Research Article

Presentation of Novel Multiple Regression Model for Accounting Information Quality, Corporate Investment, and Moderating Role of Ownership Structure in Companies

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The conflicts of interest between managers and shareholders force managers to make decisions that do not meet the interests of shareholders. One of these decisions is to invest less in the company's operational activities. Increasing the information quality is one way to prevent that issue, allowing stakeholders to monitor investment decisions. The present study investigates the relation of accounting information quality, corporate investment, and ownership structure for Iranian firms, using panel data analysis from 2009 to 2018. We applied a multiple regression model to test the hypotheses. The results show that the quality of accounting information significantly affects the investment decision for the company's main operations, so the first hypothesis of the research is confirmed. At the same time, there is no effect of capital structure on accounting information quality and firms' investment decisions. Thus, the second hypothesis of the research failed to be confirmed.

1. Introduction

The quality of financial information has been one of the most important issues and concerns in accounting and finance. Accounting information can provide the mechanism by which information within an organization will be transmitted to investors and capital markets. Various definitions of accounting and its role have long been proposed. The first definition of accounting was given in 1953 by the American Society of Certified Public Accountants (ASCPA), which defined it as the art of summarizing financial events with at least one financial feature in a meaningful way and summarizing the results. In the past, accounting was considered as a service activity, ideology, business language, historical record, current economic reality, and a public service, while nowadays accounting is considered as an information system. This system transforms the events and transactions into a coherent and understandable set for users and helps them make optimal decisions. Investors and policymakers believe that high-quality financial reporting can directly affect the efficiency and effectiveness of the capital market. Financial reports provide historical information about transactions that the company has made during a fiscal year. The purpose of these financial statements is to provide helpful information for current and potential investors and creditors and other users to make an investment, credit, and similar rational decisions. The success of the capital market depends directly on the quality of companies' accounting systems and their outputs, financial statements, and information disclosures. Information disclosure systems based on high-quality standards can assure investors of the reliability of financial reporting. Therefore, it is necessary to have mechanisms to ensure investors and other users of financial statements help the capital market efficiency and the optimal allocation of financial resources.

The present study investigates the impact of accounting information quality (AIQ) on corporate investment decisions in the Iranian capital market using four measures of earnings quality, including accrual quality, earning stability, earnings predictability, and earning smoothing, as well as the role of ownership concentration in this area.

2. Theoretical Foundations and Hypotheses Development

Many researchers have emphasized the important role of AIQ and the transparency of information in the capital markets. For example, Zhou and Chen [1] examined the effect of transparency of accounting information on industry-wide capital allocation based on data from Chinese companies from 1999 to 2004. They followed the amount of capital allocated and the proceeds of stock issuing in various industries and found that the transparency of accounting information at the industry level has a significant effect on the resource allocation, so that the more transparent the information, the higher the efficiency of the allocation. Al-Hiyari et al. [2] reveal that management commitments are positively associated with a firm's accounting information system and AIQ. When managers commit more to the firm's goals and shareholders' interest, they attempt to release high-quality information to the market. Therefore, investment decisions would be more efficient. They suggest comprehensive training programs to get sufficient knowledge in accounting information system implementation and the importance of AIQ for optimal decision making. Another study examined the effect of AIQ on under- and overinvestment of listed companies in Shanghai and Shenzhen Stock Exchanges from 2004 to 2006 [3]. The results showed that high-quality information could decrease the moral hazard and adverse selection and that strengthening contracts and oversight procedures avoids a lack of financial resources and overinvestments, thus improving the efficiency of capital allocation at the company level. Krismiaji and Perdana [4] discovered evidence of a connection between AIQ and corporate investment decisions in the Indonesian capital market. They demonstrated that corporate governance processes would significantly improve the impact of information quality. Ghorbani and Korzeniowski [5] have investigated a new model for Call Options under Cox-Ingersoll-Ross Interest Rates. Ahamdi [6] have studied a new model based on gene expression programming for forecasting economic growth with fuzzy logic. Sharifi et al. [7] have studied the application of machine learning in the industry during the pandemic. Korzeniowski and Ghorbani [8] used a Linear Investment method for Hull-White Interest Rates in their studies. Also, in another study, Ghorbani and Korzeniowski [9] used a novel model linear investment strategy for pricing in investment.

