Corporate Integrity and Information Asymmetry: Evidence from Iran

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Abstract

Corporate integrity is considered part of the company's development strategies, which, in the long run, can increase firms' financial transparency to stakeholders. Our study aims to present a corporate integrity model and then investigate its effect on firms' information asymmetry. This study uses Meta-analysis and Delphi analysis in the qualitative part to measure corporate integrity. Then, in the quantitative section, the corporate integrity questionnaires were sent to the managers of the sample firms. Subsequently, a total of 138 questionnaires were completed and sent back, which were used as the final samples for analysis. In addition, information asymmetry is measured using three different proxies, namely bid-ask spread, turnover, and Amihud illiquidity measure. Our findings show corporate integrity's significant and negative effect on information asymmetry. These results suggest that corporate integrity, by promoting behavioral values based on truthfulness and commitment, the structures will enhance the corporate governance mechanisms and, thereby, firstly motivate the managers to reduce the agency gap and, secondly, implement a more practical level of the supervisions on the firm's performances in front of the stakeholders by accelerating the circulation of information and giving timely and reliable feedback to the stakeholders. This is the first study that presents a corporate integrity model through qualitative analysis and then investigates the effect of corporate integrity on firms' information asymmetry. Therefore, our study can contribute to the extant literature of this context.

Keywords: Corporate Integrity, Information Asymmetry, Meta-Synthesis

Introduction

The changes in the companies' external environment with the growth of technology and speed of the feedback of the circulation of information in recent years have caused some changes in the structural strategies of the companies, one of which is the change in the integrity of the structural pattern of the companies in a competitive environment (Ongsakul et al., 2021). Integrity, in its general meaning, refers to coordination and contribution. However, in terms of organizational theories, it represents a complex and ever-changing process of values that, by promoting some norms, aims to enhance and stabilize intra-organizational empathy to meet the changing needs of the external stakeholders. Although this is not a novel concept, it has several various definitions due to the wide range of its semantic functions, leading to

the ambiguity of this theoretical approach (Wan et al., 2020). For example, Byrd (1992) defines corporate integrity as a macro-approach to the development of different dimensions, including behavioral, strategic, cultural, and social dimensions, and indicates it as an effective chain in the organizational processes. On the other hand, according to Kraatz & Block (2008), corporate integrity is a set of structural processes inside an organization aimed, through standardization, at effectiveness in the competitive environment and in the interactions with the stakeholders. By reviewing these definitions, it can be inferred that although the differences in the theoretical definitions of integrity might lead to ambiguity, the common point of all definitions is the wide range of the concept of integrity based on the macro and micro dimensions of the firm performance (Nikbakht & Khanbeigi, 2019).

In fact, consistent with the theory of market economy, corporate integrity can be considered an unofficial institution with the nature of the intra-organizational and extra-organizational goals, which is aimed, in terms of the micro and intra-organizational functions, to provide coherence in the individual and organizational ethics procedures and, in terms of macro functions, to provide effectiveness and improve the performances versus social expectations (Guiso et al., 2015). Moreover, corporate integrity, as a comprehensive strategy in a competitive environment, especially at the level of the companies of the capital market, is aimed at meeting the needs of the stakeholders in order to create further confidence and trust in the company (Membini et al., 2015).

One of the needs of the stakeholders is to reduce the information asymmetry. Thus, considering the presence of the agency structure in the companies of the capital market, the conflict of interest between the company and the stakeholders often reduces the information asymmetry. Under such conditions, corporate integrity can implement information circulation and give feedback to the stakeholders more transparently. Despite the instructions such as the "requirements of information disclosure and establishment of transactions of the issuers-dependent individuals" passed in the Parliament of Iran in November 2005, which was enacted by the Board-of-directors of the Securities & Exchange Organization (SEO) in 13 articles and five provisions in 24/Dec/2011 aiming to support the investors' rights, prevent violations, and organize and develop a fair and transparent market of securities in accordance with Paragraphs 8, 11, and 18 of Article-7 of the Islamic Republic of Iran Stock Market Act, the information asymmetry is still the major cause of the investors' distrust in the capital market (Ameri et al., 2022).

The information asymmetry depicts some markets where the seller has

more information than the buyer. This theory describes the bid-ask spread based on the optimal behavior of a trader in uncertain conditions (Goel et al., 2021). In this theory, the ask-bid price difference of securities is obtained from the difference between the bid price of securities and the highest price at which the securities have been sold. The more confidential the information, the more the range of the ask-bid price difference of the stocks and the less the return of the investors without confidential information, especially non-insiders (Qasemi et al., 2022).

By developing intra-organizational ethical values and perceiving the importance of the stakeholders' information needs, corporate integrity forces the managers to provide transparent information about the firm's financial performance. Elbadry et al. (2015) believe that the quality of corporate governance can provide the ground for the integrity of the internal structures of the firms in terms of the reflection of news and information to the stakeholders, which can create a high capacity for meeting the decision-making needs of the shareholders and investors in a competitive market, leading gradually to the acquisition of competitive advantage. According to Bhatt & Troutt (2005), there is a significant relationship between the competitive processes of the firms, corporate integrity, and concentration on meeting the customers' information needs. By approving this relationship, Pardo Tayi (2007) stated that understanding the information-sharing methods and corporate integrity can lead to acquiring competitive advantage and market share. Thus, by understanding the importance of the effect of corporate integrity on the reduction of information asymmetry, the contribution s of this paper from two scientific and applied perspectives can be represented as follows:

First, this study presents a corporate integrity model through qualitative analysis and then investigates the effect of corporate integrity on information asymmetry. Previous studies have shown that corporate integrity is associated with several outcomes, such as increased internal quality control (Shu et al., 2018), reduced stock price crash risk (Hong & Ruonan, 2020), and improved corporate social responsibility (Wan et al., 2020), so far, no study has investigated the effect of corporate integrity on information asymmetry. Therefore, besides methodological innovation, the present work can significantly help expand the theoretical literature on information asymmetry in emerging capital markets such as Iran's capital market. Secondly, the results of this study can help the capital market policymakers, standard-setters, and regulators to improve the recognition of the stakeholders' information needs and increase the financial reporting quality and, thereby, enhance the attractiveness of the capital market for investors by increasing the corporate

integrity and prevent abnormalities in the capital market resulting from information asymmetry.

