis is confirmed at an error level of 5%. The results in the table showed a negative relationship between management overconfidence and cash marginal value in the surveyed companies. In other words, companies whose managers have too much trust have less cash marginal value. Regarding the results of other control variables, it can be seen that changes in earnings and cash in the current period and changes in tangible fixed assets had an error level of less than 5%. This indicates a significant relationship with the dependent variable.

Also, CEO power and managerial ownership in Tehran Stock Exchange companies along with conditional and unconditional conservatism have a significant relationship with the dependent variable.

Testing the third hypothesis

Analysis of variance

The results of this test, which are given in Table (8), in the third model of the study there is no problem of

variance heterogeneity (because the calculated probability or p-value is greater than 0.05).

Determine composite data

The following table shows the results of the Chow test (F-statistic) related to the first hypothesis about the research model. The results show that the pooling data method should be used.

Table (7). Summary of statistical results of the model test and the second hypothesis of the research

Variable	Coefficient	Standard deviation	T-test	Significance level	VIF
y-intercept	725.0-	241.0	008/3-	0027.0	-
OverconfidentCEO	624.0	216.0	883/2	0040.0	221/1
*ΔcOverconfidentCEO	623.0-	120.0	179/5-	0000.0	538/1
ΔC	077/1-	418.0	578/2-	010.0	746/1
ΔE	373/2	189.0	521/12	0000.0	701/1
ΔNA	459.0-	079.0	811/5-	0000.0	145/1
ΔD	648.0	307.0	108/2	0351.0	046/1
ICi, t-1	306.0	113.0	706/2	0069.0	605/1
LEV	041.0	154.0	269.0	7878.0	147/1
Ceo power	179.0	072.0	479/2	0133.0	047/1
Insown	076.0	236.0	322.0	7469.0	607/1
Manown	539.0	201.0	679/2	0074.0	060/2
Centown	167.0	264.0	634.0	5260.0	127/2
brdindp	15/5.0	151.0	024/1	3059.0	068/1
Cc score	491.0-	103.0	850/4-	0000.0	121/1
UCcsore	670.0	141.0	739/4	0000.0	685/1
Disweak	031.0-	018.0	686/1-	0919.0	107/1
Statistic of F. Fisher	167.2		Durbin-Watson Test		2.085
Significance level of F. Fisher	0.0000		Adjusted coefficient of determination		0.1168

Table (8). Analysis of variance

Hypothesis Zero (H ₀)	Chi-square statistic	p-value	Test result
The variances are the same	1.33	0.1674	Existence of model homogeneity of variance

Table (9). F (Lemer) test results for choosing the combined method (Pooling) or combined (Panel)

Hypothesis Zero (H ₀)	statistic	Degree of freedom	p-value	Test result
Selecting Pooling Data	0.9225	171	0.8441	Using Pooling Data

Testing the model and the first research hypothesis

Test regression model assumptions

The Durbin-Watson statistic, after estimating the coefficients, shows a value of 2.086, which means that there is no continuous correlation in the disturbance component. Consequently, the problem of serial autocorrelation is not observed in this hypothesis. Given the value of the significant level obtained for

the F statistic of 0.0000, it can be claimed that the fitted regression model is significant. According to the coefficients of determination of fitted models, it can be claimed that about 12% of the changes in the dependent variable of the model are explained by independent variables. According to the last column, the value of VIF for all independent variables is less than 5 (VIF <5), there is no collinearity between the independent variables, thus the fitted model is valid.

The result of the research hypothesis test

There is a significant relationship between the financial expertise of the CEO and the marginal value of cash.

H₀: There is no significant relationship between CEO financial expertise and cash marginal value.

H₁: There is a significant relationship between the financial expertise of the CEO and the marginal value of cash.

To test the research hypothesis, the estimated coefficient of the variable FIN* Δ c (CEO financial expertise * cash changes in the current year), which is regressed on the return on surplus stock returns. In the table, this indicates a significant relationship with the marginal value of cash in listed companies at the level of error 0.05. Because the calculated p-value for the coefficient of this independent research variable was less than 0.05. Therefore, at the 5% error level, it can

not be said that there is a significant relationship between CEO financial expertise and cash marginal value. As a result, the research hypothesis is confirmed at an error level of 5%. The results in the table showed a positive relationship between management ability and the marginal value of cash in the surveyed companies. In other words, increasing the management capability in the sample companies leads to increasing the marginal value of cash. Regarding the results of other control variables, it can be seen that changes in earnings and cash in the current period and changes in tangible fixed assets had an error level of less than 5%. This indicates a significant relationship with the dependent variable. Also, the power of the CEO and institutional ownership in Tehran Stock Exchange companies, along with conditional and unconditional conservatism, have a significant relationship with the dependent variable.