Bhattacharya et al. [10] examined the effect of accounting information transparency on equity capital in 34 countries. They found that the low transparency would cause a high cost of capital and fewer stock transactions. As a result, it seems that accounting information transparency affects the efficiency of capital allocation at the national level. Accounting information also affects firms' cost of capital, both directly and indirectly. The direct effect arises because higher information quality affects the firm's relationship with other firms' cash flows. The indirect effect also happens because higher information quality affects a firm's accurate investment decisions, which likely changes the firm's ratio of the expected future cash flows to the cash flows in the capital market [11]. Xing and Yan [12] find that AIQ is significantly and negatively related to systematic

risk. They indicated that improving AIQ causes the systematic risk to decrease.

Moreover, AIQ can affect firms' cost of capital in only three possible ways: first, AIQ constitutes an additional systematic risk factor that is distinct from other known such factors; second, AIQ is not a systematic risk factor but affects risk premiums on known such factors; and third, AIQ is somehow related to known systematic risk factors. Also, the results of Biddle and Hilary [13] indicate that high-quality accounting information could decrease information asymmetry between managers and external creditors; therefore, investment efficiency would increase at both levels. Based on previous studies, Biddle et al. [14] investigated the investment efficiency from two perspectives of overinvestment and underinvestment at the company level. Its focus was on the relationship between performance and high-quality accounting information. According to research, companies overinvest during illegal accounting activities but show higher investment efficiency afterward. Hence, it seems that AIQ can influence the internal decisions of companies [15]. Ghorbani [16] investigated Option Pricing with Investment plan under Stochastic Rate of Interest. Khoufi [17] studied Tunisian firms and showed that AIQ is related to corporate investment decisions in emerging markets. Any improvements in information quality will minimize investment inefficiency. Qiao et al. [18] studied a wavelet transform model for predicting the oil. Qiao et al. [19] created a new hybrid technique using wavelet transform for prediction of electricity. Elaoud and Jarboui [20] assert that AIQ and auditor specialization can be considered two tools for substitution in increasing investment efficiency. They reveal that firms with higher AIQ tend to invest more efficiently in the capital market, avoiding more investment in harmful NPV projects. Furthermore, the AIQ is positively associated with investment efficiency for firms whose auditor is an industry specialist.

Francis et al. [21] studied the impact of country-level information transparency on resource allocation efficiency in 37 countries. They used the correlation between growth rate in the industry and country levels to calculate the capital allocation. The findings revealed that information transparency leads to a more significant growth rate correlation between industry and market. As a result, capital would flow efficiently to more advanced industries in countries with more transparent information, resulting in effective resource allocation at the sector level. Even in the case of low AIQ, it still has a positive effect on investment efficiency. This relationship is more pronounced in private firms than in others because of depending heavily on banking funds [22]. According to Zhai and Wang [23], there is a relationship between AIQ and the company's investment in expanding activities. The high quality of information can lead to a stronger association, especially in conditions of weak corporate governance.

As a consequence, AIQ will help investors make better decisions and increase governance performance. Research has also shown that International Financial Reporting Standards (IFRS) can increase the decision-making ability of individual shareholders to invest with more certainty [24]. As a result, the quality of financial reporting and information would reduce the overinvestment problem by managers

[25]. Ma and Bennett [26] investigated the connection between investment and higher education student's employability. On the other hand, Arij [27] found that some corporate governance mechanisms, such as the ratio of nonexecutive board members, have a positive and essential impact on AIQ and investment efficiency in Iran. According to research in the Iranian stock market, agency cost leads to overinvestment. At the same time, financial constraints force managers to underinvesting. The findings also suggest that political relations affect the Iranian capital market, in addition to common factors in global economic environments [28]. Kamranrad et al. [29] showed that AIQ could reduce investors' adherence to biased behavioral analysis based on variables such as projected earnings per share, return on assets, return on equity, and the book value of stocks. Hashemi and Moshashei [30] studied the impact of corporate governance mechanisms on investors' sentiment and managers' investment decisions. The findings revealed that the investors' emotions significantly impact the level of overinvestment of companies, and corporate governance mechanisms have a significant moderating role in the relationship between the variables. Corporate overinvestment can be attributed to increasing AIQ and improving ownership [31]. Gao et al. [32] investigated how investors' trading behaviors change following earning an IPO allocation in China. Xiang et al. [33] investigated the factors influencing the usage of technology finance by Chinese small- and medium-sized businesses. Zhuang et al. [34] investigated the impact mechanism of CSR for smart urban on consumer buying intention. Wang et al. [35] have suggested a unique online renewable quantile regression approach, in which the resultant estimate is regenerated using current data and past data statistical tests. Wu [36] created a new region marine industry investment efficiency evaluation methodology. Shao [37] developed a strategy for locating new development hotspots for coastal firms under the effect of the multilateral system. Seyedjamali and Doaei [38] revealed a significant positive relationship between financial reporting quality and investment efficiency; moreover, information asymmetry has significantly played a moderating role in the relation of the variables. Beaver [39] stated that the primary goal of accounting information is to assist users in making rational decisions. There are two approaches to measuring AIQ. The first is the usefulness of the information in the valuation process for investors who intend to evaluate the securities. The security pricing performance represents AIQ.