Literature Review

Corporate Integrity

From a sociological perspective, corporate integrity in any structure like a firm means that some components are responsible for caring for and preventing biases, maintaining the coordination between the components, and avoiding deep disorders. The term "integrity," in its lexical meaning, refers to a wholeness and coherence that is assumed to be a part of the credit capital of a firm. Theoretically, there are several different definitions, which are presented in the following Table:

Table 1. A summary of definitions of corporate integrity

Researcher	Year	Definition
Paine	1994	Corporate integrity is based on the concept of self-management, which supports the trust of stakeholders.
Karssing	2001	He defines corporate integrity as a basis for realizing goals and a factor for the effectiveness of the structural levels.
Cameron et al.	2004	They believe that ethical factors in firms can be assessed by corporate integrity using indices such as organizational forgiveness, trust, optimism, and compassion.
Shoham	2008	He considers corporate integrity a factor for increasing productivity, on which the company's future successes depend.
Brooks	2010	Integrity is created through coherence and a sense of joint responsibility among members of an organization.
Jiang et al.	2015	They define corporate integrity as an organizational behavior following the concentration on intra-organizational ethical values such as developing behavioral and specialized skills, self-management, motivation, etc.

Based on the above definitions, a summarized framework of these definitions can be presented as follows:

Figure 1. Adopted framework of the propositions of the definitions of corporate integrity
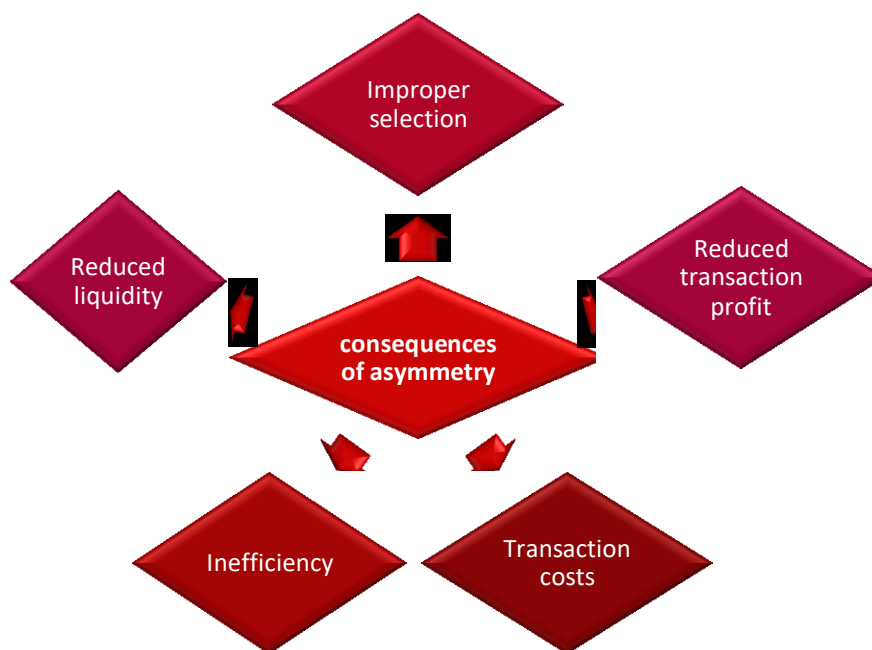
The wide range of definitions has led to some ambiguity in the specialized epistemology of this concept in design and organizational theories. However, in a simple definition, integrity represents a kind of capability to develop the functions of human resources, IT, governance, social responsibility, and environment, which can assess the degree of coherence of the firm's success in terms of economic, social, and cultural aspects (Nayebzade et al., 2013). Corporate integrity must be defined as a basis for improving the problem-solving capabilities and potentials in the firms, on the one hand, and social responsibility and commitment, on the other hand, because, by creating integrity in the field of human resources, the individuals' mental security will result in further commitment and accountability to the social expectations and institutional supervisions (Baber, 2014). Notably, by creating coordination among different levels of the firm structure in the form of integrity, transparency, and feedback, corporate integrity can help improve the effectiveness of the firm's competition (Dragomir & Dumitru, 2023).

Information Asymmetry

According to contract theory and economics, information asymmetry is an essential concept in the agency theory that investigates the transactions

between the investors and the firm. Accordingly, it has an advantage when one party of the transaction has more or better information than the other party (Almulhim, 2023). This creates a kind of power imbalance in transactions that can sometimes lead to the failure of transactions or, in the worst case, market failure due to improper selection and the risk of mistrust (Nguyen & Kimura, 2023).

