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The effect of audit committee and internal audit quality characteristics on product diversification

Tahereh Giahi
Master of Auditing
Auditing major in accounting
Faculty of Humanities, East Tehran University.

ABSTRACT

The purpose of this study is to investigate the effect of the characteristics of the audit committee and the company's internal control system on product diversification in companies listed on the Tehran Stock Exchange. For this purpose, five hypotheses were developed to study this issue and data related to 130 member companies of the stock exchange for the period between 2013 to 2019 were analyzed. The regression model of the research was investigated and tested using the panel data method with a fixed effects approach. The results showed that among the characteristics of the audit committee, the financial expertise of the audit committee and the independence of the audit committee due to increasing the level of supervision, transparency and appropriate disclosure has a significant positive effect on product diversification, but the size of the audit committee has a significant effect on diversification. No product. Also, the results confirm that among the features of the company's internal control system, the presence of weakness mentioned in the audit report has a significant negative effect on product diversification. On the other hand, in relation to the effect of the ratio of the number of employees in the internal audit department to the total number of employees in the business unit, the results indicate that it does not have a significant effect on product diversification.
Keywords: Audit Committee Characteristics, Company Internal Control System Characteristics and Product Diversification.

Introduction

Internal auditing is regarded as one of the most important internal corporate governance systems, and it occupies a unique position. However, the audit committee, which monitors and reviews the financial reporting procedures, is one of the most important aspects of corporate governance. (Pharius et al. 2015).

Choosing a diversification plan and progressing in that direction are always fraught with advantages and disadvantages. On the one hand, proponents of diversity argue that it is necessary to overcome competitive challenges in the value chain, optimize portfolio optimization, balance risk, and avoid excessive market exchange costs. On the other, opponents of the technique point to difficulties including the complexity of managing diverse portfolios, the low returns of interdisciplinary assets, the establishment of unprofitable portfolio linkages, and the resulting loss of value. We will most likely find ourselves in a scenario where we may make a good decision about utilizing a diversification approach if we do not fall into the trap of extremist ideas on both ends of the spectrum. The quantity and style of diversification, which has been the topic of countless studies, is what counts in such a circumstance, although there is no general pattern or guideline. (Jalali, Seyed Hossein, 2019).

The audit committee's formation aided in the formation of a suitable interaction between the company's board of directors, independent auditors, and internal auditors. The committee members cooperate with the board of directors, which is responsible for protecting the interests of shareholders, and control the quality and desirability of financial statements, the optimal implementation of the audit process, internal control, and the financial reporting process. Establishing communication between the independent auditors, the audit committee, and the board will also improve the quality of the company's financial reporting (Daghani and Ahmad Khan Beigi, 2017). Internal audit has a basic and supporting role for internal control management for the board members. Internal auditing is in charge of all tasks that embody the desired function of internal controls from a management standpoint (Morris, 2018).

Internal audit's duty is to assist the business unit in accomplishing its objectives by methodically assessing processes and procedures, as well as maintaining organizational control. Internal auditing can be thought of as a self-contained audit or as an independent auditor (Karagiorgos et al., 2017). Internal audit and independent audit differ primarily in their objective, with internal audit often being performed for the purpose of reporting to management. Internal auditing assists managers in achieving their service delivery goals in a systematic, logical, and efficient manner. Internal auditing, on the other hand, is loaded with difficulties, such as determining whether or not new technology may be used (Shikati, 2018).

The quality of internal audit, according to DiAngelo's thesis, is a function of the internal auditor's "competence" and "independence," and asserts that these two variables are both crucial and different, as well as linked. As a result, to assess the quality of internal auditing, both skill and independence are required. However, focusing on just one of the two components listed is insufficient (Babajani et al., 2019).