Moreover, accounting information can validate the contracts, particularly those involving the interests of investors and managers. This represents the governance function of such information. As a result, the information has two primary functions. Firstly, it demonstrates its pricing role by influencing capital expenditures and stock prices. High-quality information can reduce information asymmetry and thus reduce the cost of external financing. Higher quality and more transparent information encourage potential investors to be attracted and growth opportunities considered in stock price. Secondly, accounting information may often minimize contract defects and opportunistic executive actions by reducing information asymmetries among contract beneficiaries [23]. Thus, accounting information contributes to a governance function. When it comes to external financing, this governance mechanism assists businesses in making rational decisions that enable them to concentrate on their core business and allocate resources effectively.

According to Bushman and Smith [40], investors benefit from disclosing high-quality information with management supervision, encouraging them to make accurate and efficient investment decisions and optimize returns. On the other hand, disclosing accounting information aims to offer valuable information to external stakeholders. The quantity and quality of disclosed information influence an investor's judgment about the firm's intrinsic value. When stock prices or profits decline, investors protect their interests by exercising voting rights in decision-making. As a result, accounting data is a critical source of information to determine whether the stock price is overestimated or underestimated [23]. Ohlson [41] developed a model that reflects the association between accounting information and a firm's value. Many researchers have demonstrated the value of such information by showing how investors use it to make decisions [42–44].

Therefore, accounting information has two primary functions, security pricing and governance. First, accounting information implements its pricing function by influencing the cost of capital and share price. High AIQ can reduce information asymmetry, increasing capital cost for external financing [45–47]. Secondly, reducing information asymmetry between managers and shareholders will minimize the asymmetry and control opportunistic managerial behavior; therefore, the function of governance is done. To fund external capital, this function of information helps public companies to make rational decisions in the core business to allocate capital more efficiently [48]. Moreover, Ball and Shivakumar [49] argue that high AIQ supports investors' control of management by restricting management expenditure for their own or others' interests and improving investment decision-making. Additionally, high AIQ may inform investors timely about capital investment orientation and help investors monitor managerial activities. Taghizadech et al. [50] have examined a new model for evaluating the GDP based on a knowledge-based economy with ARDL bound test. Ahmadi et al. [51] have designed a novel hybrid model for predicting the GDP using statistical models. Biddle et al. [14] argue that high AIQ reduces managerial opportunity to act wistfully and enhances investors' capability to monitor managers' investment decision efficiency. Also, there are some methods for classification and prediction in the investment that is applied on other subjects in the past studies [52–54]. The other objective of accounting disclosure is to provide information that is useful for external stakeholders. The accounting information will affect investors' beliefs toward the company's fundamental value. Thus, when stock price or corporate income decreases, investors will find a way to avoid loss through exercising their decision-making right to vote or voting with their feet [23]. Investors are concerned about AIQ, as it helps them properly understand its

operations and other important decisions. High AIQ provides a comprehensive understanding of core activities to external stakeholders and monitors managerial behavior. When managerial decisions are not designed to maximize shareholders' interests, major shareholders can influence them by voting to change in the board of directors and attending shareholder meetings. Although individual shareholders do not have direct control over management, they influence the stock price by trading actions in the market. Institutional investors may also make managerial changes through their voting rights on boards of directors and their actions. In this regard, high AIQ helps external stakeholders involved in management understand the capital investment and the effectiveness of the company's activities, then affecting corporate investment choices. For this reason, the first hypothesis of the present study is developed as follows.

