The relationship between cash holdings, investment opportunities and financial constraint with audit fees

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Abstract

Purpose – The purpose of this paper is to investigate the relationship between cash holdings, investment opportunities and financial constraint with audit fees in Iran.

Design/methodology/approach – In order to collect data, all manufacturing companies listed on the Tehran Stock Exchange are used to test the hypotheses during 2008–2015. Panel data and combined data regression model were used for data analysis. Tests were performed using R statistical software.

Findings – The results obtained from the statistical analysis of research hypotheses indicated that there is a significant relationship between cash holdings and audit fees. Furthermore, the relationship between cash holdings, financial constraints and audit fees was significant. In addition, there was no significant relationship between cash holdings, investment opportunities and audit fees.

Originality/value – The current study employed a unique topic in terms of a developing country, and the results may give strength to other developing nations.

Keywords Audit fees, Financial constraint, Investment opportunities

Paper type Research paper

1. Introduction

Pricing of audit services is one of the interesting topics for many audit scholars. Although research method used in these studies is slightly different, most of them pursue a general objective, that is, the realization of contributing factors on audit fees. Being aware of these factors is advantageous for both the employer and the auditor. Audit fees are exorbitant for most of employers. Although it is probable that this amount of fees be easily payable by large companies with high sales volume or liquidity or for some public companies, such cost amounts could be significant and hefty for most of small commercial companies or those with lower financial status. Therefore, from employer point of view, by realizing the contributing factors on the amount of audit fees, either by negotiating or bargaining or by controlling these factors within the organization, such expenses could be reduced and tolerated. By being aware of such factors, auditors are able to price their services more appropriately (Gist, 1992). The significance of this issue is growing increasingly, especially in recent years and after the establishment of Iranian Official Auditors Community. After the formation of this community, labor market monopoly has broken up and a severe competition has taken place among the auditors, an event which is occurred long time ago in developed countries. An auditor is called competent when he/she is able to make the best estimation of his/her fees concerning the characteristics of the unit under analysis.

This would cause the auditor to keep the project quality and perform that at the minimum cost (Wysochi, 2010). Cash is one of the most significant constituting items of current assets in every company, which plays an important role in the operating processes of companies and for-profit units. Hence, one of the main duties of financial managers is to forecast the proper input and output cash flows. In other words, cash management is one of the major functions of financial management, in that, on the one hand, the lack of cash could bring about daily estimation problems and, on the other hand, keeping a high level of cash could cause opportunity cost for the company. However, due to flexibility in responding appropriately to unpredicted situations and daily requirements, most other companies are reluctant to maintain a high level of cash (Garcia-Teruel *et al.*, 2009).

Related auditing studies on free cash flows reveal that in companies with higher cash flows, audit fees will increase as much as the agency costs do (Griffin *et al.*, 2010). It is noteworthy that although free cash flow and cash holdings have some common features, there are considerable differences between the two. Free cash flow is an annual scale and is derived from the adjusted annual profit. On the other hand, cash holdings are indicative of cumulative cash balances in the balance sheet and could be much more than the free cash flow. Companies with financial constraints have access to the capital markets with less probability, so cash holdings could be beneficial for their current and future investment needs (Chan *et al.*, 2013). In the case of financial problems, cash benefit may affect the auditors' pricing on cash holding. Tsui *et al.* (2001) suggested that opportunistic behavior in companies with high growth rate could particularly increase the audit fees, when managerial activities are not observable. Moreover, companies with high cash holdings and high growth rate tend for lower levels of liability, and by the lack of control, this could potentially lead to extra work for auditors. Therefore, by considering the abovementioned factors, it seems that audit fees is important in auditor's point of view and their reaction to such a change could cause an alteration in the audit fees. Thus, in the present study, we are concerned about the effect of cash holding, investment opportunities and financial constraints on the audit fees.

