Comparison of the effect of using corporate governance mechanisms on the performance of companies based on Ponzi trap (Case study: Tehran Capital Markets companies)

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Abstract

The present study aimed to compare the effect of using corporate governance mechanisms on the performance of companies based on the Ponzi trap. This exploratory research included the statistical population of capital market companies in Tehran for the period of 2017-2019. From the statistical population of the research, 132 companies were selected as the sample size by the elimination method. Intra and extra organizational mechanisms were used for corporate governance. In this research, correlation test and regression analysis and Eviews software were used to test the research hypotheses and determine whether they are significant or not. The results of the question test indicate that there is a significant relationship between corporate governance systems with optimal and moderate performance on companies avoiding getting caught in the Ponzi trap (money laundering). There is no significant relationship between corporate governance and poor performance of companies to avoid getting caught in the Ponzi trap (money laundering). Also, the results of the main question showed a significant relationship between corporate governance systems on companies avoiding getting caught in the Ponzi trap (money laundering).

Keywords: Corporate Governance, Company Performance, Money laundering, Capital Market

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1. Introduction

At the beginning of the 21st century, the expansion of social responsibility and accountability in corporate management led to the subject of corporate governance. This system emphasizes transparency, information disclosure, and eliminating inside information and uses power decentralization mechanisms to manage problems arising from the separation of ownership and control and ensure shareholder interests in companies. Meanwhile, all corporate investment decisions are influenced by the cost of capital [25]. In recent years, there has been growing interest in the importance of various corporate governance features as a regulatory mechanism to control management power, including optional financial reporting. Most investors and legislators believe that different corporate governance features help protect shareholder interests and reduce conflicts of interest with management. Good corporate governance is essential for business stakeholders. Although companies and countries have different corporate governance systems, effective legislation for corporate governance mechanisms is essential. Providing exact corporate governance procedures has become an important international subject for codifying and strengthening capital markets and supporting investors. Research shows that countries have unique corporate governance systems. Arguably, there are as many corporate governance systems as countries. A country's existing governance system is defined by internal factors, such as corporate ownership structure, economic situation, regulatory and legal system, governmental policies, and organizational culture, and external factors such as capital inflow, global economic conditions, and offering stocks in other countries markets. Therefore, specifying corporate governance principles by shareholders or board of directors will ensure their implementation regardless of the law. Shareholders can alter the implementation and the organization's observation of corporate governance principles and shape them by making serious requests from managers in lieu of a legal basis [11]. Corporate governance mechanisms can also affect Ponzi schemes. The corporate governance system is a set of intra- and extra-corporation control mechanisms to strike the right balance between shareholder rights and the board's needs and authority [2].

Contrary to the literature on corporate governance stressing the relationship between corporate governance and company performance, this study believes that corporate governance is not meant to directly improve company performance, rather reduce agency problems by regulating management performance, evaluating the financial reporting process, and the ability of companies to avoid Ponzi schemes. In Iran, few studies have explored corporate governance, and other studies have explored the relationship between corporate governance features and information content of earnings, the relationship between earnings management and information content, corporate governance and information content of earnings given the moderating role of earnings management. This study selected and tested ten corporate governance features expected to affect companies' ability to avoid Ponzi schemes, whereas the Tehran Stock Exchange's studies have evaluated a maximum of three.

2. Theoretical Background, Literature, and Developing the Research Hypotheses

2.1. The Corporate Governance System

Due to widespread financial scandals over the past decades, corporate governance is an important subject for investors that evaluates the need to regulate the separation of management and business ownership to ultimately protect the rights of investors and stakeholders. Corporate governance is a set of relationships between shareholders, managers, and auditors that ensures the establishment of a control system to respect minority stock holders' rights, implement annual meeting acts and prevent potential abuse [8]. This act, based on social accountability, is a set of tasks for company board members to ensure accountability and transparency. The corporate governance system ultimately

aims to achieve the following four criteria: 1. Accountability, 2. Transparency, 3. Justice, and 4. Ensuring stakeholders' rights. It is a regulatory system for ensuring stakeholders' rights and moves toward this goal through transparency and verification of company financial statements [12]. Corporate governance ultimately aims to mitigate the agency problem, align the interests of principals and brokers, and guarantee the interests of all company and business stakeholders. Given its role in aligning the interests of managers and stockholders and making financial information more reliable, improving corporate governance is expected to improve financial reporting and reduce restatement of financial statements [27].

2.2. The Importance of Corporate Governance

Corporate governance is a set of intra- and extra-organizational guidance and control mechanisms to strike the right balance between shareholder rights and the board's needs and authority. Corporate governance distributes the rights and responsibilities of company stakeholders, including managers, staff, stockholders, and other natural and legal persons that affect and are affected by the company's activities. This system determines rules and procedures for corporate decisions, including setting goals, specifying the instruments for reaching them, and designing control systems. Corporate governance mechanisms reduce company agency problems. The quality of these mechanisms is relative and differs between companies assuming that the company has followed all value-making stages [13].