Hypothesis 1. Companies with higher AIQ tend to invest more in their core operations.

Most public companies grow when they operate in a stable economy both in developed and emerging markets. However, firms located and operated in emerging economies are still in the lower position [4]. Shareholders still have a problem formally ensuring that their interests are fulfilled. Consequently, they effectively limit or give pressure to management [23]. Previous research documented that the size of institutional ownership is positively related to the rate of investment in fixed assets, corporate acquisitions, and R&D [55], whereas Sun [56] finds that, despite significant differences across ownership classifications, firm sector, size, management experience, and employees training program also have an impact on firms' investment efficiency. Additionally, using the high-power setting of newly privatized firms from 64 countries, Chen et al. [57] find that the relationship between foreign ownership and investment efficiency is more substantial when governments relinquish control, and country-level governance institutions are weaker. Their findings highlight the critical role of ownership type in determining firms' investment behavior and efficiency. However, Chen et al. [58] find that ownership concentration hurts investment efficiency, and this effect is more pronounced in state-owned enterprises (SOEs) than in private firms. In Iran, a significant portion of ownership of companies and institutions in various industries is concentrated in the hands of the government and controlled by governmental managers. On the other hand, many large companies in recent decades have been established by institutions and individuals affiliated to the government and political system, owning a significant portion of the ownership to control the businesses. In these conditions, the development and growth of the capital market and its transparency and efficiency are related to the quality of performance and activities of these types of companies. Weak regulatory systems, inefficient laws and regulations, political connections between corporate executives and government, and the presence of special rental opportunities for some have led to weak information efficiency, biased managerial decisions, and inefficient investment activities resulting in an inopportune allocation of capital market resources. There are always severe challenges to the independence of the board of directors. First, most board members have ties to government agencies and the political system, which causes significant concerns with corporate internal control. Second, corporate executives are more concerned with protecting large shareholders' interests and implementing out government policies. The weak independence of the board of directors and the complicated political and governmental relations make problems in the effectiveness of financial reporting and information quality on managers' and investors' decisions and investment efficiency.

Research shows that AIQ varies depending on the ownership structures. The quality of information is higher in family-owned businesses [59]. Companies with concentrated ownership are less likely to disclose and increase the information quality since stakeholders influence them less. Therefore, it is assumed that there is no significant association between AIQ and investment decisions in these firms [60]. In the case of inefficiency of a company's investments and activities, individual shareholders try to exercise absolute external control by trading actions in the market, exposing management to future stock price evaluation, and encouraging effective resource allocation. As a result, the quality of disclosed information and its effect on managers' decisions may vary depending on the firm's ownership structure. In the case of dispersed ownership, the effect of high-quality information on investment choices is more pronounced. So, the second hypothesis is developed as follows.

Hypothesis 2. Ownership concentration can moderate the effect of AIQ on the company's operational investment.

3. Research Methods

The present study is classified as applied research in terms of objective, because its results can be used by capital market participants, managers, and analysts to address some of the investment problems in companies. In terms of methods, it is known as descriptive-correlational research that seeks to examine the relationship between variables, using appropriate statistical methods to test hypotheses through the deductive reasoning approach. The research population includes all listed firms in Tehran Stock Exchange (TSE). Using restrictive criteria, 91 companies from 2009 to 2018 with 910 observations have been selected as a research sample.

For measuring the variables and testing the hypotheses, data have been collected from the Rahavard Novin database. Further, the Codal official website of TSE has been used to complete and verify the data. We calculated the research variables using EXCEL. We used multiple regression models with panel data set and related tests through Eviews 9 software to test the hypotheses.

3.1. Research Variables

3.1.1. Dependent Variable. Operational investment: we measured the variable following Francis et al. [21] by scaling the correlation between operating profit growth at the company

and industry levels for ten years, as presented in equation (1). The higher the correlation coefficient (α_1), the greater the company's investment in operational sectors and vice versa.

$$\text{GrowthFirm}_t = \alpha_0 + \alpha_1 \text{GrowthIndus}_t + \varepsilon_t. \tag{1}$$