2. Theoretical issues
Cash holdings strategy is a determining factor for the status and future of companies. Establishing a balance between the available cash and cash needs is the most important factor for economic health, because both companies with low level and with high level of cash are suffering from numerous problems (Bolo *et al.*, 2012). The necessity of providing cash flow statement in accounting standards shows the profound significance of cash in economic decision making. The significance of cash holdings is that companies with no cash are not able to survive. The aim of cash management is to limit the level of cash in companies and maximize the shareholders' wealth. Cash should be kept at a level in order to establish balance between cash holdings fees and insufficient cash cost. Moreover, following the increase of competition in this field, audit firms recognized the necessity of proposing high-quality and low-rate services to the market. To compete at a level other than quality and to differentiate the services, audit firms must optimize their fees and seek for the best options. Doing that, audit firms could maximize their income and at the same time, take part in competitive conditions. To this end, being aware of the contributing factors on audit fees could be extremely useful (Choi *et al.*, 2008).

2.1 Asymmetric information theory
According to this theory, one of the parties to a transaction is more privileged than the other party. Such a situation is called information asymmetry in economy. According to this theory, the effects of difference between public and private information are observable in

financial markets. In general, we could say that information asymmetry has a significant effect on the amount of external financial supply (Ahmadpour and Resaeiyan, 2006). The quality of accounting profit has a negative and significant relationship with the difference in bid price for buying and selling of shares. The difference in bid price for buying and selling of shares is defined as a criterion for information asymmetry in most local and international studies, so the quality of profit could decrease the information asymmetry (Izadinia and Resaeiyan, 2010).

2.2 Agency theory

Since there is a conflict of interest between manager and owner, the agency theory assesses the structure of contracts to coordinate the interests of managers and owners. An agency problem is one of the most important determining factors of cash holdings in companies. The results of several studies indicated that in countries where the right of shareholders is not protected properly, companies hold more cash than countries which preserve the right of their shareholders (Dittmar *et al.*, 2003). It is expected that more cash asset being held in companies with valuable investment opportunities and high external financial supply, because the cost of lack of cash is higher and, in this situation, the company is obliged to abandon its valuable projects (Opler *et al.*, 1999).

2.3 Balance theory

According to this theory, companies determine their proper amount of cash by establishing a balance between interests and cash holdings fees (Jani *et al.*, 2004). Cash holdings decrease the probability of the emergence of financial crisis and are considered as a secure reservoir for unexpected losses. Cash holdings could help the company pursue its desirable investment policies in case of financial limitation and decrease the costs of collecting financial resources or the costs of making the assets payable (Opler *et al.*, 1999).

2.4 Theory of hierarchy in finance

Based on this theory, companies prefer financing from their internal resources to external resources that are sensitive to information financing. Therefore, in financing context, companies provide investment resources initially from the source of accumulated profit, then with low-risk debt and high-risk ones and finally with share issuance. Hence, since management prefers the internal resources to the external ones, cash holdings are more privileged to enable the company to initially finance internally and to not resort to the external resources.

2.5 Theory of free cash flow

According to this theory, managers tend to cash accumulation to increase their under control resources and to be able to benefit from judgment and realization power in corporate investment decisions. Given that, the company is working with cash to prevent from presenting detailed information to the capital market, though managers may make some investments, which have a negative effect on the wealth of stakeholders.

3. Related literature and hypotheses development

Numerous studies have been conducted on cash holdings and its contributing factors, so far and most of them were in European countries with relatively same setting. This is while in countries with emerging economies, like Iran, where its capital market is different from that of the developed countries, few studies are carried out on this topic. The present study,

however, is among few studies which evaluate cash holdings from auditing point of view and test the effect of cash holdings on audit fees in companies listed in Tehran Stock Exchange and under various financial conditions.

