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Presenting a Model for the Role of Disclosure Quality in the Relationship between Innovation and Financial Performance

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Abstract

This study aims to present a model for the role of disclosure quality in the relationship between innovation and financial performance. The present study seeks to determine whether disclosure quality improve the relationship between innovation and financial performance or not? This study is a correlation study. Data is analyzed using structural equation modeling. The statistical population comprised of companies listed on the Tehran Stock Exchange. Y exerting the systematic elimination 140 companies were selected from 2015 to 2022. Result of the first hypothesis showed a significant and positive relationship between Innovation criteria and financial performance indices. This means that innovation improves financial performance. The results of the second hypothesis showed a significant and positive relationship between innovation criteria and disclosure quality indices. This means that innovation enhances the quality of disclosure. The third hypothesis's results showed a significant and positive relationship between financial performance criteria and disclosure quality indices. This means that financial performance improves disclosure quality. The results of the fourth hypothesis showed that disclosure quality indicators have a moderating role between Innovation criteria and financial performance indicators. This means that disclosure quality causes innovation to improve financial performance in the Tehran Stock Exchange and provide these companies with better disclosure quality.

Keywords: *Innovation, Earnings Per Share, Disclosure Quality*

Introduction

Today, companies employ various techniques to improve their performance to survive in turbulent and dynamic international markets, such as innovation, customer orientation, etc. (Tong et al., 2018). On one hand, companies in various industries constantly experience environmental and economic challenges and changes. On the other hand, there is fierce competition between them that threatens their survival. They require an effective factor to deal with these threats

(Luo et al., 2022). Innovation is a trump card in improving the long-term performance of companies (Vecchio et al., 2021). Therefore, companies should constantly seek entrepreneurial opportunities to enhance their performance, which protects the ircreative and entrepreneurial behaviors like a shield against environmental changes and challenges (Naveed et al., 2022). Therefore, the question arises whether innovation can improve the company's performance or not?

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In the accounting literature, Sun et al. (2014) state that companies in more competitive industries are reluctant to disclose information and provide accurate reports. However, if these firms seek innovation, they will maintain a greater incentive to follow disclosure policies, which can improve the quality of their financial reporting. Therefore, it can be argued that innovation can positively affect firm performance by ensuring the reliability of disclosure quality (Lu et al., 2022).

Therefore, the question can be raised, what effect will innovation have on the disclosure quality?

Cheng et al. (2013) state that innovation is one of the effective factors in improving the quality of accounting information disclosure. The quality of disclosed information is one of the essential management tools for establishing communication between the company and investors. Following the financial crises in developed countries and the collapse of large companies such as Enron, WorldCom and Parmalat, the quality of financial information is one of the vital topics discussed in scientific research (Estebanu et al., 2021, Hong et al., 2020). Considering the globalization and global competition, and the probability of bankruptcy and failure in the market, the issue of innovation has become a necessity for companies and market participants (Kothari and Daroush, 2016, Sidi et al., 2014).

The importance of the current research is that in Tehran Stock Exchange, like other global markets, companies try to improve the company's performance and avoid bankruptcy. Sometimes the current performance will not help the existing situation. Companies require a change to get rid of the status quo. In this regard, this research can help them improve the current situation.

Literature Review

Innovation in the new era is known as the main element of business and a strong and accurate scientific structure (Dada & Watson, 2013, Augusta et al., 2022). A collection of knowledge is being developed that has led to the creation of a mature concept in entrepreneurship in companies with increasing interest in innovation. It is expanding daily in the management literature (Breuer et al., 2019). Innovation is an essential part of corporate entrepreneurship strategy and is revealed as an entrepreneurial process or behavior within an organization (Gupta & Berta, 2016). In general, the basic concepts of business management accept innovation as behavior at the company level, which will be stable over time. Because such companies are pioneers in their industry, have more stability, and have the desire to experiment with knowledge, they are trying to discover new ways and grow more and more (Bag et al., 2020). Therefore, this concept is essential in companies regardless of their type and size, and many researchers have been conducted in this regard (Jiang et al., 2016). The importance of innovation to survive and improve the performance of companies in entrepreneurship literature helps better understand the relationship between innovation and organizational performance. Because there is an opinion that companies with stronger innovation will perform much better, companies with a high level of innovation desire to use new opportunities and strengthen their competitive position to improve their performance. In the financial literature, many researchers have investigated the characteristics and innovative activities and their positive effect on the financial performance of companies (Sirafinakis, 2022) experimentally. Based on this, companies with stronger innovation can be expected to perform better. According to the aforementioned discussion, the hypothesis of the research can be stated as follows:

H1: Innovation has a direct and positive effect on financial performance.