Diversification has been a crucial foundation for assuring the development and survival of enterprises in the sphere of global competitiveness since the late twentieth century, due to the susceptibility of specialized companies to quick and unexpected changes in the environment. Gaining new markets, reacting to varied client wants, and decreasing capital loss are all reasons for product diversity. Diversification is one of the measures that may be employed to avoid financial difficulties and bankruptcy. Diversification is a type of strategy used by many firms to increase their performance.

Due to the widespread use of internal auditing in Iran, new fields of research have evolved in this field. As a result, despite the importance of investments in this subject, the literature and research field on the quality of internal audit services in Iran has not been reviewed and explained. In other words, no study has been done on the impact of internal audit quality and audit committee characteristics on product diversification, and research on this topic might assist organizations develop a principled product diversification program. On the other hand, depending on its objectives, each organization employs a range of tactics. The product diversification plan is one of them, and it is regarded as a means to continue to develop and evolve. Companies can choose between having one operational division (centralized business) or numerous operational divisions (diversified company) by implementing this approach, therefore product diversification is a critical and practical problem.

Theoretical foundations

The effect of internal control quality and audit committee on product diversification:

To investigate the influence of internal control quality and the audit committee on product diversification, we must first consider the position and role of the aforementioned factors in the relevant organization. The outcome of a company's audit committee and an institution's efficient and frequent internal audit is that the risk of presenting erroneous and distorted financial statements is substantially reduced, and the quality of the information supplied and its efficacy is greatly improved. The absence of an audit committee and internal audit work is one of the most significant factors lowering the quality of financial reporting. Internal audit occupies a prominent role in the internal control system. The internal control system places a high value on internal audit. Because internal auditing is an impartial assessment of the entity's full internal control system. Internal auditing is a consulting activity that adds value to an organization's operations by being dependable, independent, and unbiased. Its goal is to assist the business in achieving its objectives by assessing and enhancing risk management procedures, organizational control and supervision, and a consistent and disciplined approach. The audit committee, on the other hand, wants to use its responsibility to guide the relevant organization toward the company's objectives. As a result, it can be inferred that if the audit committee and the organization's internal controls all play their roles properly and do their jobs to the best of their abilities, the organization's financial and non-financial capital will not be lost. This is significant because diversifying goods in an organization necessitates a favorable financial climate, and a lack of financial resources may hinder the institution from diversifying and replacing products. Therefore, the direct influence of implemented internal controls and their quality, as well as a well-functioning audit committee, on product diversification cannot be overlooked.

Literature review

Jamei Jafari (2020) investigates the link between auditing expertise and knowledge, auditing committee members, and internal audit recommendation execution, finding that considering the theoretical underpinnings, the audit committee's enhanced skill and knowledge results in a better understanding of auditors' judgments, more effective monitoring of accounting and financial reporting methods, higher value added, and increased market value of the firm.

In a study, Hirani, Ebrahimi (2020) looked at the impact of the audit committee's characteristics on the effectiveness of internal controls on operations and compliance. The findings show that the audit committee's characteristics can reduce the weaknesses of internal control and control in accordance with the rules. However, the features of the audit committee show no significant link with complaints of breaches of internal control in operations.

In a research, Maki (2019) found that insufficient internal control affects the quality of financial information, allowing managers to explore opportunities. Internal audit quality (i.e., expertise and impartiality) is also linked to suspected managerial misbehavior.

Suri et al. (2019) studied the impact of internal auditors' attributes on audit fees in their research. The findings of this study show that while independent auditors rely less on internal auditors' performance, the improvement of internal auditors' characteristics has led to more independent auditors depending on internal auditors' performance. Furthermore, by decreasing content tests, review hours, usage of specialist people, audit planning, and so on, the charge for independent financial statement auditing is reduced.

In a research based on evidence of UK audit expenses, Sullivan et al. (2020) examined the influence of the audit committee's competence on audit quality. The findings suggest that organizations with accounting and financial knowledge on their audit committee have a favorable and significant impact on the quality of auditing and financial reporting.