Pinkowitz and Williamson (2002) performed a study on the market value of corporate cash holding. Their results indicated a great difference between companies in this area. They found that companies with low growth options, fewer investment opportunities and higher risk of financial crisis have lower final cash balance value than that of the other companies. Ozkan and Ozkan (2004) evaluated the factors affecting the cash inventory of English companies during 1984–1999. Using cross-sectional regression model and final model of dynamic cash, they emphasized on the significance of management ownership among other characteristics of corporate governance, including the board structure. Using some variables, like the amount of management ownership, they also revealed that the management ownership in companies has specifically a significant relationship with corporate cash balance. In general, growth opportunities, cash flows and cash assets, financial leverage and bank debts are considered as the main factors in determining the amount of cash in companies. This paper shows that cash flows and growth opportunities have positive effects on cash. There are also ample evidence which reveal that current assets, financial leverage and bank debts have a negative effect on the level of cash. Within their study, entitled "precautionary cash holdings," Han and Qiu (2006/2007) declared that companies with financial constraints raise their cash holdings in response to the increase of cash flow fluctuations. Since financial constraints create a kind of competition and difference between current and future investments, the presence of risk in future cash flows stimulates the companies to plan for precautionary savings. Ferguson and Taylor (2007) in their study on the relationship between agency costs derived from free cash flows and independent audit fees in Australian companies found no such relationship between the two. They expressed that No. 202 Australian Audit Standard has been the reason for such result, which states that "the framework for identified financial reporting" should be extended, so there is no need that auditors consider the risk of free cash flows in legal auditing. Griffin *et al.* (2010) concluded in their study that agency problems related to free cash flows in companies with high level of cash flows and future growth opportunities could bring about the growth of audit fees. They also declared that with the increase of debt level used by these companies, the amount of audit fees will enhance, as well. Within their study, entitled "financial constraints, investment, and cash holdings value," Denis and Sibilkov (2010) found that more cash holdings are related to higher levels of investment in companies. They also noticed that when companies are entangled with higher amount of financial constraints, cash holdings gain more importance in that such resources could mitigate their external financing. Tong (2011) found that the value of cash holdings by single-section companies is more that of the diversified companies. In addition to these findings, he showed that such a negative effect exists in companies with financial constraints and other companies, as well. Further, his results suggested that the diversification strategy has a negative effect on the level of cash holdings in companies with weak corporate governance mechanisms. Alavi *et al.* (2012) evaluated the relationship between free cash flows and audit fees regarding the growth opportunities, the amount of equity and financial leverage. They discovered that audit fees in companies with high free cash flows and growth opportunities are higher than companies with low cash flows but high growth opportunities. They also found that in companies with high free cash flows and growth opportunities, the average audit fees are increased by increasing the debt rate. Morellec *et al.* (2014) found that competition in the market would affect the cash holdings and financial decisions in companies. Within their study, entitled "cash holdings and audit fees," Benjamin *et al.* (2015) concluded that there is a positive relationship between corporate cash and the amount of audit fees, to which auditors react to. They also indicated that cash holdings in companies with lower growth

opportunities could instigate the auditors to elevate the audit fees. Moreover, audit fees and cash holding are different in companies with/without financial constraints. Hsu *et al.* (2016) noted that efficient companies use more cash to lessen their financial constraints, to invest in future and to benefit from innovative opportunities. So, by more savings and less pay, such companies attempt to increase their cash holdings. Joong *et al.* (2017) assessed uncertainty and the value of cash holdings and observed that a company with more uncertainty puts more value on cash holdings and such effect is decreased by the intensification of financial constraints and agency costs. Kashanipour *et al.* (2009) conducted a study on the effect of financial constraints on the significance of cash flow. Using the criteria of firm size, age, dividend profits ratio and business group as the signs of financial constraints, they revealed that cash flows have no significant effect on the levels of cash holdings. Additionally, there is no significant difference between the sensitivity of cash flows–cash of companies with financial constraints and companies with any such financial limitations. Within a study, entitled "agency theory and independent audit fees (testing the free cash flow hypothesis)," Khodadadi and Hajizadeh (2011) indicated that there is a positive and significant relationship between agency costs incurred due to free cash flows and audit fees. Moreover, their findings indicated that there is a positive and significant relationship between debt level and audit fees in companies with a high level of free cash flows. There is also a negative relationship between future growth opportunities and audit fees. Ghaemi and Alavi (2012) found that there is a negative and significant relationship between information transparency and the amount of cash holdings. In other words, companies with higher information transparency hold less cash. Moradi and Majomard (2014) indicated that the sensitivity of cash flow to the level of cash holdings makes no difference in companies due to their encounter with positive and negative flows. They also found no difference between the sensitivity of cash flow to the level of cash holdings in companies with financial constraints and those without. Moreover, the sensitivity of cash flow to cash in companies with stronger external surveillance is not more than that of others. Within their study, entitled "the effect of free cash flow and the level of cash holdings on financial flexibility," Moradzandi and Tanani (2015) confirmed the existence of such effect and also revealed that free cash flow and the level of cash holdings in companies with financial flexibility have a positive and significant difference, compared with companies with no such flexibility.