The importance of innovation for the survival and performance of firms in the entrepreneurial literature helps better to understand the relationship between innovation and organizational performance. It is believed that companies with stronger innovation will perform much better (Sean et al., 2016, Gonzalez et al., 2018, Huang et al., 2019, Galbreath et al., 2020). Companies with a high level of innovation are more inclined to take advantage of new opportunities and strengthen their competitive position to improve their performance (Bustinza et al., 2019). In the financial literature, many researchers have examined the entrepreneurship features and activities and their impact on performance outcomes (Shaun et al., 2016, Gonzalez et al., 2018, Huang et al., 2019, Galbreath et al., 2020, Fanian, 2017, Namazi & Moghimi, 2018, Abbasi & Radfar., 2022). According to the materials mentioned above, the hypothesis of the research can be stated as follows:

H2: Innovation directly related to disclosure quality.

Gubta and Barta (2016) believe that the higher the quality of information disclosure, the better the performance of companies. This is because accounting can be used as a beneficial information system. Sometimes, decision-makers may use irrelevant and useless information, which causes users to be misled into using irrelevant information (Saru, 2014). Investment decisions without information will cause failure in the competitive market. Therefore, decisions are made based on helpful information (Sadeghi Far et al., 2022). Consequently, it is appropriate for managers to disclose quality information so that investors' wealth is not jeopardized. Because the purpose of accounting is to provide helpful information for investors to make rational decisions (Mardani et al., 2022). Frank et al. (2010) state

that the quality of disclosure of accounting information is an essential part of management's effort, improves communication with internal and external stakeholders, leads to better decision-making, and ultimately improves the company's performance.

According to the mentioned contents, the following hypothesis can be stated:

H3: Disclosure quality has a direct and positive effect on financial performance.

When a company pursues innovation as an innovation index, it will undoubtedly seek to improve its performance in a competitive market. Therefore, when innovation affects performance, it should be considered that this performance improvement must be real, not due to the management of accounting data that misleads investors. This will not be achieved unless the quality of the information disclosed by managers can be evaluated to provide accurate and timely information to users and stakeholders (Galbreath et al., 2020, Simpson & Tamayo, 2020). In this study, a moderator variable called disclosure quality has been used to examine the relationship between innovation and performance, through which the accuracy of the information provided by company managers can also be evaluated.

Based on this, the research hypothesis is proposed as follows:

H4: Accounting information quality has a moderating role in the relationship between entrepreneurial orientation and financial performance.

Methodology

The current research is quantitative, and the collection of data and information is based on the library method. Persian and Latin books, magazines and specialized websites were used to gather information related to the theoretical foundations and background of the research. Also, the necessary information and data of the companies were collected by Tadbirpardaz software and the official website of the Tehran

Stock Exchange. Finally, data was analyzed with SPSS version 26 statistical software and Smart PLS 3 structural equation modeling software. The companies admitted to the Tehran Stock Exchange constitute the statistical population of the present study. This research used the systematic elimination method to select the sample. For this purpose, between 2011 and 2021, companies should not have been a change in the financial year of the companies, and the financial information required for data extraction should be available. Also, these companies should not have negative equity and be part of banks and financial institutions (investment companies, financial intermediaries, holding and leasing companies). According to the applied conditions, 140 companies met the requirements and were examined.

To test the above hypotheses, the variables used is innovation as the independent variable of this research, which is measured by the amount of investment a company makes in purchasing machinery, equipment, and software. The retained earnings to total assets ratio were used to measure the continuity of activity (Kamel, 2018, Namazi & Moghimi, 2018, Keshavarz et al., 2022).

The company performance was the dependent variable in this study, measured by return on equity calculated by dividing net income by equity, the ratio of return on assets calculated by the ratio of net profit to total assets, and earnings per share calculated by net income minus preferred dividend divided by the weighted average number of common shares (Shah et al., 2011, Mahdavi & Rezaei,

2012). The moderator variable was disclosure quality, which is measured through criteria of disclosure quality.

The disclosure quality index in the present study was the scores assigned to each company, published by the Tehran Stock Exchange through the announcement of the companies' ranking in terms of disclosure quality and appropriate notification. This variable has been used in previous studies (Satayesh et al., 2010, Aflatoni et al., 2021, Ghaderi & Golestaneh, 2022).