In a research, Nolando et al. (2019) looked at the information advantages of the CEO's attendance at Audit Committee meetings. The attendance of the CEO in audit committee meetings is favorably and significantly associated with increased information exchange between the company's management and audit committees, according to the findings.

Internal auditing, according to Chang et al. (2019), is a procedure aimed to assist management in achieving three corporate goals: 1. Operational effectiveness and efficiency 2. Reporting accuracy, and 3. Adherence to applicable rules and regulations. However, one of the techniques used by the market to lower the cost of representation, according to this study, is to evaluate the quality of internal control of business units through internal audit. Independent auditors should examine the expertise and impartiality of the internal audit committee's performance during the audit preparation process.

Method

The current study was a correlational and experimental investigation. This study's statistical population comprises all firms that were listed on the stock market between 2012 and 2018. The most essential arguments for adopting this statistical community are the quality of information and ease of access to information in financial statements and other data.

To collect data and information for this study, the library approach was employed initially. CDs containing picture and statistical archives from the Tehran Stock Exchange Organization, the official website of the Tehran Stock Exchange Company and other associated websites, accounting information from listed firms, and other data sources were used to compile the data for this study. A systematic (targeted) elimination sampling strategy was utilized owing to the nature of the research and the existence of some discrepancies between businesses listed on the stock exchange. Because the statistical population of this study includes all firms listed on the stock exchange, we pick samples from the statistical population that meet the following criteria:

- Companies must continue to operate during the period under review.
- The statistical sample includes manufacturing and industrial companies.
- Companies whose fiscal year ends at the end of March.

Hypotheses:

Hypothesis 1: *The audit report's disclosure of a vulnerability has a major impact on product diversification.*

Hypothesis 2: *Product diversification is influenced by the number of workers in the internal audit department compared to the total number of employees in the business unit.*

Hypothesis 3: *The financial expertise of the audit committee has a significant effect on product diversification.*

Hypothesis 4: *The independence of the audit committee has a significant effect on product diversification.*

Hypothesis 5: *The size of the audit committee has a significant effect on product diversification.*

Research models

The regression model was used to test the hypothesis:

$$Product_{i,t} = \beta_0 + \beta_1 ICQR_{i,t} + \beta_2 ICQE_{i,t} + \beta_3 size_{i,t} + \beta_4 Liquid_{i,t} + \beta_5 Loss_{i,t} + \beta_6 Age_{i,t} + \beta_7 MBV_{i,t} + \beta_8 CFO_{i,t} + \beta_9 LEV_{i,t} + \beta_{10} ROA_{i,t} + \varepsilon_{i,t}$$

$$Product_{i,t} = \beta_0 + \beta_1 ACEXP_{i,t} + \beta_2 ACIND_{i,t} + \beta_3 ACSize_{i,t} + \beta_4 size_{i,t} + \beta_5 Liquid_{i,t} + \beta_6 Loss_{i,t} + \beta_7 Age_{i,t} + \beta_8 MBV_{i,t} + \beta_9 CFO_{i,t} + \beta_{10} LEV_{i,t} + \beta_{11} ROA_{i,t} + \varepsilon_{i,t}$$

Research variables

Independent variables:

Existence of weakness mentioned in the audit report ($ICQR_{i,t}$): It is one if the audit report has a poor internal control, otherwise it's a zero.

Ratio of the number of internal audit staff to total staff ($ICQE_{i,t}$): it is the number of employees in the internal audit department to the total number of employees in the business unit.

Financial expertise of the Audit Committee ($ACEXP_{i,t}$): It is the percentage of members with financial expertise in the Audit Committee (Fakhari et al., 2015). According to Article 6 of the Charter of the Audit Committee, it is defined as the financial specialization of members of the university or domestic or internationally recognized professional degree in finance (accounting, auditing, financial management, economics, other management disciplines with a financial or economic orientation) with the ability to analyze the forms of financial statements and internal controls governing financial reporting are defined. (Tehran Stock Exchange Organization-2012).