3.1 Cash holdings and audit fees

One of the major contributing factors on audit fees alterations for compensating additional risk and auditor attempt is agency problems for cash holdings. Companies with a high level of cash holdings and growth prospect invest their growth ability internally, which cause the capital market to be less interested in investigating on such companies. Further, companies with a high level of cash holdings and growth prospect create the need for more attempts on auditors' side (Barclay and Smith, 1995). In companies with high growth and lower debt levels, auditors perform more activities to prevent from problems derived from the lack of investment and some other shortages related to debt surveillance. Where the agency issues extend in larger companies and auditors' duties and debt surveillance are clearly under the aegis of financial statement, auditing is more important. Companies with lower cash holdings have more audit fees.

Companies with high cash holdings have also higher audit fees, while such relationship could be due to manipulation in financial statements. Moreover, we guess that such behaviors are indicative of the lack of transparency in managers' investment in projects with current net positive value, which lead to more complication in the measurement of some positive growth projects. In fact, managers of companies with high cash may misspend the company resources in unjustifiable project and manipulate financial

statements to adjust the degradation of value (Chung *et al.*, 2008). Therefore, auditor works more assiduously and this could raise the audit fees. Concerning the abovementioned issues, the first hypothesis is as follows:

H1. There is a significant relationship between cash holdings and audit fees.

3.2 Investment opportunities, cash holdings and audit fees
More cash holdings along with the reduction of costs related to external finance could increase internal financial flexibility. Managers may pursue their personal interests by excessive cash holdings and by spending a considerable amount of cash in value-wasting projects (Lee and Lee, 2009). Excessive cash holdings prevent from poor financial performance, show no conflict of interest among managers and shareholders, and increase the cash reservoirs of firm performance. Audit fees must be higher for companies with high cash holdings and dismal financial performance, because it is hypothesized that more cash and depreciated financial performance could motivate the management to invest the cash illogically and cover such a behavior by manipulating the financial statements (Myers and Majluf, 1984). Hence, based on the above said factor, second research hypothesis is proposed as follows:

H2. There is a significant relationship between investment opportunities, cash holdings and audit fees.

3.3 Financial constraint, cash holdings and audit fees
Companies with severe financial constraints should maintain more cash and companies with less financial problems should preserve less. Lack of balance between financial limitation, cash holdings and the amount of investment could cause cash problems in the company and increase the current expenses either in the form of finance costs or in the form of opportunity costs, both of which threaten corporate profitability. Audit fees are one of such costs, which are different regarding the firm size, its complication and the amount of cash holdings. It is argued that large companies, compared the smaller ones, have more information asymmetry and agency problems. Large companies have considerable number of organizational shareholders, who conduct more accurate surveillance and ask for high-quality services and this could minimize the agency problems. Audit service is one of the controlling methods for increasing information quality. It is argued that shareholders in companies with severe financial problems ask for more accurate and higher quality audits, which could increase the audit fees. Related audit studies conducted on free cash flow reveal that audit fees, in proportion to agency costs, is increased in companies with higher working cash (Griffin *et al.*, 2010). Therefore, the third hypothesis is developed as follows:

H3. There is a significant relationship between financial constraint, cash holdings and audit fees.

4. Research methodology
4.1 Data collection
Data were collected using the archival method, such that in Section 1, related conducted studies in books, published papers, theses and websites were gathered and studied. In Section 2, the website of Tehran Stock Exchange, codal, rdis, irbourse tse and information banks like Rah Avard Novin Software, Microsoft Excel and other authorized websites were used.