Table 10. Summary of statistical results of the model test and the third research hypothesis

Variable	Coefficient	Standard deviation	T test	Significance level	VIF
y-intercept	277.0-	113.0	454/2-	0142.0	-
FIN	029.0	043.0	692.0	4888.0	559/1
FIN * Δ c	140/1	878.0	298/1	1943.0	149/1
Δ C	201/1-	349.0	435/3-	0006.0	413/1
Δ E	301/2	180.0	768/12	0000.0	702/1
Δ NA	431.0-	075.0	715/5-	0000.0	113/1
Δ D	582.0	299.0	944/1	0519.0	044/1
ICI, t-1	251.0	103.0	424/2	0154.0	578/1
LEV	137.0	091.0	496/1	1346.0	144/1
Ceo power	087.0	069.0	252/1	2107.0	518/1
Insown	213.0-	066.0	232/3-	0013.0	618/1
Manown	155.0	099.0	557/1	1196.0	059/2
Centown	084.0-	122.0	694.0-	4876.0	127/2
brdindep	161.0	100.0	609/1	1078.0	073/1
Cc score	441.0-	095.0	612/4-	0000.0	120/1
UCcsore	596.0	126.0	704/4	0000.0	606/1
Disweak	015.0-	010.0	545/1	1224.0	112/1
Statistic of F. Fisher	15.400		Durbin-Watson Test		2.085
The significance level of F. Fisher	0.0000		The adjusted coefficient of determination		0.1168

Conclusion and review of matching findings

In this section, based on the theoretical foundations of previous research and studies, as well as the models and variables used in this research, the results of testing the hypotheses are interpreted.

In testing the first hypothesis, it was found that the ability to manage had a significant relationship with the marginal value of cash. The past literature has stated about the relationship between these two

variables, that the survival of any company depends on the management and effective use of that company's cash. According to agency theory, keeping excess cash in the company provides the necessary ground for opportunistic behavior and is motivated by personal gain by managers, and thus investors place less value on cash stored in the company (Lou et al. , 2016). Consistent with this view, some previous research (Jensen, 1986; Pinkwich and Williamson, 2004; Gunn & Park, 2017) found that the value of cash held in a company depends on how much access and how it is

used by managers. In this regard, Jensen (1986) states that control over the company's cash is in the hands of managers. Therefore, the personal characteristics of managers have a significant impact on how to use it, one of these characteristics is the ability to manage (Gun and Park, 2017). According to the available empirical evidence (including Bunker et al., 2013; Chang et al., 2010; Jian and Li, 2011), capable managers have better management of company operations and improve company performance. Similarly, Demarjian et al. (2012) showed that capable managers have a higher return on company resources than other managers, which in turn increases the value of the company. Thus, if capable managers gain more returns from the company's resources than other managers, then marginal value A unit of cash held in the company is valued by investors more than one unit in the market (Demarjian et al., 2012). Accordingly, it is expected that the marginal value of the company's retained cash is affected by the capabilities and capabilities of managers. If managed by capable managers, investors' concerns about managers' misuse of cash resources held in the company are reduced. Ultimately, this leads to more valuation of the company's cash in the market (Gun and Park, 2017). Goodman et al. (2013) state that capable managers are able to better manage company's business operations and thus improve the company's performance. In their theoretical study, Harris and Holstorm (1982) state that companies observe and evaluate a manager's ability and performance over time, and that the performance of a more experienced and capable manager is better understood. Recently, Demarjian et al. (2012) showed that capable managers are expected to earn more final revenue from the same sources, which leads to improved company value. As a result, investors may not consider the final value of a dollar of cash to be a dollar for a variety of reasons. For example, because of the ability of managers, they are able to generate higher rates of return (Demarjian et al., 2012). For this reason, it was expected that the final value of the cash would be influenced by the management talents, and if the cash was managed by capable managers, the final value would be more than one dollar. The results obtained are consistent with the results of Gan and Park (2017), Gan (2015), and Rousta and Bozorg Asl (2019).

In the second hypothesis test, it was found that management overconfidence had a significant

relationship with cash marginal value. In the financial and accounting literature, strong evidence has been presented regarding the effect of management's overconfidence on investments, profit sharing, internal controls, conservatism, etc. (Ramsheh and Mollanazeri, 2014; Bolo and Hassani Alqaz, 2015; Chen et al., 2014). One of the most important implications of these studies is that overconfident executives, given their beliefs about the cost-effectiveness of external financing, behave in such a way that the company under their management faces financial constraints. However, the interpretation of how overconfident managers deal with financial constraints is somewhat ambiguous. The reason for this ambiguity is mainly due to the differences between the views of overconfident managers and investors regarding the value of the company. When managers and investors have the same beliefs about current and future financing costs, the optimal level of cash is determined based on the balance of costs, and the benefit of holding cash. If managers and investors have different beliefs, the optimal level of cash will be determined by managers based on their views on the cost of out-of-company financing. On the one hand, overconfident managers may save more cash to finance upcoming investment opportunities, thereby avoiding out-of-company future financing, which they find costly (Deshmak et al., 2015).