The theory of information asymmetry was first proposed by Akerlof et al. (1970). According to this theory, in the case of inequality in the access to information, the market equilibrium in the acquisition of interests is disturbed, and the returns and risk of the decision will unequally lead the market flow toward inefficiency. In other words, the asymmetric distribution of information leads to abnormal returns for traders with confidential information. Also, it needs to be clarified for some investors in the capital market due to incorrect transaction choices. On the other hand, public confidence in the capital market will decrease and cause capital to leave (Ameri et al., 2021). In a research conducted as a content analysis, considering the importance of information asymmetry in the capital market, Khatali (2020) presented the following outcomes:

Figure 2. Outcomes of information asymmetry

According to this framework, incorrect selection as one of the consequences of information asymmetry refers to a situation in which sellers have information that buyers are unaware of. In this case, the increase in information asymmetry is shown by expanding the bid-ask spread, and marketers use this increase to compensate for the risk of improper selection (Hajiha et al., 2019). Furthermore, high information asymmetry reduces the tendency to trade, leading to increased stock-selling transactions. Therefore, in the case of unequal knowledge of information, trading profit decreases, and transaction costs increase (Imani & Arrested, 2018). With the increase in information asymmetry increases, market efficiency decreases because many future plans and projects, which could lead to higher returns, stop as the stock exchange ratio decreases. In other words, information asymmetry prevents the exchange of assets at an efficient price and low costs. It ultimately leads to problems providing the necessary capital and liquidity for the issuing firms (Li, 2020). Finally, information asymmetry between market traders leads to the selection and maintenance of different portfolios by them. Therefore, traders with little information will attempt to maintain assets that can compensate for the weakness caused by unequal information. This will reduce the price of securities with high information asymmetries, reducing the liquidity of stocks in the capital market (Vayanos & Wang, 2012).

Corporate integrity and information asymmetry

With the constant changes in the external environment of the companies, the business strategies cannot solve the current and future challenges in a business, such as meeting the needs of shareholders and investors, meeting the institutional requirements, financial reporting standards, etc., merely by addressing some of the stakeholders (Arce et al., 2015). Therefore, in today's market conditions, companies need an integrated structure for responding to such expectations in a competitive market more than ever. The structural integrity of companies should, on the one hand, meet the organization's need to create value and, on the other hand, institutionalize the necessary flexibility for quickly responding to the changes in the stakeholders' demands and expectations so that all hidden and visible aspects of the company's performances in important section, such as financial information disclosure, can be observable to all (Brenkert, 2004). Corporate integrity would prompt the company to perceive the fact that the actions and functions of different sections of the company are monitored and controlled in a public field by all stakeholders and restructure the company and implement a more transparent level of its transactions with the stakeholders through providing timely and reliable reports (Maak, 2008). Restructuring aimed at corporate integrity allows

implementing, instead of a relationship based on a linear and one-sided process in interaction with the stakeholders, a rotational and multi-tasking process, which encompasses a wide range of intra-organizational performances in order to meet the needs of stakeholders and investors aimed to create and develop their needs, and attempting to provide its information ad performances for the shareholders, investors, analysts, and legislators based on a strategic influence on the competitive market (Saifurrahman & Kassim, 2023). Strategic influence encompasses the company's interactive functions with stakeholders in a timely and reliable transfer of news and information. This reduces the information asymmetry and creates trust and confidence in them (Elaigwu et al., 2022). By confirming this point, Garrett et al. (2014) stated that increasing corporate integrity would result in further content conformity between the strategies and performances of the company concerning information sharing, and this can reduce information asymmetry through the quality of financial reporting.

Moreover, Shu et al. (2018) find that corporate integrity will lead to creating inclusive values for stakeholders by improving the efficiency of communication and information transfer, which can improve the firms' internal control quality and information transparency.

Similarly, using a sample of 5149 firm-year observations, Wan et al. (2020) examine the effect of the integrity culture on CSR and show that the integrity culture has a significantly positive effect on CSR. In a similar study, Pham and Tran (2020) document that corporate integrity enhances the effect of social responsibility on the company's performance. Thus, considering the points as mentioned above, we expect that integrity and shared ethical values in a company can improve the mutual trust between the human resources of the company, which will, in turn, lead to a more transparent information environment and, as a result, a reduced information asymmetry. Thus, our hypothesis is set as follows:

H1: Corporate integrity and information asymmetry have a significantly negative association.

Research Methodology

Sample selection

The present study is applied in terms of the research objective and descriptive-analytical in terms of the data collection method. Besides, it is a comparative-deductive study in which, due to the investigation of the data of a specific time period, the data analysis is performed using a cross-sectional and

path analysis-based method. Data of the dependent variable of the research, i.e., information asymmetry, were collected from the website of Tehran Stock Exchange, and data of the independent variable, i.e., corporate integrity, were obtained from meta-synthesis and Delphi analysis methods as well as the questionnaire sent to the managers of the sample companies. The study population included all the companies admitted to the Tehran Stock Exchange in 2021. The final sample population included all the companies qualifying the following conditions:

1- Companies that were a stock market member between 20/Mar/2020 and 19/Mar/2021.

2- To increase the comparability of the companies, the fiscal year was assumed to be ended on 19/Mar/2021.

3- Companies that had kept their activity or fiscal year the same during the given fiscal year.

4- Companies that were not among the investment companies or financial brokers (investment companies were not included due to the different nature of their activity compared to other companies in the study population).

Once the above constraints were applied, a total of 162 companies which were admitted to the Tehran Stock Exchange, were selected as the sample. Then, the questionnaires were sent to the managers of these companies. Finally, after a great deal of follow-up, a total of 138 questionnaires were completed and sent back, which were used as the final sample. The collected data was analyzed using structural equation modeling and partial least squares analysis methods in PLS software.

Research variables

Dependent variable: The dependent variable of this study was information asymmetry. To measure this variable, following Venkatesh and Chiang (1986), Rezaei Pite Noei & Safari Graili (2018), and Fakhari (2017), the following observable variables were used:

✓ **Bid-ask spread:** Following Lotito et al. (2020), the bid-ask spread variable was used as follows:

$$\text{BID} - \text{ASK SPREAD}_{it} = \frac{1}{D_{it}} \sum_{1}^{D_{it}} \frac{(\text{Ask Price}_i - \text{Bid Price}_i)}{(\text{Ask Price}_i + \text{Bid Price}_i)/2} \qquad (1)$$

Where BID-ASK SPREAD is the range of the ask (sale) and bid (purchase) prices of shares of the company i in year t, ASK PRICEi is the highest ask price of the company i, BID PRICE is the lowest bid price of

company i, Dit is the number of days in year t on which the last daily ask and bid prices are available.