3.1.2. Independent Variable

(1) Accounting Information Quality. We measured this variable following Batacharya et al. [10] and Biddle and Hillary [13] by calculating four earnings criteria (quality of accruals, earnings stability, earnings predictability, and earnings smoothing) and ranking each of the measures (one to ten) based on high to low quality, in which rank one shows the highest profit quality and ten indicates the lowest one. Then, the ranks of the four criteria are added for each company. A total rank of 4 indicates high-quality profits and accounting information, and 40 shows low quality of information. Accruals quality: this criterion is determined based on the relationship between operating cash flows of the present, previous, and future years and changes in current working capital according to Dechow and Dichev [61] and Zhai and Wang [23] as

$$\Delta \text{WC}_t = \alpha_0 + \alpha_1 \text{CFO}_{t-1} + \alpha_2 \text{CFO}_t + \text{CFO}_{t+1} + \varepsilon_t. \tag{2}$$

(2) Earnings Stability. We measured this criterion following Francis et al. [21], using the estimated coefficient for return on asset (ROA) in year $t-1$ as

$$\text{ROA}_t = \alpha_0 + \alpha_1 \text{ROA}_{t-1} + \varepsilon_t. \tag{3}$$

(3) Earnings Predictability. This measure describes the ability of firms' current earnings to predict the following year's earnings. According to Francis et al. [21], the same model for earnings stability is equation (4). The standard deviation of the model's residuals is used to measure the prediction error of future earnings. The slight standard deviation indicates a greater earnings predictability and vice versa, as follows:

$$\text{ROA}_t = \alpha_0 + \alpha_1 \text{ROA}_{t-1} + \varepsilon_t. \tag{4}$$

(4) Earnings Smoothing. This criterion is determined by the ratio of the standard deviation of operating profit to operating cash flow, which is presented by Zhai and Wang [23] as one of the parameters for earnings quality. The low ratio shows a low earning smoothing and a high earnings quality consequently.

3.1.3. Moderator Variable

(1) Ownership Concentration. In this study, we used ownership concentration, according to Hassas Yeganeh et al. [62], as a measure of a firm's ownership structure, which is calculated by the total number of shares held by institutional and individual shareholders who own more than 10% of the company's shares issued.

3.1.4. Control Variables.

We followed Zhai and Wang [23], Biddle and Hillary [13], Francis et al. [21], and Bhattacharya et al. [10] to include the control variables in the model. The variables contain the firm size (natural logarithm of total assets), market to book value ratio (ratio of market value to book value per share), return on assets (ratio of net profit to total assets), and financial leverage (ratio of total debt to total assets) (see Table 1).

3.1.5. Model Specification.

We used two multiple regression models presented in equations (5) and (6) to test the first and second hypotheses.

$$\begin{aligned}
\text{OPIN}_{it} = {} & \alpha_0 + \alpha_1 \text{AIQ}_{it} + \alpha_2 \text{SIZE}_{it} + \alpha_5 \text{MTB}_{it} \\
& + \alpha_6 \text{ROA}_{it} + \alpha_7 \text{LEV}_{it} + \varepsilon_{it},
\end{aligned} \tag{5}$$

$$\begin{aligned}
\text{OPIN}_{it} = {} & \alpha_0 + \alpha_1 \text{AIQ}_{it} + \alpha_2 \text{CON}_{it} + \alpha_3 \text{AIQ}_{it} * \text{CON}_{it} \\
& + \alpha_4 \text{SIZE}_{it} + \alpha_5 \text{MTB}_{it} + \alpha_6 \text{ROA}_{it} + \alpha_7 \text{LEV}_{it} + \varepsilon_{it},
\end{aligned} \tag{6}$$

where OPIN_{it} is the correlation between the company and industry profit growth rate for ten years. AIQ_{it} represents accounting information quality measured by ranking four earnings criteria in decile level. CON_{it} is the firm's ownership concentration. $\textit{SIZE}_{it}$ represents the firm's size, and MTB_{it} is the market-to-book value per share. ROA_{it} is the return on assets, and LEV_{it} represents the ratio of total debt to a total asset for the firm I in year t, and ε_{it} is the error terms.

4. Research Findings

Table 2 provides summary statistics of the research variables. As seen, the mean value of profit growth correlation as a measure of operational investment (OPIN) equals 0.452 with a standard deviation of 0.226 and varies between -0.219 and one. The mean of AIQ as a measure of earnings and information quality is 19.321 with a standard deviation of 8.131, which is in the range of 3.288 and 35.262. The mean value equals 90.116 percent for ownership concentration with a standard deviation of 9.028, ranging between 22.121 percent and 100 percent. Also, for other control variables, the mean values and standard deviation are presented in Table 2. Since the study contains 910 observations for 91 companies over ten years, we investigated appropriate fitting regression models between the panel and pooled data before testing the hypotheses. For this purpose, the Chow test was used.