4.2 Statistical sample and population
The statistical population of this study was companies listed on the Tehran Stock Exchange. The following conditions were considered for companies with audit fees and for defining the study sample:

(1) the company under study must disclose the audit fees in notes attached to financial statements in the section related to general and office costs during 2007–2014;

(2) the notes attached to financial statements must be available during the course of study;

(3) financial year must end on March 19th; and

(4) the company should not be affiliated with investment, holding, banks, intermediaries and leasing companies.

Although in terms of quantity (concerning the research method) conducting a study on all companies was feasible, in term of quality, there were some problems and defects. Therefore, 90 qualified companies were selected in both aspects of study. Therefore, the statistical population was finally 90 companies. Given the volume of the statistical population and since the statistical method makes the information analysis of such numbers of sample possible, we felt no need for the statistical sample, so the study has no sample and sampling method.

4.3 Research procedure and pattern
Audit fees or the cost of audit services is dependent variable used in this study. Following the related literature in this field, audit fees are measured as natural logarithm of disclosed fees in general and office section of notes attached to financial statements of companies listed in Tehran Stock Exchange. This would enable us to create a better linear matching with other research variables (Taylor and Simon, 1999). In terms of objective, this paper is developmental and is placed among descriptive-regression studies. The required data were explored from authorized and available sources and were used for research hypotheses. Panel data and combined data regression model were used in this study. Moreover, *t*- and *F*-statistical tests were employed to analyze the significance of the research pattern. After data collection and determining the model, data were initially used as panel data, and then *F*-Limer test was used to determine the panel data or the fixed effects model. Moreover, Hausman test was used to establish the fixed/random effects model, such that if the probability of Hausman test is less than 5 percent, model should be estimated through the fixed effects, and finally related hypothesis should be assessed for the sample under study. After model fitting via R statistical Software, the Breusch–Godfrey test was used to evaluate serial autocorrelation among disturbing components.

The main independent variables of this paper are cash holdings, investment opportunities and financial constraints. Other research variables, including firm size, financial leverage, the ratio of total accounts receivable and inventory divided by the average total assets, kind of auditor, busy audit season, dividend and discretionary accruals were also considered as control variables. Data required for these variables were explored from the financial statements of companies and their attached notes. The following patterns were used to test the research hypotheses:

$$LAF(T) = \beta_0 + \beta_1 CASH_{i,t} + \beta_2 FCONSTRAINT_{i,t} + \beta_3 GROWTH_{i,t}$$
$$+ \beta_4 SIZE_{i,t} + \beta_5 DEBT_{i,t} + \beta_6 COMPLEX_{i,t} + \beta_7 AR_{i,t}$$
$$+ \beta_8 INV_{i,t} + \beta_9 ATYPE_{i,t} + \beta_{10} FISCAL_{i,t} + \beta_{11} DIVIDEND_{i,t}$$
$$+ \beta_{12} DACC_{i,t} + \beta_{13} GROWTH_{i,t} \times CASH_{i,t} + \beta_{14} FCONSTRAINT_{i,t}$$
$$\times CASH_{i,t} + \varepsilon, \tag{1}$$

$$LAF(T+1) = \beta_0 + \beta_1 \text{CASH}_{i,t} + \beta_2 \text{FCONSTRAINT}_{i,t} + \beta_3 \text{GROWTH}_{i,t}$$
$$+ \beta_4 \text{SIZE}_{i,t} + \beta_5 \text{DEBT}_{i,t} + \beta_6 \text{COMPLEX}_{i,t} + \beta_7 \text{AR}_{i,t} + \beta_8 \text{INV}_{i,t}$$
$$+ \beta_9 \text{ATYPE}_{i,t} + \beta_{10} \text{FISCAL}_{i,t} + \beta_{11} \text{DIVIDEND}_{i,t} + \beta_{12} \text{DACC}_{i,t}$$
$$+ \beta_{13} \text{GROWTH}_{i,t} \times \text{CASH}_{i,t} + \beta_{14} \text{FCONSTRAINT}_{i,t} \times \text{CASH}_{i,t} + \varepsilon, \qquad (2)$$