Independence of the Audit Committee ($ACIND_{i,t}$): it is the percentage of independent members in the audit committee (Fakhari et al., 2015). According to paragraph 1 of Article 1 of the Audit Committee's Charter, an independent member is one who has no direct or indirect relationship or interest that influences his independent decision, causes him to favor the interests of a particular individual or group of shareholders or other stakeholders, or causes non-observance of the same shareholders' interests (Tehran Stock Exchange Organization: 2012).

3-7-1-5: The size of the audit committee (($ACSize_{i,t}$): It is the number of audit committee members present (Fakhari et al. - 2015). The Audit Committee is a group of people that are in charge. The Committee is made up of three to five members that are chosen and appointed by the Board of Directors, according to paragraph 1 of Article 5 of the Charter. (Organization of the Tehran Stock Exchange, 2012).

The dependent variable:

Product diversification ($\mathrm{Product}_{i,t}$): This variable is collected from the explanatory notes along with the financial accounts of the corporations and equals the number of products of the business unit. (Sajjadi et al., 2018).

Control variables:

Firm Size (SIZE): it is the natural logarithm of the company's total assets. (Andrew et al., 2018).

Firm liquidity: it is the ratio of cash and cash equivalent to the total assets of the company. (Andrew et al., 2018).

Loss: It is an imaginary variable that if the company's loss this year is number one and otherwise zero. (Andrew et al., 2018).

Financial Leverage (LEV): the ratio of total liabilities to total assets of the company (Fasso, 2013).

Age: the natural logarithm of the age of the company from the date of establishment. (Andrew et al., 2018).

Market to book value ratio (MBV): the ratio of the market value of equity to the book value of the company's equity. (Andrew et al., 2018)

Cash flow operation (CFO): the company's operating cash flow and is adjusted to the company's total assets. (Andrew et al., 2018)

Return on Assets (ROA): the ratio of net profit to total assets of the company. (Andrew et al., 2018).

The regression model of composite data was used to evaluate the data using central indicators such as mean, median, and scatter indices of standard deviation, as well as to test the hypotheses. To pick between the approaches of mixed regression panels, the F-Limer test was applied. The Hausman test was used to assess whether fixed effects or random effects panels should be utilized.

Results:

Descriptive Statistics:

As shown in Table (1), the results of descriptive statistics of research variables are shown.

Table 1. The descriptive statistics of panel variables

Variable	Mean	Median	Standard deviation	Maximum	Minimum
Product diversification	7.504	7	1.589	30	2
Ratio of internal audit staff to total staff	0.018	0.019	0.010	0.046	0.001
Financial expertise of the audit committee	0.811	1	0.258	1	0.333
Independence of the Audit Committee	0.731	0.666	0.172	1	0.333
Audit committee size	3.936	3	0.998	5	3
corporate size	6.118	6.041	0.691	8.414	4.415
Corporate liquidity	0.041	0.025	0.043	0.208	0.002
corporate age	1.561	1.602	0.157	1.826	1.041
Market to book value ratio	1.847	1.562	0.835	6.374	1.005
Ratio of operating cash flow to total assets	0.120	0.106	0.126	0.451	-0.232
Financial leverage	0.601	0.612	0.199	0.987	0.104
Return on assets	0.098	0.082	0.135	0.454	-0.339
Descriptive statistics of two-dimensional variables					
Existence of weakness mentioned in the audit report	0.493	0	0.500	1	0
Corporate loss	0.132	0	0.339	1	0

Because the variables have the shortest distance from the value supplied for the elongation, the data relating to the independent and dependent variables have a normal distribution. On the other hand, the Audit Committee's financial expertise and independence variables each have an average of 81 percent and 73 percent, respectively, indicating that the members' financial knowledge and independence are strong, which can be a turning point in executing the essential monitoring. Furthermore, the financial leverage variable has an average of around 60%, indicating that debt is a large part of Iranian enterprises' capital structure. Moreover, the company's liquidity variable has an average of roughly 4%, indicating an issue of excessive liquidity in Iranian enterprises owing to the number of debt. Furthermore, the asset return variable has an average of around 10%, which, considering the pace of inflation over the previous decade, shows that the listed businesses could not obtain a proportionate return, maybe owing to sanctions.