The null hypothesis indicates that the OLS method with pooled data will be appropriate to estimate the model. Rejection of the null hypothesis shows the appropriateness of the panel data method. Hausman test is also used to choose between fixed or random effects methods. The null hypothesis indicates that random effect should be used. Table 3 presents the results of the tests. As seen, the significance level of Chow tests is more excellent than 0.05 for the models of both hypotheses, indicating that the panel data method is appropriate; also, the significance level of

TABLE 1: Variable definitions.

Variable	Symbol	Variable measurements and definitions
Operational investment	OPIN	The correlation coefficient between operating profit growth at the company and industry levels.
Accounting information quality	AIQ	Total rank is calculated by aggregating the ranks of four measures of earnings quality (quality of accruals, earnings stability, earnings predictability, and earnings smoothing). A total rank of 4 indicates high quality, and a rank of 40 shows low quality for accounting information.
Ownership concentration	CON	The total number of shares held by institutional and individual shareholders who own more than 10% of the company's shares issued.
Firm size	SIZE	Natural logarithm of the book value of total assets.
The ratio of the market to book vale	MTB	The ratio of market share price to book value per share.
Return on asset	ROA	The ratio of net profit after tax to book value of total assets.
Financial leverage	LEV	Book value of total debts divided by total assets.

TABLE 2: Descriptive statistics of research variables.

Variable	No.	Mean	Std	Min	Max
OPIN	910	0.452	0.226	−0.219	1.00
AIQ	910	19.321	8.131	3.288	35.262
CON	910	90.116	9.028	22.121	100
SIZE	910	13.675	1.423	9.662	18.603
MTB	910	34.412	95.066	−92.205	234.027
ROA	910	0.141	0.217	−0.277	0.881
LEV	910	0.584	0.221	0.062	2.197

TABLE 3: The results of Chow and Hausman tests.

Model	Test	Statistic	P value	Result
First hypothesis	Chow	4.134***	≤0.001	Panel
	Hausman	0.072	0.918	Random effect
Second hypothesis	Chow	4.127***	≤0.001	Panel
	Hausman	1.512	0.214	Random effect

***Significant at 0.01 level. **Significant at 0.05 level. *Significant at 0.1 level.

Hausman tests for the models is less than 0.05, showing that random effect method should be used to estimate the models.

According to econometric discussions, before testing the regression models, it is necessary to test some of the regression's traditional assumptions, including autocorrelation, heteroscedasticity, and normality test of the model's residuals. Table 4 demonstrates the autocorrelation test to ensure whether or not the problem of autocorrelation of the residuals in models 5 and 6 exists. As seen, the significance (P value) estimated for both models is equal to 0.924 and 0.835, respectively, indicating no autocorrelation problem for the models.

Table 5 indicates the heteroscedasticity test to ensure that the variation of the error terms is constant over time. As seen, the significance (P value) of the models is equal to 0.341 and 0.712, respectively, and both are bigger than 0.05, indicating that no heteroscedasticity problem for residuals was observed. It means that the error terms are constant over time.

Figure 1 exhibits the standard probability plot to detect the normality of the residuals. As it shows, the residuals of both models seem to be expected. Table 6 presents the results of the first hypothesis with the random effect method. As seen, the VIF statistic is used to test the multicollinearity of explanatory variables, and according to the values, which are

TABLE 4: The results of autocorrelation the error terms.

Model	Hypothesis	F-statistic	P value	Autocorrelation
Equation (5)	1	0.039	0.924	No
Equation (6)	2	0.075	0.835	No

***Significant at 0.01 level. **Significant at 0.05 level. *Significant at 0.1 level.

TABLE 5: The results of heteroscedasticity of the error terms.

Model	Hypothesis	χ^2-statistic	df	P value	Hetro.
Equation (5)	1	6.872	6	0.341	No
Equation (6)	2	4.203	7	0.712	No

***Significant at 0.01 level. **Significant at 0.05 level. *Significant at 0.1 level.

all greater than one, it is assumed that there is no multicollinearity problem in the model. F-statistic is equal to 5.349, showing that the model is significant.