where audit fees: dependent variable is measured through natural logarithm of disclosed audit fees; audit fees ($T+1$): dependent variable is measured through natural logarithm of disclosed audit fees minus the previous year; CASH: independent variable = cash holdings, measured according to the proportion of cash plus marketable securities minus operational cash flow on total assets; GROWTH: independent variable = sales growth, measured through the difference between sales of current and previous year dividend by sales of previous year; FCONSTRAINT: independent variable = the index of restriction in financing, local KZ is used; SIZE: control variable = firm size, calculated through natural logarithm of sales to estimate the firm size; DEBT: control variable = financial leverage is calculated through the proportion of book value of total assets to the book value of total assets in each period; AR: control variable = the proportion of total account receivable on the average of total assets, defined through the proportion of total account receivable on the average of total assets; INV: control variable = the proportion of total inventory on the average of total assets, defined through the proportion of total inventory on the average of total assets; DIVIDEND: control variable = dividend, calculated through the amount of dividend of each company divided by total assets at the beginning of each period for each quota; DACC: control variable = discretionary accruals, calculated from modified Jones model; COMPLEX: control variable = the complications of a business unit, in case the company used integrated financial statement 1, otherwise 0; FISCAL: control variable = busy audit season, in case the fiscal year is ended in March 19th, 1, otherwise 0; and ATYPE: independent variable = type of auditor, if audit organization 1, otherwise 0.

5. Research findings

5.1 Descriptive indexes
The first step in statistical analysis is defining the summarized specifications of data and the calculation of descriptive indexes. The aim of the present study is to realize the internal communications of variables and to show the subjects' behavior to provide the requirements for further analysis and make the descriptive specifications more clear. Table I shows the descriptive statistics of independent variable used in this research model. The table indicates the descriptive statistics of all 90 companies of the sample of study during an eight-year period from 2007 to 2014. As can be seen, the mean and median of cash holdings are 0.1241 and 0.0982, respectively. In addition, the minimum and maximum range of sales growth is 0.000 and 6,516,313.59, respectively.

5.2 Inferential statistics: the results of model fitting and hypothesis testing
After the fitting of models and the fixed and random effects in the R language programming, in the first step, we should observe in the panel data that either the use of total data integration model is effective or the fixed effects. "F-test" is used for this purpose. The H_0 of F-Limer test indicates that the OLS model is better than the fixed effects model. As can be seen in Table II, at 5 percent acceptable error level, the result of this test concerning the abovementioned pattern shows that fixed effects method should be used between OLS method and fixed effects.

After F-Limer test, we perform the Hausman test. The test is looking for the preferred model between random and fixed effects models, so in the case of acceptance of H_0, the

No.	Sign	Variable	Minimum	Maximum	Mean	SD
1	LAF(T)	Audit fees	2/8903	10/0155	6/5015	0/9420
2	LAF(T+1)	Audit fees minus the previous year	2/8903	9/3026	6/3728	0/9255
3	CASH	Cash holdings	0/0002	1/0020	0/1241	0/1119
4	GROWTH	Sales growth	0/000	9/5840	0/2863	0/2771
5	FCONSTRAINT	Financial constraint	25/1418	17/848293991	34/6889961	60/45351003
6	SIZE	Firm size	8/1997	18/6274	13/0219	1/5732
7	DEBT	Financial leverage	0/1129	2/6271	0/5998	0/2905
8	AR	The proportion of accounts receivable to total assets	0/000	190	0/5265	7/4855
9	INV	The proportion of inventory to total assets	0/0013	0/9600	0/2553	0/1525
10	DIVIDEND	dividend	0/000	0/06824926	0/002061	0/0046
11	DACC	Discretionary accruals	0/000	1/0056	0/1352	0/1302
12	COMPLEX	Business unit complications	0	1	0	0/34
13	FISCAL	Busy audit season	0	1	0/85	0/35
14	ATYPE	Type of auditor	0	1	0/21	0/41