Correlation analysis:

Table 2. The correlation coefficient among research variables

	1	2	3	4	5	6	7	8	9	10	11	12
Product diversification	1											
Ratio of internal audit staff to total staff	-0.068	1										
Financial expertise of the audit committee	-0.022	-0.042	1									
Independence of the Audit Committee	0.015	0.083	0.061	1								
Audit committee size	0.036	-0.341	0.066	-0.036	1							
corporate size	0.113	-0.499	-0.015	-0.020	0.383	1						
Corporate liquidity	-0.011	0.108	0.005	0.035	-0.066	L	1					
corporate age	0.44	-0.091	-0.243	0.047	0.091	0.132	-0.035	1				
Market to book value ratio	-0.000	0.016	0.032	0.032	0.010	-0.016	0.089	-0.068	1			
Ratio of operating cash flow to total assets	0.032	-0.048	0.026	-0.123	0.029	0.086	0.069	0.023	-0.011	1		
Financial leverage	0.043	-0.223	0.142	-0.012	0.042	0.124	-0.216	-0.042	0.035	-0.239	1	
Return on assets	0.051	0.097	0.020	-0.075	0.017	0.056	0.210	0.004	-0.005	0.468	-0.517	

Table (2) shows that the correlation coefficient of study variables is logical, indicating that there is no link between the variables.

As a result, it is possible to argue that there is no issue with study variables being aligned.

Examining the reliability of study variables:

Table (3) shows the results of the Levin and Chow tests:

Table 3. The results of the reliability test of variables using Eviews software

Variables	**Levin, Lin and Chou test statistics**	**Error level**
Product diversification	-31.359	0.000
Ratio of internal audit staff to total staff	-30.259	0.000
Financial expertise of the audit committee	-22.21	0.000
Independence of the Audit Committee	-23.491	0.000
Audit committee size	-3.848	0.000
corporate size	-31.043	0.000
Corporate liquidity	-37.557	0.000
corporate age	-136.91	0.000
Market to book value ratio	-33.132	0.000
Ratio of operating cash flow to total assets	-23.212	0.000
Financial leverage	-13.059	0.000
Return on assets	-32.135	0.000

The research variables are 99 percent reliable at the confidence level, as can be observed. As a result, the parameters may be approximated without fear of being incorrect.

Regression analysis

The hypotheses of the Chao test are as below:

H_0*: Integrated data method*

H_1*: Fixed effects method*

Table 1 shows the results of the Chow test for research models (4). The following are the results of this test:

Table 4. Results of F-Limer test for research models:

Study pattern	***Statistics***	***Error level***	***Accepted method***
Research first model	6.025	0.000	fixed effect method
Research second model	6.003	0.000	Fixed effect method

* Source: Research Findings

The findings of the Chow test for research models, according to the statistics and error level, suggest that the H_0 hypothesis is not verified, hence the fixed effects model is the recommended option. To distinguish between panel data with fixed effects and panel data with random effects, the Hausman test must be used. Table also includes the findings of the Hausman test (5).

Table 5. Hausman test results for research models

Study pattern	***Statistics***	***Error level***	***Accepted method***
Research first model	48.851	0.000	**Fixed effect size**
Research second model	45.084	0.000	**Fixed effect size**

As shown, the results show that for research models, the fixed effects approach model is the best option. As a result, the recommended strategy was used to estimate the research model (1). Table 1 shows the results of estimating the first model of the study using the fixed effects approach in order to analyze the two hypotheses of the features of the company's internal control system (7).