Durbin–Watson statistic is 1.75, indicating that there is no autocorrelation problem as well. Adjusted R^2 is equal to 0.534, which indicates the explanatory power of independent variables in the model. Furthermore, the estimated coefficient for AIQ equals 0.045, with a T-value of 2.528, indicating a significant positive association between AIQ and firms'
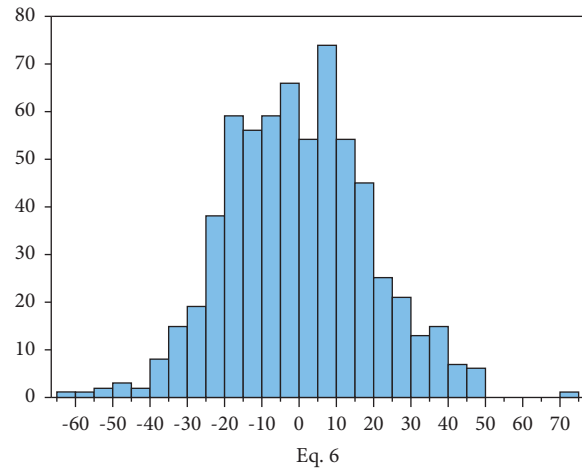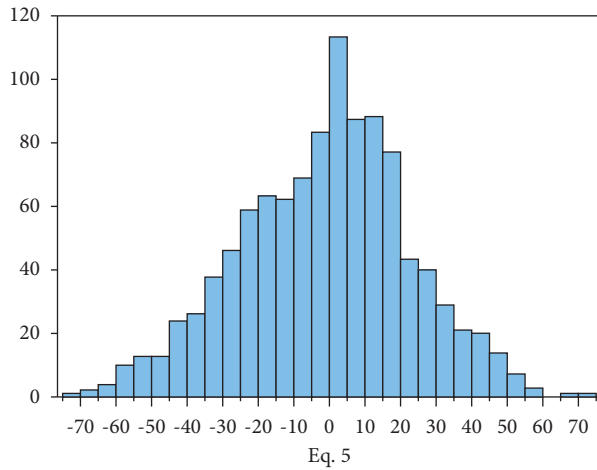
FIGURE 1: Normality test of the error terms of the models.

TABLE 6: The results of the first hypothesis with the random effect model.

Dependent variable: profit growth correlation (OPIN)			
Variable	Coefficient	T-value	VIF
C	−3.825	−2.521	—
AIQ	0.045	2.528**	1.221
SIZE	−0.033	−0.572	1.202
MTB	0.038	2.493**	1.316
ROA	−2.429	−3.275***	2.218
LEV	0.446	1.501	1.388
Industry dummy	—	Yes	—
Adj R^2		0.534	
F-value		5.349	
Durbin–Watson		1.961	

***Significant at 0.01 level. **Significant at 0.05 level. *Significant at 0.1 level.

TABLE 7: The results of the second hypothesis with the random effect model.

Dependent variable: profit growth correlation (OPIN)			
Variable	Coefficient	T-value	VIF
C	5.458	0.902	—
AIQ	0.319	−2.411**	1.928
CON	0.136	−2.437**	−1.647
AIQ ∗ CON	0.002	1.329	1.745
SIZE	0.316	0.663	3.175
MTB	0.056	5.816***	1.884
ROA	2.281	0.989	1.239
LEV	−0.967	−0.806	1.278
Industry dummy	—	Yes	—
Adj R^2		0.378	
F-value		2.118**	
Durbin–Watson		2.146	

***Significant at 0.01 level. **Significant at 0.05 level. *Significant at 0.1 level.

operational investment at a 95% confidence level. This means that the higher the information quality, the more the investment in the operations sections. As a result, the first hypothesis is confirmed. Among the control variables, the estimated coefficients for the ratio of market to book value (0.038) and the ratio of return on assets (−2.429) are statistically significant, showing that firms with the larger market to book ratio and return on assets are more likely to have higher investments in operations activities. At the same time, the coefficient of firm size (−0.033) and financial leverage (0.446) seems to be insignificant. Table 7 provides the results of the second hypothesis, which examines the impact of ownership structure on the relationship between AIQ and operations investment using the random effect method. The multicollinearity between the explanatory variables was investigated using VIF statistics, and the results show no multicollinearity problem. F statistic (2.118) demonstrates the significance of the model. The value of Durbin–Watson is also between 1.5 and 2.5, implying that there is no autocorrelation problem.