Table I.
Descriptive statistics

Hypotheses	H_0	H1	F-statistic (Fisher)	df 1	df 2	p-value	Result
Model 1	OLS is appropriate	Fixed effects model is appropriate	5/9733	90	447	< 0/001	Fixed effects model is selected
Model 2	OLS is appropriate	Fixed effects model is appropriate	4/9373	90	447	< 0/001	Fixed effects model is selected

Table II.
The results of F-Limer test for selecting an appropriate method between OLS and fixed effects

random effects model will be selected. As can be inferred in Table III, the p-value obtained from the Hausman test is more than 5 percent and is indicative of H_0 acceptance or the selection of random effects model.

Then, we evaluate whether there is a serial autocorrelation among disturbing components (model error), which is in fact the infrastructure acceptance of the panel data model. Breusch–Godfrey test is used for this purpose. The first hypothesis of this test indicates no serial autocorrelation among the disturbing components. Concerning the test in Table IV, p-value of the test is less than 5 percent, so H_0 is rejected. The result of this test reveals that there is a serial autocorrelation among model errors.

5.3 Results of research model estimation
Regarding the obtained results in Table IV, which showed that there is a serial autocorrelation among the disturbing components of the present study, final models would be in fixed generalized form, the results of which are illustrated in Table V.

Hypotheses	H_0	H1	χ^2 statistic	df	p-value	Result
Model 1	Random effects model is appropriate	Fixed effects model is appropriate	53/417	13	< 0/001	Fixed effects model is selected
Model 2	Random effects model is appropriate	Fixed effects model is appropriate	85/878	13	< 0/001	Fixed effects model is selected

Table III.
The results of Hausman test for selecting an appropriate method between random and fixed effects model

According to Table V, there is a significant relationship between cash holdings and audit fees, as well as cash holdings and corporate financial constraint and the audit fees. Since the *p*-value of the table is less than 5 percent acceptable error, there is a significant relationship. However, there is no significant relationship between cash holdings and investment opportunity and audit fees. Since the *p*-value of the table is more than 5 percent acceptable error, there is no significant relationship. Moreover, the control variables of firm size, business unit complication, type of auditor and busy audit season have a significant relationship with the audit fees, but the control variables of financial leverage and accounts receivable ratio to total assets, inventory ratio to total assets, dividend and discretionary accruals have no significant relationship with the audit fees.

According to Table VI, there is a significant relationship between cash holdings and audit fees of current year minus the previous year, as well as cash holdings and corporate financial constraint and the audit fees of current year minus the previous year. Since the *p*-value of the table is less than 5 percent acceptable error, there is a significant relationship. However, there is no significant relationship between cash holdings and investment opportunity and audit fees of current year minus the previous year. Since the *p*-value of the table is more than 5 percent acceptable error, there is no significant relationship. Moreover, the control variables of firm size, type of auditor, dividend and busy audit season have a significant relationship with the audit fees, but the control variables of financial leverage, business unit complication, accounts receivable ratio to total assets, inventory ratio to total assets and discretionary accruals have no significant relationship with the audit fees.

6. Conclusion
Cash holdings strategy is a determining factor to the status and future of companies. Creating a balance between available cash and cash needs is one of the major factors of economic health in every for-profit unit. In both companies with insufficient amount of cash

Hypotheses	H_0	$H1$	χ^2 statistic	df	*p*-value	Result
Model 1	No serial autocorrelation in model errors	Model errors have a serial autocorrelation	70/315	5	< 0/001	H_0 is rejected
Model 2	No serial autocorrelation in model errors	Model errors have a serial autocorrelation	75/391	5	< 0/001	H_0 is rejected

Table IV.
The results of Breusch–Godfrey test on serial autocorrelation among model errors