Table 6. Estimating the results of the first research model *

Variable	***variable coefficients***	***Standard deviation***	***T statistics***	***Error level***
Intercept	0.615	1.686	0.365	0.715
Existence of weakness mentioned in the audit report	**-0.209**	0.084	-2.473	0.013
Ratio of the number of internal audit staff to total staff	**11.892**	11.748	-1.012	0.311
Corporate size	0.813	0.252	3.222	0.001
Corporate liquidity	1.048	0.973	1.118	0.263
Corporate loss	-0.114	0.108	-1.058	0.290
Corporate age	4.041	1.591	2.660	0.008
Market to book value ratio	0.129	0.032	3.968	0.000
Ratio of operating cash flow to total assets	-0.196	0.283	-0.693	0.488
Financial leverage	-0.748	0.316	-2.365	0.018
Return on assets	0.219	0.465	0.473	0.636
Determination coefficient	0.640			
Adjusted Determination coefficient	0.575			
Durbin-Watson Statistics	2.314			
F statistics	9.860			
F statistical probability	0.000			

* Source: Research Findings

The research model is of high importance, according to the results of Table (6) and the acquired F-statistic (9.860) and error level (0.000), at a level of 99 percent confidence. Furthermore, the modified coefficient of determination for the model, which is equal to 57 percent, indicates that independent variables and research control account for more than 57 percent of the dependent variable changes in total. There is no first-order autocorrelation between pattern residues, according to the Durbin-Watson statistic of 2.314. Furthermore, the findings suggest that only the factors of firm size, company age, market to book value ratio, and financial leverage had a significant impact on product diversification among the control variables. Model (2), on the other hand, has been used to test hypotheses about the audit committee's features. Table 1 shows the estimation results for this model using the fixed effects technique (7).

Table 7. Results of estimation of the second research model *

Variable	variable coefficients	Standard deviation	T statistics	Error level
Intercept	0.906	1.817	0.498	0.618
Financial expertise of the audit committee	**2.087**	0.590	3.536	0.000
Audit committee authority	**1.472**	0.733	2.006	0.045
Audit committee size	**-0.047**	0.053	-0.886	0.375
Corporate size	0.183	0.260	0.704	0.481
Corporate liquidity	1.168	0.943	1.327	0.216
Corporate loss	-0.056	0.111	0.511	0.609
Corporate age	3.612	1.550	2.330	0.020
Book to market value ratio	-0.146	0.034	-4.294	0.000
Ratio of operating cash flow to total assets	-0.166	0.296	-0.561	0.574
Financial leverage	-0.707	0.333	-2.125	0.033
Return on assets	0.196	0.465	0.422	0.672
Determination coefficient	0.628			
Adjusted Determination coefficient	0.561			
Durbin-Watson Statistics	2.0302			
F statistics	9.299			
F statistical probability	0.000			

* Source: Research Findings

The study model may be said to be of high significance at 99 percent confidence level, based on the data shown in Table (7) and the generated F statistic (9.299) and its error level (0.000). Furthermore, the modified coefficient of determination for the model, which is equal to 56 percent, indicates that independent variables and research control account for more than 56 percent of the variations in the dependent variable. Furthermore, it may be claimed that there is no first-order autocorrelation between pattern residues, based on Watson's camera statistic value of 2.302. Furthermore, the findings suggest that only the factors of company age, market value to book value ratio, and financial leverage have a substantial impact on product diversification among the control variables.

Test hypotheses of research hypotheses:

The test findings of the study hypotheses are shown in Table 8 according to the presented tables.