Statistical population and sample

The companies listed on the Tehran Stock Exchange constitute the statistical population of the present study. This study used the systematic elimination method to select the samples. For this purpose, companies should not have changed their fiscal year from 2015 to 2021, their financial information to extract the required data should have been available, they should have been listed on the Tehran Stock Exchange by the end of the 2014 fiscal year, their equity should not be negative. Further, the companies should not be among banks and financial institutions (investment companies, financial intermediaries, holding companies, and leasing companies) because the disclosure of financial information and corporate governance structures are different. According to the applied conditions, 140 companies were eligible and were examined.

Findings

Table 1 presents descriptive statistics for the dependent, independent, and control variables used in our main empirical analysis

Table 1
The descriptive statistics of the research variables

Variables	Average	Median	Standard Deviation	Min	Max
Innovation	5.045	5.023	0.580	0.483	7.084
Return on Asset	0.180	0.041	0.420	-0.960	3.715
Return on Equity	0.385	0.122	0.353	-0.431	4.683
Earnings Per Share	0.151	0.149	0.138	-0.802	0.715
Disclosure Quality	70.841	71	15.475	45	98

According to Table 1, among the variables, the information related to the asset return ratio variable indicates that companies have earned an average of 18 percent of their total assets annually. In addition, the statistics and numbers related to the disclosure quality variable indicate that, on average, the studied companies have obtained more than half of the

scores related to the disclosure quality. However, they are still far from the maximum amount (100).

Inferential statistics

The results of the measurement model analysis are as follows.

Table 2

The measurement model analysis

Latent Variable	Observed Variable	Standard Factor Loading	Cronbach's Alpha	Compositional Reliability	Average Variance Extracted
Innovation	Innovation	0.777	0.796	0.825	0.614
Company Performance	ROA	0.934	0.907	0.942	0.8440
	ROE	0.960			
	EPS	0.859			
Disclosure Quality	Disclosure Quality	0.823	0.833	0.896	0.741

The table 2 results show that the indicators for measuring the model structures have the necessary accuracy. Because the factor loadings of all observable variables are more significant than 0.7 and Cronbach's alpha value has been calculated for each of the constructs, all the calculated values are more significant than 0.7, indicating the constructs' adequate reliability. The value of the average indices of extracted variances for all structures is more than 0.5, which means that the variables have internal validity. The composite reliability index for the constructs was more than 0.7, which shows the internal consistency of the reflective measurement models of the research. Therefore, all the model constructs have good validity and reliability to measure the research variables.

There are two methods to assess the divergent validity of research variables.

- 1- One is cross-factor loading, specified in the table below, where the amount of correlation between the indices and their respective constructs (bold numbers in the matrix) is greater than the correlation between them and other constructs, indicating proper divergent validity in this model.

Table 3

The cross-factor loading

Variable	DQ	company performance	Innovation
Disclosure Quality	0.863	0.152	0.203
ROA	0.227	0.934	0.238
ROE	0.284	0.960	0.272
EPS	0.222	0.859	0.298
Innovation	0.170	0.172	0.677

Factor load is a numerical value determining the intensity of the relationship between a latent variable (construct) and the corresponding manifest variable (index) during path analysis. The higher the factor load value of an index about a certain structure, the greater the contribution of that index to the explanation of that structure. Also, if the factor load of an index is negative, it indicates its negative effect in explaining the related system. In other words, the question related to that index is designed reversely. As it is clear from the table below, the correlation between indicators with their respective constructs (bold numbers of the matrix) is higher than the correlation between them and other constructs, which proves the validity of the appropriate

variance in this model. The other is the Fornell-Larcker criterion, shows that constructs are completely separate, i.e. the central diagonal values (square root of the average variance

extracted) for each latent variable is greater than the correlation of that variable with other reflective latent variables in the model (see table 4).

Table 4

The Fornell-Larcker criterion to evaluate the discriminant or divergent validity index

Variable	company performance	Disclosure Quality	Innovation
company performance	0.919		
Disclosure Quality	0.268	0.961	
Innovation	0.295	0.297	0.784

Factor load is a numerical value determining the intensity of the relationship between a latent variable (construct) and the corresponding manifest variable (index) during path analysis. The higher the factor load value of an index about a specific structure, the more significant the contribution of that index to the explanation of that structure. Also, if the factor load of an index is negative, it indicates its negative effect in explaining the related system. In other words, the question related to

that index is designed reversely. As it is clear from the table below, the correlation between indicators with their respective constructs (bold numbers of the matrix) is higher than the correlation between them and other constructs, which proves the validity of the appropriate variance in this model.

Evaluation of the structural model of the leading research components, the values of these criteria are specified in Table 5.