Descriptive variable	Sign	Descriptive variable coefficient	SE	Student statistic (*t*)	*p*-value
Fixed factor	INTERCEPT	3/425	0/3645	9/397	< 0/001
Cash holdings	CASH	0/5111	0/2448	2/088	0/0368
Sales growth	Growth	0/2429	0/0527	4/608	< 0/001
Financial constraint	FCONSTRAINT	0/0759	0/1117	0/68	0/1965
Firm size	SIZE	0/2179	0/0269	8/093	< 0/001
Financial leverage	DEBT	0/1037	0/1023	1/014	0/3107
Business unit complication	Factor (COMPLEX)1	0/3238	0/1604	2/019	0/0435
Account receivable ratio to total assets	AR	< 0/001	0/0001	0/756	0/4497
Inventory ratio to total assets	INV	0/1809	0/2241	0/807	0/4195
Type of auditor	Factor (ATYPE)1	0/5885	0/0945	6/223	< 0/001
Busy audit season	Factor (FISCAL)1	−0/3423	0/0579	−5/91	< 0/001

Table V.
The results of estimation of the first research model

Descriptive variable	Sign	Descriptive variable coefficient	SE	Student statistic (t)	p-value
Fixed factor	INTERCEPT	3/737	0/404	9/248	< 0/001
Cash holdings	CASH	0/0852	0/266	0/024	0/0486
Sales growth	Growth	0/2616	0/0578	4/519	< 0/001
Financial constraint	FCONSTRAINT	0/0728	0/1205	0/605	0/1454
Firm size	SIZE	0/2001	0/0300	6/657	< 0/001
Financial leverage	DEBT	0/1707	0/1099	1/553	0/1203
Business unit complication	Factor (COMPLEX)1	0/3028	0/1605	1/887	0/0591
Account receivable ratio to total assets	AR	0/0000	0/0002	0/584	0/5595
Inventory ratio to total assets	INV	0/0990	0/2384	0/415	0/6779
Type of auditor	Factor (ATYPE)1	0/5355	0/1017	9/248	< 0/001
Busy audit season	Factor (FISCAL)1	−0/256	0/0638	0/024	< 0/001
Dividend	DIVIDEND	0/0075	< 0/001	4/519	0/0017
Discretionary accruals	DACC	0/2539	0/1763	0/605	0/1497
Cash holdings in sales growth	Growth × CASH	0/2392	0/4817	6/657	0/6195
Cash holdings in financial constraint	CASH × FCONSTRAINT	0/0659	0/0447	1/553	0/0394

Table VI.
The results of estimation of the second research model

holdings and those without have considerable problems maintaining an optimum level of cash is the matter of the utmost importance.

The present paper provides some evidence concerning the factors that contribute to the changes of audit fees for compensating additional risk and auditor attempt based on agency problems for cash holdings. Companies with high cash holdings and growth prospects invest their growth capability internally, which cause the capital market to be less interested in investigation on such companies. Moreover, companies with high cash holdings and growth prospects emphasize the need for more attempts on auditors' side (Barclay and Smith, 1995). Such result is in line with that of the Benjamin *et al.* (2015). Moreover, the financial performance of a company is indicative of its investment opportunities and is an appropriate criterion which could predict the future investment behavior of a company. It is believed that high cash holdings prevent from stronger financial performance, prevent from conflict of interest between managers and shareholders, and could not increase the cash reservoir of a company performance. Any alteration in monitoring costs cannot justify the changes in cash holdings. This could be due to the lack of awareness of investors and inefficiency of capital market in Iran. This result is in conflict with that of the Benjamin *et al.* (2015). Furthermore, companies with severe financial constraints should keep up more cash, while companies with less financial limitations require less cash holdings. Lack of balance between financial constraint and the amount of investment could confront the company with liquidity problems and increase the current expenses, either in the form of financial finance or in the form of a missing opportunity, both of which would finally threaten the firm profitability. Audit fees are one of such costs, which are different concerning the firm size, its complications and the amount of cash holdings. Actually, it is argued that shareholders in companies with severe financial problems ask for more accurate and higher quality audits, which could increase the audit fees. This result is in line with that of the Benjamin *et al.* (2015).

One of the major problems of the present study was data collection. In order to gather the required data, various sources including information software and the website of Tehran Stock Exchange were used. In some cases, the collected data from different software were in conflict with each other or were basically have information defects and caused some limitations in this study.

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الاستشارات