✓ *Turnover:* Companies with high information asymmetry will have lower share turnover because unaware (non-informed) traders, knowing that they will incur a loss in trading with aware (well-informed) individuals, will tend to trade with a lower probability (Liao, 2009). Therefore, the share turnover is used as an inverse criterion for information asymmetry (Mohd, 2005):

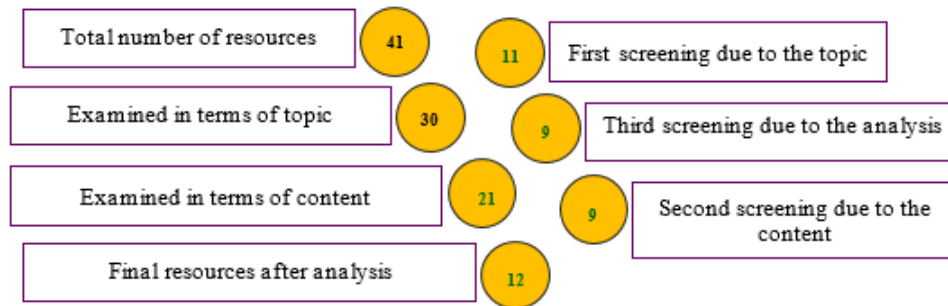$$\text{TURNOVER}_{it} = \frac{1}{D_{it}} \sum_{1}^{D_{it}} \frac{\text{shares traded}}{\text{shares Outstanding}} \tag{2}$$

where TURNOVER is the turnover of the stocks of company i in year t, share traded is the number of daily traded shares of company i, shares outstanding is the total number of issued shares of the company i, and Dit is the number of days in year t on which the shares of company i have been traded.

✓ *AMIHUD illiquidity:* The more transparent the environment, the lower the information asymmetry of the market and the higher the share illiquidity of the company. Therefore, the AMIHUD illiquidity ratio is assumed as a direct criterion for the information asymmetry of the company.

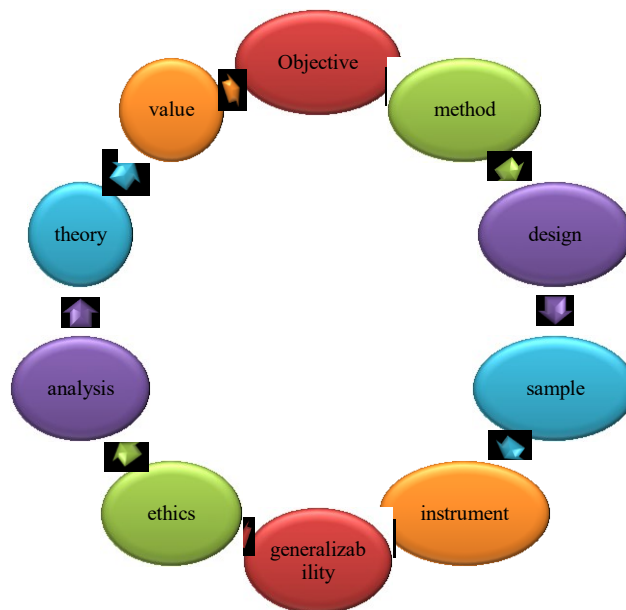$$\text{AMIHUD}_{it} = \frac{1}{D_{i,t}} \sum_{1}^{D_{it}} \frac{|R_i|}{\text{VOL}_i} \tag{3}$$

where AMIHUD is the illiquidity criterion of company i in tear t, |R| is the absolute value of the daily return of the shares of company i, and VOLi is the volume of daily trades of the company i in IRR.

Independent variable: In this study, since there is no instrument for measuring the exogenous (independent) variable, i.e., corporate integrity at the capital market level, the meta-synthesis analysis method is used. This analysis method provides a process basis for formulating practical components consistent with corporate integrity in the capital market. For this purpose, by relying on the meta-synthesis analysis process and Delphi analysis method, the present work aims to formulate an instrument for measuring this variable at the capital market level. Therefore, aiming to concentrate on the recent similar studies worldwide, only studies conducted between 2018 and 2021 with similar dependent variables were selected as the samples.

Figure 3. The process of screening analysis of studies proportionate

It should be noted that the first 12 studies were analyzed at the third step in terms of the critical appraisal process with the contribution of the experts. This process includes the following ten criteria, which are investigated based on the minimum and maximum scores of 1 and 5, respectively. The total score based on these ten criteria can be 50. If research obtains a score of 30 and above, it will enter the fourth step.

Figure 4. Criteria of the critical appraisal process

Now, considering a better recognition of the analysis process at this step, the first 12 studies approved studies were investigated in terms of their score based on the critical appraisal process with the participation of the experts.