The adjusted R^2 is equal to 0.378, indicating that the explanatory power of independent variables in the second model is less than that of the first model. However, in panel data analysis, the R^2 cannot be interpreted as pooled data, explaining the changes independent variables by explanatory variables. However, due to many financial and corporate characteristics that are not included in the models, it is not expected to get the high value for adjusted R^2.

Furthermore, the results show that the estimated coefficient of AIQ equals 0.319, indicating a significant positive relationship with companies' operations investment. As mentioned before, increasing AIQ causes more investment in core operations. The coefficient of ownership concentration is equal to 0.136 with a T-value of −2.437, indicating a significant positive effect on operations investment. This result shows that firms with higher concentrated ownership in the hands of major shareholders are more likely to invest for expanding their operations. However, the estimated coefficient for the interaction effect of AIQ and ownership concentration equals 0.002, with a T-value of 1.329, indicating that firms' ownership concentration has an insignificant effect on the relationship between AIQ and operations investment, implying that ownership concentration cannot play the role of moderator to intensify the relation of the variables. Therefore, according to the result,

the second hypothesis of the research failed to be confirmed. The table also shows that, in the model, only the estimated coefficient for the ratio of market to book value (0.056) is significant at 99% confidence level among the control variables, while the estimated coefficients for firms' size (0.316), return on assets (2.281), and financial leverage (−0.967) are statistically insignificant.

5. Conclusions and Recommendations

The present study aimed to investigate the relationship between accounting information quality (AIQ) and companies' decisions to invest in their core operations and the role of ownership structure on the relationship between the variables. The quality of accruals, earnings stability, earnings predictability, and earnings smoothing has been used to measure AIQ. According to theoretical foundations and previous research, improving information quality would increase more efficient investments and the growth of corporate operations by making stockholders and beneficiaries more aware of inefficient investments and activities and then making effective decisions to control managers. The results of the first hypothesis showed that AIQ in Iranian companies has a significant impact on their decisions for operations investment. This means that high-quality information increases the probability of more efficient investment in the companies' operations by mitigating information asymmetry between managers and shareholders and its negative results and increasing shareholder awareness about inefficient investments. Improving the quality of information would increase the capital market efficiency and the ability of shareholders to control the managers' decisions and reduce agency problems. These findings are consistent with Zhai and Wang [23]; Li [3]; Zhou and Chen [1]; and Biddle and Hillary [13].

Furthermore, the findings of the second hypothesis indicated that, despite the significant relationship between ownership concentration and investment in core operations, the effect of ownership on the relation of AIQ and operations investment seems to be insignificant in Iranian companies. According to the finding, it can be implied that the quality of information available to shareholders and market participants has the same impact on investment decisions for all companies with different ownership structures. So, we can suggest that AIQ and capital market monitoring would have a negligible impact on managers' investment decisions in expanding the operations in Iranian companies. This result is inconsistent with Zhai and Wang [23] for companies in the Chinese capital market. The differences in the level of informational efficiency and degree of development of these capital markets may be the reason for this inconsistency.

The following recommendations can be made based on the findings of this study:

(1) Managers and investors are advised to pay close attention to the quality of financial reporting as well as reliable and timely information to improve a company's position in the capital market.

(2) Company shareholders are suggested to employ big and specialist auditing institutions to improve information quality because auditing activities' quality makes a significant difference in detecting significant irregularities and distortions in corporate financial statements.

(3) Given the importance of transparent, reliable, and timely information in managers' decision-making, contributing to market efficiency and participants, managers and policy-makers are encouraged to improve more accurate and timely information facilities and infrastructures.

(4) Due to the critical role of significant shareholders in companies' decisions, it is suggested that these shareholders use continuous internal controlling mechanisms to monitor managers' investment decisions.

(5) Investors and capital market analysts are encouraged to use the quality of accounting information as an analysis measure of investment efficiency, risk, and returns of corporate operations.

(6) Future researchers must look into the impact of accounting information efficiency on financing activities and the cost of capital in different industries. It is also suggested that they investigate the relationship between information quality and financial reporting with market power and competitiveness of the company in the related industry.

Data Availability

Data are available and can be provided over the emails querying directly to the corresponding author (a.asadi@iau-neyshabur.ac.ir).

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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