Table 8. The results of confirmation or rejection of research hypotheses

Hypothesis number	Hypothesis body	Hypothesis result at 95% confidence level
First	The weakness mentioned in the audit report has a significant impact on product diversification.	Confirmed
Second	The ratio of the number of employees in the internal audit department to the total number of employees in the business unit has a significant effect on product diversification.	Rejected
Third	The financial expertise of the audit committee has a significant impact on product diversification.	Confirmed
Fourth	The independence of the audit committee has a significant impact on product diversification.	Confirmed
Fifth	The size of the audit committee has a significant impact on product diversification.	Rejected

Discussion and conclusion

The impact of the audit committee's qualities and the quality of internal audit on product diversification was explored in this study.

The influence of the audit report's weakness on product diversification in firms listed on the Tehran Stock Exchange is explored in the first hypothesis. The coefficient of variance of the weakness reported in the audit report is -0.209, and its error level is 0.013, according to the model estimate findings. As a result of the negative coefficient of this variable and its degree of significance, it can be concluded that the existence of a weakness noted in the audit report has a considerable negative influence on product diversification (at the level of 5% error). According to theoretical foundations, organizations with problems indicated in the audit report typically have a lower degree of internal control, and the monitoring system in these companies is not as efficient and effective as it should be. As a result, firms with inferior control are less likely to diversify their product lines. As a result, with fewer product variety and less transparency and regulatory procedures, we anticipate to see less product diversification. As a result, based on the degree of significance, the research's initial hypothesis is verified at a level of 5% error. It should also be noted that "Al-Sha'ar et al" addressed the importance of audit reports in their research in 2017, stating that the weakness mentioned in the audit report affects the quality of information disclosure and financial reporting, as well as the audit committee's quality, so the test result of the first hypothesis is consistent with the study's findings. The influence of the number of workers in the internal audit department to the total number of employees in the business unit on product diversification in firms listed on the Tehran Stock Exchange is examined in the second hypothesis. According to the model's estimation findings, the coefficient of variable ratio of the internal audit department's number of workers to the overall number of employees in the business unit is 11.892, with an error level of 0.311. As a result of the positive coefficient of this variable and its significance level, it can be concluded that the ratio of internal audit department personnel to total business unit employees has a non-significant positive influence (at a 5 percent error level) on product diversification. According to the theoretical underpinnings, organizations with larger auditing departments are more likely to have more accurate financial reporting supervision, and their control systems will have an adequate degree of monitoring and openness. As a result, these organizations aim to adequately disclose all of the risks they face, and it is believed that the size of a few bigger internal audit systems will boost product variety by increasing openness. As a result of the degree of significance, the research's second hypothesis is rejected at a level of 5% error. The test results of this hypothesis are congruent with the findings of "Dadashi et al. (2018)," who claim that the ratio of internal audit department personnel to total workforce of an institution has no significant impact on financial and diversification statements. The third hypothesis investigates the impact of the audit committee's financial knowledge on product diversification in businesses listed on the Tehran Stock Exchange. According to the findings of the model's estimation, the variable coefficient of the audit committee's financial knowledge is 2.087, with an error level of 0.000. As a result of the positive coefficient of this variable and its degree of significance, it can be concluded that the audit committee's financial knowledge has a considerable beneficial influence on product diversification (at the level of 5% error). According to theoretical foundations, companies with a larger specialized audit committee have more transparency and precise planning, and these companies try to properly disclose and manage all of the risks that the company faces, so we expect to see more product diversification with greater transparency and oversight. As a result, the third hypothesis of the study is verified at a level of 5% error when considering the level of significance. Researchers have long been interested in the audit committee's financial knowledge, and various studies have looked at the influence of this aspect. We can mention the studies of "Sullivan et al" in 2020 and "Jamei and Jafari" in 2020, both of which concluded that the audit committee's financial expertise has a positive and significant effect on increasing value added and market value, as well as improving auditing and financial reporting quality. The fourth hypothesis investigates the impact of the audit committee's independence on product diversification in Tehran Stock Exchange businesses. The audit committee's coefficient of independence is 1.472, with an error level of 0.045, according to the model estimate findings in Table (8). As a result of the positive coefficient of this variable and its degree of significance, it can be concluded that the audit committee's independence has a considerable beneficial influence on product diversification (at the level of 5% error). According to the theoretical underpinnings, organizations with a larger independent audit committee have a better degree of supervision and openness, and these companies attempt to adequately report all of the risks they face. As a result, increased product variety is predicted as a result of increased monitoring and openness. As a result, the fourth hypothesis of the study is verified at a level of 5% error when considering the level of significance. In 2017, Alzben and Savan identified the independence of audit committee members as a key element in the execution of internal audit recommendations, claiming that the internal audit department's recommendations impact managers' actions. Because managers vary their goods based on reports and financial records, the findings of this study are compatible with the fourth hypothesis's test result. In contrast, "Tavangar Hamzeh Kalaei and Scafi Asl" rejected the existence of any substantial association between audit committee members' independence and the quality of internal control and the improvement of supervisory and control systems in a study published in 1397. Yes, he does. The impact of the audit committee's size on product diversity in firms listed on the Tehran Stock Exchange is studied in this hypothesis. The audit committee's size variable coefficient is -0.0447, and its error level is 0.375, according to model estimate findings. As a result of the negative coefficient and significance level of this variable, it can be concluded that the size of the audit committee has a negative non-significant influence (at a 5% error level) on product diversification. According to theoretical foundations, organizations with a greater audit committee size have better transparency and accurate reporting owing to more monitoring, and these companies aim to accurately disclose all of the company's risks. Thus, the enlarged audit committee is projected to improve product variety through more openness. As a result of the degree of significance, the research's fifth hypothesis is rejected at a level of 5% error. According to a research done by "Bahar Moghaddam and Jokar" in 2018, the size of the audit committee has no moderating impact, has no effect on investors' inclinations in the capital market, and is ineffective. The theoretical grounds are not accepted by these researchers.