Table 1. The evaluation process of verified studies

Approved studies	International studies								Domestic studies			
	1	2	3	4	5	6	7	8	9	10	11	12
	Lawson et al. (2021).	Altamuro et al. (2021)	Wan et al. (2020)	Pham & Tran (2020)	Nangoli et al. (2020)	AL-Abrow et al. (2019)	Chizima & Pocribana (2019)	Shu et al. (2018)	Besharati Moghadam et al. (2021)	Hosseinzadeh et al. (2021)	Davoodi et al. (2020)	Nikbakht & Ahmad Khanbeigi (2019)
Objective	5	2	3	4	3	3	2	4	3	3	4	2
Method	4	1	4	3	3	3	2	3	3	3	3	3
Design	3	2	4	4	4	4	2	4	3	3	4	2
Sampling	4	3	4	4	3	3	3	4	2	4	4	1
Data collection	3	2	4	3	4	4	2	4	3	3	3	2
Generalization	3	3	3	4	3	5	1	4	2	4	4	1
Ethics	3	3	4	4	3	4	3	4	2	4	4	2
Analysis	4	3	5	3	3	5	3	4	3	3	3	2
Theory	4	2	4	4	3	4	2	3	3	4	4	2
Value	4	2	4	4	4	4	3	4	3	4	4	2
Total	37	23	39	37	33	39	23	37	27	37	37	19

Once the critical appraisal process was conducted, four out of all approved studies were excluded because of obtaining scores below 30. Then, the corporate integrity themes were determined by selecting the most significant sum of frequency distributions with content analysis in the approved studies. Thus, based on the approved studies, all criteria related to the research concept were determined and presented in Table (2). Then, the sign »☑« is put in front of each research to specify the highest frequency of the corporate integrity component. In other words, the sign »☑« is inserted based on the use of secondary criteria by each researcher. Then, the scores of each »☑« sign in the "secondary criteria' column are summed up, and then those scores that are higher than the average of the conducted studies are selected as the research components.

Table 2. The process of determining the components of corporate integrity

	Researchers	Intra-organizational dimensions				Extra-organizational dimensions		
		Strategic dimension	IT dimension	Behavioral dimension	Structural dimension	Environmental dimension	Social dimension	cultural dimension
1	Lawson et al. (2021)	-	-	☑	☑	-	☑	-
2	Wan et al. (2020)	-	-	☑	☑	-	-	☑
3	Phan & Tran 92020)	☑	-	☑	-	☑	-	-
4	Nangoli et al. (2020)	-	-	-	-	-	☑	☑
5	AL-Abrrow et al. (2019)	☑	-	-	☑	-	-	☑
6	Shu et al. (2018)	-	-	☑	☑	-	☑	-
7	Hosseinzadeh et al. (2021)	-	☑	☑	☑	-	-	☑
8	Davoodi et al. (2019)	-	☑	-	-	-	☑	-
	Total	2	2	5	5	1	4	4

Considering the approval of 8 studies in the critical appraisal process, the main components that have acquired more than half of the approved studies were confirmed as the main component in determining the research themes. In this section, after analyzing the theoretical fundamentals of the approved studies and approving the three main components, the research themes were determined in a score-based checklist for Delphi analysis. Notably, since the two social and cultural dimensions, as themes of the intra-organizational dimensions, acquired a score of 4, considering the researchers' visions and conceptual limit, the two given variables were merged, and the relevant themes were then presented as the extra-organizational dimension. Subsequently, to make sure of the components and identified propositions, the Delphi analysis was used to reach the theoretical saturation point. For this purpose, these propositions were given to the experts in the form of a 7-item checklist. Results of the Delphi analysis are given in Table (3).

Table 3. The Delphi analysis process of the themes of corporate integration statements
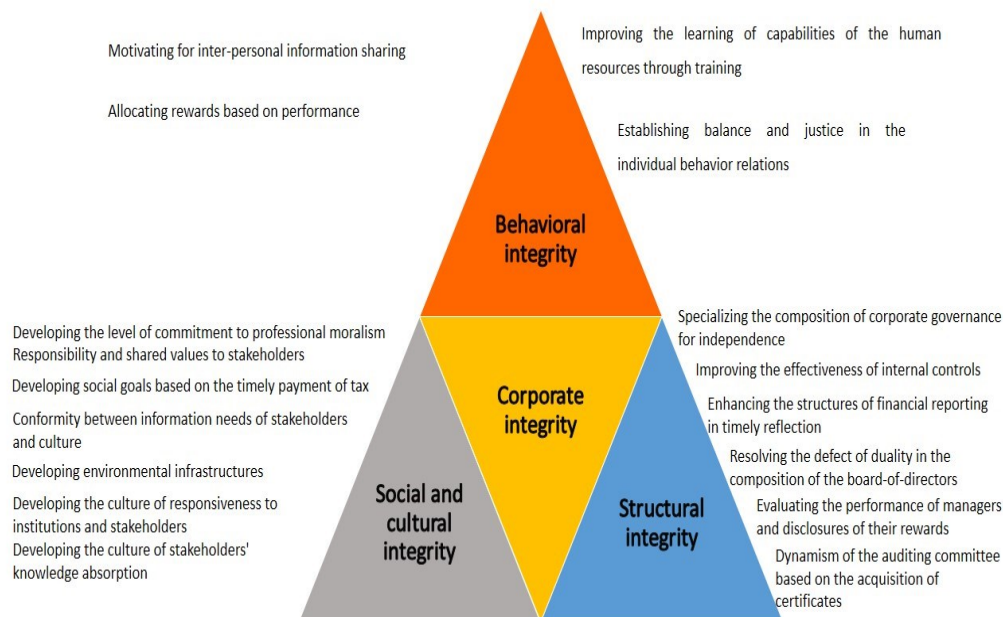
Propositions	The first round of Delphi analysis			The second round of Delphi		
	Average	Agreement coefficient	Merging	Average	Agreement coefficient	Result
Developing the specialized and interactive capabilities of human resources	4.90	0.49	merged	5.50	0.75	approved
Improving the level of individual training	5	0.52				
Improving the level of individual learning in order to improve problem-solving and decision-making capabilities	4.98	0.50				
Establishing balance and justice in individual behavior relations	6	0.80	-	6.20	0.85	approved
Increasing the ambiguity tolerance degree in individuals aimed at individual productivity effectiveness	3	0.20	-	*approved*		
Developing the internal control resources in human resources in order to pursue the formulated goals	4	0.35	-	*Delete*		
Improving the level of knowledge of standards and regulations	3.50	0.30	-	*Delete*		
Developing the level of commitment to professional moralism	6	0.80	-	6.20	0.85	approved
Motivating to share inter-personal information	5.30	0.65	-	5.50	0.75	approved
Allocating rewards based on performance	5.50	0.75	-	6.10	0.82	approved
Developing the feedback of information flow based on the effectiveness of IT	4	0.35	-	Delete		
Enhancing the independence of the board of directors in order to develop the effectiveness of the supervision	4.90	0.49	merged	5.20	0.65	approved
Specializing the composition of corporate governance	5	0.52				
Improving the effectiveness of internal controls	5.30	0.65	-	5.50	0.75	approved
Compiling regulations and instructions for periodical assignment of the CEO	3.50	0.30	-	*delete*		
Developing the coherence and integrity	4	0.35	-	*delete*		