Table 5

The structural model fit index

Variable	Coefficient of Determination R ²	Effect Size f ²		Redundancy Index Q ²
		Company performance	Disclosure Quality	
Company performance	0.334	---	---	0.106
Disclosure quality	0.288	0.083	---	0.060
Innovation	---	0.041	0.097	---

R² coefficients are related to endogenous (dependent) hidden variables of the model. R² is a measure that shows the influence of an exogenous variable on an endogenous variable, three values are 0.19, 0.33, and 0.67. The criterion value is considered for weak, medium, and strong values of R². According to the results of the above table, three values are 0.262, 0.334, and 0.288, which confirm the appropriateness of the fit of the structural model and indicate the relatively good strength

of the relationship between the research variables.

Redundancy index Q² indicates the amount of variability of the indicators of an endogenous structure affected by one or more exogenous structures. It is the product of the common values of an endogenous design in the value of R². It is achieved. The greater the distance from zero, the more suitable the structural part of the model is in research. According to the results of the above table,

three values are 0.044, 0.106, and 0.060, which confirm the appropriateness of the fit of the structural model.

The f^2 effect size of this criterion is used to determine the intensity of the relationship between the hidden variables of the model. Cohen (1998) stated three values of 0.02, 0.15, and 0.35 for weak, medium, and strong effects, respectively, for this criterion, according to the table results, all the values for the variables are in the appropriate range.

The above table results indicate the values of 0.334 and 0.288, which confirm the structural model's goodness of fit (GOF) and show a relatively good strength of the relationship between the research variables. The redundancy index Q^2 indicates the amount of variability of the indices of an endogenous construct. According to the results of the above table, the three values are 0.106 and 0.060, which confirm the GOF of the structural model. Effect size f^2 , which according to the results of the table, all values for the variables are in the appropriate range.

The general model includes measurement and structural parts, and the fit assessment is completed by confirming its fit. The GOF index is used to check the model's overall fit of the model and three values of 0.01, 0.25, and 0.36 are considered weak, moderate, and strong values of GOF. According to the results of Tables 2 and 5, the strong general fit of the structural equation model of the research is as follows.

$$GOF = \sqrt{0.295 \times 0.750} = 0.470$$

After assessing the fit of the measurement and structural models, the next step is examining the significance of the path coefficients and testing the research hypotheses by the data analysis algorithm in the Smart PLS method. Figures 1 and 2 show the initial and final models for testing the hypotheses.

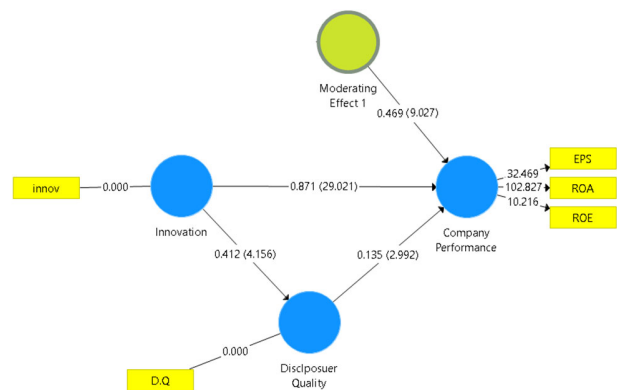


Figure 1. The initial model for evaluation (standardized path coefficients and factor loadings of observed variables and value of T statistic)

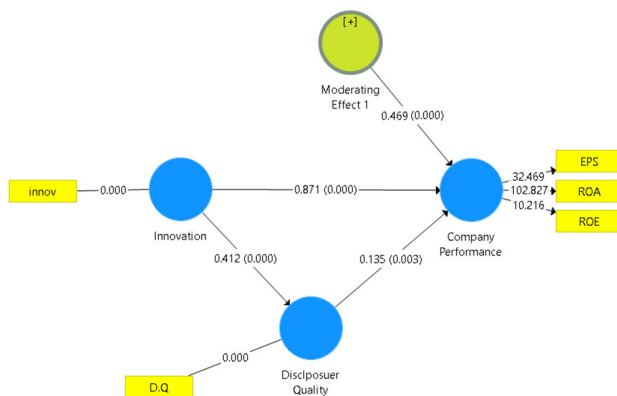


Figure 2. The initial model for evaluation (standardized path coefficients and factor loadings of observed variables and value of P value)

One of the essential criteria is the significance of the coefficients. The fit of the structural model using t coefficients is such that these coefficients must be greater than 1.96 to confirm their importance at the 95% confidence level. Also, by using the probability value, it is possible to conclude the significance of the coefficients. The following table shows the hypothesis test results in the form of path coefficients along with the significance level and relation to the research hypotheses. Since the confidence level of 95% is considered in this research, if the significance level is less than 5%, the path and

coefficient of the desired path are significant, and the desired hypothesis is confirmed, otherwise, the related hypothesis is also confirmed. It is rejected.