Conclusion

In terms of the impact of the audit committee's and the company's internal control system, there is a case to be made that companies with quality audit committees and internal control systems have more transparency and accurate reporting due to increased supervision, and these companies try to properly disclose and manage all of the company's risks. As a result, corporations with an audit committee and a high-quality internal control system are anticipated to improve the diversification of their stock product by increasing transparency. According to this argument, the analysis of hypotheses revealed that increasing the level of supervision, transparency, and appropriate disclosure has a significant positive effect on product diversification among the characteristics of the audit committee, financial expertise of the audit committee, and audit committee independence. However, the size of the audit committee does not have a significant effect on product diversification. Furthermore, the findings show that, among the aspects of the company's internal control system, the existence of the audit report's weakness has a considerable negative impact on product diversification. The influence of the ratio of internal audit department personnel to total number of employees in the business unit, on the other hand, does not appear to have a major impact on product diversification, according to the findings. According to the research results, the following suggestions are presented:

1. Based on the findings, firm executives may identify and regulate the consequences of transparency and the company's amount of particular information. Managers should also regulate the degree of product diversity in the analysis and pay attention to the drivers of transparency and risk control in order to diversify the product and decrease the danger of being removed by rivals, as well as incorporate it in their analyses and evaluations.

2. In addition, according to the findings of the study, investors should pay close attention to the degree of product diversification in all reports presented, including the board of directors' activity report, when analyzing firms and making investment decisions. According to the findings of the study, product diversity is influenced by the company's level of openness and particular information, thus investors and creditors should consider product diversification when investing and financing because product variety boosts a company's competitiveness and protects investors and creditors by lowering the danger of being wiped out by competitors. On the other hand, each research opens the door to a new route, and the road's continuance necessitates further research. As a result, the following studies are suggested:

• Examining how capital structure and profit-sharing policies affect product diversity.
• Investigating the impact of managerial personality traits on product diversification.
• Examining how investment methods affect product diversity.

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