between the corporate strategies with potential capacity of investment						
Enhancing the financial reporting structures by timely reflection of the news and information	5	0.50	-	5.10	0.60	approved
Making the financial reporting transparent through supervision on the managers' performance	4.89	0.50	Merged	5.10	0.60	approved
Eliminating the defect of duality in the composition of the board of directors	5.02	0.51				
Evaluating the performance of managers and disclosures of their rewards	5.30	0.65	-	5.50	0.75	approved
The dynamism of the auditing committee based on the acquisition of professional standard certificate	5.20	0.65	-	5.50	0.75	approved
Ethical responsibility to the stakeholders	4.90	0.49	Merged	5.10	0.55	approved
Improving the shared values for the stakeholders	5	0.52				
Timely payment of the taxes based on the commitment to social values and tax equality	4.89	**0.50**	merged	5.10	0.60	approved
Developing social collective goals	5.02	**0.51**				
Conformity between information needs of stakeholders and utility culture of corporate information	5	0.50	Merged	5.10	0.55	approved
Commitment to optional disclosure of information aiming to enhance the stakeholders' decision-making power	5	0.49				
Commitment to protect the environment	4.90	0.49	merged	5.10	0.55	approved
Developing the investments on environmental infrastructural technologies for wastes management	5	0.52				
Developing the culture of responsiveness to supervisory institutions and stakeholders	5.50	0.75	-	6.10	0.82	approved
Commitment to collective values	3	0.20	-		*deleted*	
Strategically matching the company with the institutions and NGOs	4	0.35	-		*deleted*	
Developing and promoting cultural values of changing the company in accordance with the external changes	2	0.15	-		*deleted*	
Reducing the cultural component of expectation gap between the stakeholders and the company	5.40	0.70	-	6.30	0.88	approved

	Commitment to the improvement of the knowledge level and development of the shareholders' awareness of investment	4.90	0.49	merged	5.20	0.65	approved
	Developing the level of the stakeholders' knowledge management culture	5	0.52				
	Developing the culture of mutual trust in the effectiveness of interaction with stakeholders	5.30	0.65	-	5.50	0.75	approved

Based on the Delphi analysis in two rounds, out of the corporate integrity themes, nine were eliminated since they obtained an average value of less than five based on the 7-item Likert scale. Also, their agreement coefficient was below 0.5. Also, 17 themes were merged. On this basis, a total of 19 theoretically screened themes were approved. Based on the determined propositions, the conceptual framework of the corporate integrity themes of the companies in the capital market is presented as follows. The next step tests the research hypothesis based on the formulated questionnaire.

Figure 5. Theoretical model of research

This questionnaire includes 19 questions and three subscales, scored based on the 5-item Likert scale (5=highly agree; 4=agree; 3=neutral; 2=disagree; 1=highly disagree).

Results

Descriptive statistics

Descriptive statistics is a basis for identifying the tested variables in research, measured by indices such as the central and dispersion indexes. According to the results:

Table 4. Descriptive statistics of the research variables

Variable	Symbol	Mean	Median	Minimum	Maximum	Standard deviation
Behavioral integrity	Beh Int	3.76	3.43	1.00	5.00	0.71
Structural integrity	Str Int	3.84	3.60	1.00	5.00	0.69
Cultural and social integrity	CS Int	3.51	3.00	1.00	5.00	0.84
Bid-ask spread	BID-ASK SPREAD	0.131	0.128	0.003	0.678	0.152
Turnover	TURNOVER	-0.002	-0.0017	-0.005	-0.0001	0.091
Illiquidity	AMIHUD	0.0031	0.0033	0.0002	0.057	0.102

Fitness of measurement models

Three criteria of reliability, convergent validity, and divergent validity were used for the fitness of the measurement models. To investigate the reliability of the measurement model, the coefficients of factor loads, Cronbach alpha coefficient, and compound reliability were used.

Table 5. Coefficients of factor loads

Factor	Index	Questions	Factor load	Factor	Index	Questions	Factor load
Behavioral integrity	Beh Int	Beh Int 1	0.855	Cultural and social integrity		CS Int 12	0.665
		Beh Int 2	0.843			CS Int 13	0.813
		Beh Int 3	0.925			CS Int 14	0.873
		Beh Int 4	0.918		CS Int	CS Int 15	0.924
		Beh Int 5	0.809			CS Int 16	0.845
Structural integrity		Str Int 6	0.722			CS Int 17	0.870
		Str Int 7	0.908			CS Int 18	0.902
		Str Int 8	0.896			CS Int 19	0.808
	Str Int	Str Int 9	0.856	Information asymmetry	Bid-ask spread	BID-ASK SPREAD	1.00
		Str Int 10	0.887		Turnover	TURNOVER	1.00
		Str Int 11	0.843		Illiquidity	AMIHUD	1.00

The benchmark value for the appropriateness of the coefficients of factor loads is 0.4. According to Table (7), all values of the coefficients of factor loads of the questions are more significant than 0.4, indicating the appropriateness of this criterion. Considering the data analysis algorithm in PLS, the measurement of the factor loads of the questions is followed by calculating and reporting the Cronbach alpha coefficients and compound reliability, the results of which are presented in Table (6).