Based on overconfidence, people who tend to be more confident about their performance in more difficult tasks are more likely to be exposed to risky and challenging growth opportunities. Interpreting this for companies run by overconfident managers means that keeping more cash helps them seize growth opportunities. This is consistent with the prudent incentive to maintain cash to invest in projects with positive present value during periods when out-of-company financing is costly (Octas et al., 2013). In addition, the results of studies (Mashayekh and Behzadpour, 2014; Dashmak et al., 2013) show that overconfident managers distribute less profit, and this can also be due to their motivation to keep more cash. Overconfident executives, on the other hand, believe that their company's stock is currently undervalued by the market. Also, these managers think that this pricing will be less than realistic over time, when investors are aware of the profitability of the company's investments. As a result, overconfident managers expect the cost of external financing to decrease in the

future and therefore delay external financing. Until this expected reduction occurs, overconfident executives will finance the company's investments by relying on internal funds, reducing the level of cash held. Therefore, from this perspective, overconfident managers are expected to hold less cash than other managers (Dashmak et al., 2015). According to agency theory, in the presence of agency issues due to information asymmetry between managers and owners, managers tend to keep the funds in their favor and at the expense of shareholders in the company instead of distributing the available funds among shareholders. Consistent with this theory, Myers and Rajan (1998) and Johnson et al. (2000) also showed that the company's cash resources are more abused by managers than non-cash resources. Although cash holdings can increase the value of a firm by reducing the problem of underinvestment (Appler et al., 1999), nevertheless, the free cash flow hypothesis of Jensen (1986) states that if there is a conflict of interest and for agency issues, one dollar of cash held in the company is valued at less than one dollar in the market (Kim et al., 2015). Dietmar and Smith (2007) also developed this view and provided empirical evidence on the impact of corporate governance on corporate cash value. They concluded that the value of cash held in companies with weak governance is significantly lower than the value of cash in firms with strong governance. Alimo (2014) also provided evidence of a positive relationship between cash market value and competition in the product market. Similarly, Masoulis et al. (2009) found in their research that in dual-ownership companies, the market value of the firm's retained cash decreases due to a conflict of interest between major shareholders and minority shareholders. The results are consistent with the results of Aktas et al. (2019) and Ying and Fan (2013).

In testing the third hypothesis, it was found that the financial expertise of the CEO was not significantly related to the marginal value of cash. Regarding the lack of relationship between the above variables, it can be said that Alimo et al. (2014) The value of a company is affected by the appointment of managers with financial expertise. The financial skills of the CEO are one of the effective components of the effectiveness of the board of directors and the effective use of the company's resources. According to Dietmar and Smith's (2007) research, there is a significant positive relationship between CEO financial expertise

and cash marginal value. This will be due to the expertise of these people in identifying the procedures used in the preparation of financial statements and therefore can be an effective factor in increasing stock returns against market returns. Lewis et al. (2012) stated that the presence of people with financial expertise in senior managers creates a positive mentality for investors in the company. It will also lead to non-distortion of financial statements and help companies improve performance. The result obtained in this study showed the lack of effective use of the financial expertise of the CEO in influencing the marginal value of cash, which can be due to the lack of use of financial expertise of the CEO in effective use for the capital market.

Suggestions based on research results

Given that improving management ability leads to an increase in cash marginal value, it is suggested that investors seek to find companies that have higher capabilities. It is also suggested that using the criteria considered by the model of Demirjian et al. Used in this study, the managers of listed companies should be explored and analyzed using this criterion. Investors and standards developers are also encouraged to consider the characteristics of managers and their role in corporate decision-making in evaluating and making their own decisions. Given that accounting provides the most important and important information for the management of companies, it is recommended that managers be selected for companies that have the accounting expertise necessary to use the information provided. Companies listed on the Tehran Stock Exchange are advised to pay sufficient attention to their ability in selecting their managers and to determine the duration of their tenure to pay special attention to the ability and accounting knowledge of managers.

Suggestions for future research

According to the results of the research and the questions that were asked to the researcher, to complete this research and conduct further research in the fields related to this research, the following suggestions are provided:

- 1) Carrying out the present research separately for the industries listed on the Tehran Stock Exchange to control the impact of the industry.

- 2) Examining the relationship between corporate governance mechanisms and cash marginal value
- 3) Investigating the relationship between the components of the audit committee and the marginal value of cash
- 4) In this research, the companies listed on the Tehran Stock Exchange were examined, therefore, it is suggested that this issue be examined in OTC companies in future researches.
- 5) Investigating the relationship between information asymmetry and marginal value of cash.
- 6) Carrying out similar research on banks and credit institutions due to the importance of the cost of money for banks and credit institutions.

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