Table 6 shows the results of testing the hypotheses in the form of path coefficients with a significant level and relation to the research hypotheses.

Table 6

The results of hypotheses testing

The Path Studied in the Model	Path Coefficient	Standard Error	Test Statistic	Probability Value	Result
Innovation → company performance	0.871	0.032	29.021	0.000	Path Confirmation
Innovation → Disclosure Quality	0.412	0.030	4.156	0.000	Path Confirmation
Disclosure Quality → company performance	0.135	0.033	2.992	0.003	Path Confirmation
The Moderating Role of Disclosure Quality on Innovation → company performance	0.469	0.034	9.027	0.000	Path Confirmation

Conclusion

The present study examined four hypotheses. The main purpose of conducting this study, as stated in the form of hypotheses, was to investigate the effects of innovation on companies' performance by considering the moderating role of disclosure quality. Research findings regarding the relationship between innovation and company performance indicate that innovation directly affects companies' performance. The research results showed innovation has a positive effect on improving the company's performance. This means that companies with higher innovation have better company performance. The effect of innovation on the company's performance has been confirmed in many studies. In this regard, examining the hypotheses in the current research also shows that innovation leads to improved performance. As a result, it is possible to improve the organization's performance by monitoring competitors' activities, investing in innovative areas, and using new technologies in the desired industry. This is consistent with the findings of Rezaei et al. (2016), Fanian (2017), Namazi & Moghimi (2018), Haji Ebrahimi & Eskandar (2019), Jafarinia et al. (2019), Gonzalez et al.

(2018), and Galbreath et al. (2020), but not with the results of Santos et al. (2014). Innovations have an ambiguous information environment resulting from innovative activities, and managers may use this environment to manipulate the company's profits. Therefore, more innovative firms are likely to have lower disclosure quality. But, higher information quality facilitates company decisions. Research result in innovation shows that information systems and strong controls needed to produce higher-quality information can positively affect creativity and innovation. Also, it improves innovation by facilitating and coordinating among employees. Therefore, the quality of disclosure is considered a tool to enhance innovation, with this tool, the management of companies can obtain the information they need to know the current situation. Now, access to reliable and timely information is one of the necessities for decision-making and increasing productivity. Researchers have different views on using different leadership styles, creative tools, information, and knowledge management to improve innovation. However, it is clear that the quality of information disclosure plays a key role in effective and successful innovation

and performance and is very important for decision-making and innovation. Furthermore, higher disclosure quality can reduce information asymmetry in firms and improve innovation success by reducing capital uncertainty and promoting employee coordination. The results of the research models test show a significant positive relationship between innovation and disclosure quality. This means that according to the above content, the innovation in Tehran Stock Exchange will improve the quality of the listing. The research results are consistent with the research of Li et al. (2022), Cui et al. (2022), and Huang et al. (2019). However, they are not consistent with the research of Parker and Kyj (2006). The higher quality of disclosure of accounting information increases informational symmetry and improves the company's performance. Generally, companies with higher disclosure quality are expected to have better performance. The issue of transparency of financial statements and the quality of disclosure of information presented in it has been considered a practical solution. Therefore, the disclosed information as part of the control mechanisms helps the investors discipline the managers of companies and encourages the managers to take steps in line with the shareholders' interests and improve the company's performance and disclose quality information. It provides performance monitoring. The results of the research models test show a significant positive relationship between disclosure quality and financial performance. This means that according to the above content, the quality of disclosure will improve the financial performance of the Tehran Stock Exchange. The results of the research are consistent with the research of Tabarstani et al. (2014). However, it is not according to the research of Menesh et al. (2017). The results of the fourth hypothesis showed that disclosure quality has a moderating role between innovation criteria and company performance indicators. This

means that disclosure quality will cause innovation to improve company performance in the Tehran Stock Exchange and provide these companies with better disclosure quality. The study's results are consistent with those of Huang et al. (2019).

According to the results of the research hypothesis test, it is suggested that the managers should focus on the innovation factors of the company (buying machines and equipping production lines) to perform better in the future. The managers provide relevant and timely information to make more correct decisions. The managers should focus on the quality of the accounting information to perform better and gain investors' trust. Considering the theoretical foundations and background of the research, each of the following topics can be regarded as a suggested topic for future research in this field: Using other variables influencing innovation, such as competitive power and research and development costs. Using different variables affects the quality of accounting information, such as audit quality.

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