Table 6. Results of Cronbach alpha and compound reliability of the latent variables

Latent variables	Symbol	Cronbach alpha ($\alpha > 0.7$)	Compound reliability (CR > 0.7)
Behavioral integrity	Beh Int	0.94	0.92
Structural integrity	Str Int	0.94	0.93
Cultural and social integrity	CS Int	0.95	0.93
Bid-ask spread	BID-ASK SPREAD	1.00	1.00
Turnover	TURNOVER	1.00	1.00
Illiquidity	AMIHUD	1.00	1.00

Considering the fact that the appropriate value for Cronbach alpha and compound reliability coefficients is 0.7 and, according to the findings in the above Table, these criteria have obtained appropriate values for latent variables, the measurement models of the present research can be confirmed to be appropriate. The second criterion for examining the fitness of the measurement models is convergent validity, which addresses the correlation of each structure with the questions (indices).

Table 7. Results of convergent validity of latent variables

Latent variables	Symbol	Extracted variance average
Behavioral integrity	Beh Int	0.759
Structural integrity	Str Int	0.742
Cultural and social integrity	CS Int	0.707
Bid-ask spread	BID-ASK SPREAD	1
Turnover	TURNOVER	1
Illiquidity	AMIHUD	1
Information asymmetry	INAS	1

Considering the fact that the appropriate value for AVE is 0.7 and, according to the findings in Table (7), this criterion has obtained appropriate values for latent values, the convergent validity of the present work is approved. Divergent validity is the third criterion for examining the fitness of the measurement models. The acceptable divergent validity of a model

indicates that a structure in the model has more interactions with its indices than other structures. Divergent validity is acceptable when the AVE for each structure is higher than the common variance between that structure and other structures in the model. According to Table (8), the mean square root value of the shared values of the latent variables in the present study, which are placed in the primary diameter of the matrix, is higher than their correlation values, which are placed in the entries at the bottom right side of the primary diameter, indicating that each structure in the research model has more interactions with its indices than other structures. This indicates the appropriate divergent validity and fitness of the measurement models of the research.

Table 8. Fornel & Lurker matrix for examining the divergent validity

Variables	Symbols	Beh Int	Str Int	CS Int	BID-ASK SPREAD	TURNOVER	AMIHUD
Behavioral integrity	Beh Int	0.871					
Structural integrity	Str Int	0.697	0.862				
Cultural and social integrity	CS Int	0.811	0.604	0.841			
Bid-ask spread	BID-ASK SPREAD	-.840	-0.690	-0.828	1.00		
Turnover	TURNOVER	-0.894	-0.763	-0.875	0.943	1.00	
Illiquidity	AMIHUD	-0.895	0.762	-0.876	0.944	1.00	1.00

According to the results of reliability, convergent validity, and divergent validity, it is observed that the measurement models of the structural equation model of the research are desirably capable of measuring the latent variables of the research. Thus, the fitness of the structural model is examined in the following section.

Fitness of the structural model

Once the reliability and validity of the model were measured, the structural model was evaluated through the relationships between the latent variables. For this purpose, in the present work, the two criteria of "coefficient of determination (R2)" and "coefficient of prediction power (Q2)" were used. R2 is a criterion that represents the effect of an exogenous variable on an endogenous variable. According to Figure (6), the value of R2 has been calculated for the endogenous structures of the research, which indicates the

appropriate fitness of the structural model. Besides, the Q2 criterion was used to investigate the model's prediction power. Considering the results given in Table (9), it can be concluded that the model has a powerful prediction capability.

Table 9. Values of the coefficient of determination (R2) and coefficient of prediction power (Q2)

Variables	Symbols	Q^2	R^2
Corporate Integrity	Cor Int	0.791	0.99
Information asymmetry	INAS	0.944	0.99

General fitness of the model

After the fitness of the measurement section and structural fitness of the model, the GOF (goodness of fit) criterion was used to control the general fitness of the model, for which three values of 0.01, 0.25, and 0.36 were given, representing poor, moderate, and strong. This criterion can be calculated by Equation (4):

$$GOF = \sqrt{\overline{Communalities} \times \overline{R^2}}$$ (4)

Where "commonalities" indicates the shared values of the latent variables and "R2" indicates the average value of determination coefficients of the endogenous variables.

Table 10. Values of commonalities and R2

Latent variables	Symbol	Communality	R^2
Behavioral integrity	Beh Int	0.633	-
Structural integrity	Str Int	0.635	-
Cultural and social integrity	CS Int	0.628	-
Corporate Integrity	Cor Int	0.566	0.99
Bid-ask spread	BID-ASK SPREAD	1.00	-
Turnover	TURNOVER	1.00	-
Illiquidity	AMIHUD	1.00	-
Information asymmetry	INAS	1.00	0.99

Table 11. Results of general fitness of the model

Communality	R^2	GOF
0.80	1.00	0.89

Considering the obtained value for GOF, which was equal to 0.89, it is confirmed that the model has excellent general fitness.

Results of testing the hypothesis

Examining the fitness of the measurement models and structural model, as well as the general fitness of the model, according to Figures (6) and (7), is followed by examining the results of testing the research hypotheses, the results of which are presented in Table (12).
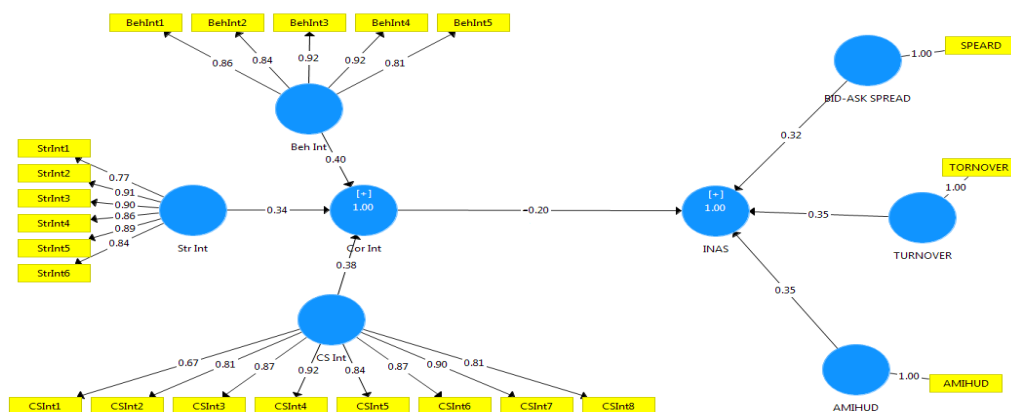

Figure 6. Structural model of the research hypothesis with coefficients of factor loads

Figure 7. Structural model of the research hypothesis with coefficients of significance

Considering the structural model and factor load coefficients, the results of testing the hypotheses can be represented in Table (12):

Table 12. Results of testing the research hypothesis

Hypothesis	Path coefficient (β)	Significance (T-value)	Test result
Corporate integrity has a significant effect on information asymmetry.	-0.20	19.55	Accepted

According to Figures (6) and (7), the standardized coefficient (path coefficient) of corporate integrity has a significantly negative effect on information asymmetry since the path coefficient is negative and equal to -0.20, and the t-statistic is equal to 19.55. Thus, since the t-value is more significant than 1.96, besides approving the research hypothesis, it can be inferred that corporate integrity negatively affects information asymmetry.

Conclusion

The present study aims to present a corporate integrity model and investigate its effect on information asymmetry. As found in this research, since there was no coherent tool for measuring the corporate integrity variable, at least at the level of the Iranian capital market and following the structural characteristics, it was attempted through the analyses of the qualitative section to determine specific criteria for measuring this variable. Therefore, based on the meta-synthesis and Delphi analysis methods and through several stages of content screening, the research experts approved the three main components in the form of 19 questionnaire questions in two stages of the Delphi analysis. Then, based on the partial least squares (PLS) analysis consistent with the research's theoretical and experimental background, the model's fitness was assessed. Based on the statistical analyses of the research hypothesis test results, it was found that corporate integrity has a negative and significant effect on information asymmetry. To analyze the result, it should be noted that corporate integrity restructures the behavioral and structural layers inside the company and the cultural and social layers outside the company.

Also, by establishing a more coherent foundation of responsible values toward human resources as internal stakeholders, the shareholders, investors, analysts, and legislators, as external stakeholders, would attempt to provide them with a more transparent level of their performance. In other words, in the case of corporate integrity, by promoting behavioral values based on truthfulness and commitment, the structures will enhance the corporate

governance mechanisms and, thereby, firstly motivate the managers to reduce the agency gap and, secondly, implement a more effective level of the supervisions on the firm's performances in front of the stakeholders by accelerating the circulation of information and giving timely and reliable feedbacks to the stakeholders. The existence of such capacities for establishing a balance in the intra-structural performances, along with a sense of responsibility to the stakeholders, can reduce the information asymmetry. Therefore, by enhancing the psychological contracts between the human resources, corporate integrity would lead to the development of the structural performances of the company in terms of leadership, which will reduce not only the agency costs but also the information asymmetry by decreasing the company's unidimensional and opportunistic behaviors. In other words, integrity and common ethical values inside the company will provide the ground for mutual trust between the company and the human resources. This, due to the enhanced commitment, will reduce the information asymmetry. Therefore, in the case of corporate integrity, a more balanced level of news and information will be broadcast outside the company, leading under such conditions to a lower bid-ask spread, and, thus, the free flow of information will be considered the basis for demand and supply of the stocks. Besides, the turnover of the shares will also increase since the level of equal awareness (knowledge) in the market becomes more coherent, reducing the probability of unaware individuals in the share trading. Finally, by reinforcing the corporate integrity mechanisms, the company can expect higher stock liquidity based on the information asymmetry because the investment efficiency will be exposed to a lower risk for the shareholders.

Moreover, in a more suitable information environment resulting from corporate integrity in a competitive market, the suitable power of daily stock return can increase the IRR volume of the transactions, leading to the blooming of the capital market directly and the sustainability of the economy indirectly. These results are consistent with those of Shu et al. (2018), Guiso et al. (2015), Garrett et al. (2014), and Liu et al. (2009). Based on the obtained results, it is recommended that the capital market's regulators and policymakers restructure the companies to provide more transparency and formulate the requirements of the market restructuring. In this way, they can help the companies change their structural functions based on the market restructure and, thereby, not only improve the quality of information but also broadcast the information to the stakeholders more transparently. Complicated and maze-shaped structures in companies can increase the information asymmetry, causing damage to the capital market.

Moreover, the managers of the companies are recommended to perceive the extra-organizational needs of the company and, based on the social concerns in different fields such as supervision of the organizations and environmental changes, attempt to coordinate the dimensions of the company's culture following its financial and structural strategies so that they can reduce the level of expectations and coordinate their activities and performance mechanisms. For this purpose, a company must enhance the level of its contribution and interaction with the stakeholders through the feedback of the transparent flow of information so that it can, by attracting the confidence and trust of the stakeholders, compile the company's competitive processes in order to achieve a more effective competitive advantage in the capital market.

Declaration of Conflicting Interests

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