2.3. Corporate Governance System, Financing, and the Ponzi Scheme

The Ponzi scheme is a deceptive investment and a means of fraud whereby investors have abnormally great interests. In other words, to establish trust with their investors, these companies pay interests to older investors from newer members' capital, a process which continues as long as new members invest [4]. Therefore, most proponents of Ponzi schemes do not lie and may actually receive a greater interest than their investment. Unfortunately, defrauders are ultimately driven by their personal interests, and since they have not actually invested the money, interest payments stop and most investors lose [35]. Therefore, it is very likely that investors lose money, especially if the company has been recently founded and the Ponzi scheme is short-lived [6].

The Ponzi scheme misleads new investors by offering earnings that other investments cannot guarantee. These earnings are abnormally high over the short-term or abnormally stable and enduring [10]. The permanence of a Ponzi scheme's advertised and paid earnings requires a consistently-growing cash flow from investors to keep the system functioning. This system is destined for collapse [15]. Since their actual interests (if it even exists) is lower than payment to investors. These systems are often dismantled by legal authorities before collapse due to arousing suspicion or the promoter selling unregistered credit instruments. Growing investor interest is likely to inform legal authorities [20].

2.4. Experimental Literature

Kahrizsangi and Bekheradinasb's study [19] suggests that companies with active institutional owners and independent auditing committees employ strategic accounting management techniques more than other companies. Vadizadeh [32] showed a significant correlation between company performance and involvement in Ponzi schemes, raising cost relative to other companies. Involvement in Ponzi schemes can also explain financial distress and subjection to article 141 of Business Law. According to Mohammadi and Noroush [26], studying the relationship between variables showed an inverse correlation between the board's size and independence as an internal metric of corporate governance and cash-holding level. Bashkoo et al. [3] briefly analyzed the effect of five corporate

governance hypotheses and three ownership earnings management hypotheses, and the results suggest a significant correlation between the auditing committee's presence, the board's independence, employing auditors from the auditing organization, and the stock owned by independent managers, and earnings management. The experimental results by Jacoby et al. [18] in emerging markets showed that companies with stronger corporate governance mechanisms tend to accept and adapt to external (extra-organizational) control mechanisms to reduce management-owner conflict. Also, corporate governance has a significant direct correlation with increasing information transparency. Zhai and Wang's [34] experimental results showed that higher-quality financial information strengthens the correlation between the company and industry's operating profit and clarifies the relationship between financial data quality and investment choice with poor corporate governance. According to Di Gloria and Mantovani [9], there is no significant correlation between corporate governance mechanisms and company performance in privately-owned companies, but there is a strong and significant correlation in large companies.

2.5. Research Hypothesis

According to the theoretical background and the literature, the research hypotheses are as follows:

1. There is a significant correlation between optimal corporate governance and companies avoiding Ponzi (money laundering) schemes.
2. There is a significant correlation between moderate corporate governance and companies avoiding Ponzi schemes.
3. There is a significant correlation between poor corporate governance and companies avoiding Ponzi schemes.

Main Research Hypothesis: There is a significant correlation between corporate governance and companies avoiding Ponzi schemes.

3. Research Methodology

This study is exploratory in terms of objective and a posteriori and retrospective (using past information). The research data was collected from financial statements and notes, the Securities and Exchange Organization database, and the Rahavard-e-Novin software. The research hypotheses were tested using correlation analysis, the VIF statistic, and the panel data model.

The research population included all the companies listed on the Tehran Stock Exchange from 2015 to early-2020. From the companies listed on the stock exchange, 132 companies were selected through the elimination scheme (screening). Given the research timeframe, a total of 660 companies were selected according to the following criteria:

1. Investment companies, banks, and financial intermediaries were excluded from the sample due to their specific reporting environment.
2. Companies should be listed on the stock exchange throughout the research period.
3. For comparability, the financial year should end in March.
4. The company should not change its financial year throughout the study.
5. Companies should provide complete and detailed information of annual financial statements for calculating the relevant year-end research variables related to the research period.

After applying these limitations, 132 companies listed on the Tehran Stock Exchange were selected as the sample. In the next stage, according to the Sharma model, the initial sample was categorized into companies that were involved in or avoided Ponzi schemes. Model (3.1) was used to investigate

the effect of corporate governance mechanisms on the performance of companies based on Ponzi schemes.

$$P_{it} = \beta_0 + \beta_1 CL + it + \beta_2 SIZE_{it} + \beta_3 AGE_{it} + \varepsilon_{it} \qquad (3.1)$$

Where; P: Ponzi (money laundering); CL: Corporate governance; $SIZE$: Company size; AGE: Company lifespan; β: The intensity of changes in the independent variable; β_0: Intercept; ε: the error term.

3.1. Calculating the dependent Variable

Companies trapped in Ponzi schemes (money laundering): The Ponzi scheme is a deceptive investment with abnormally greater returns on investment than conventional investments. In this scheme, the profit paid to investors is taken from their or other investors' money rather than an actual economic activity. Interest payments are stable and continue only with a large and growing cash flow from investors. The matrix scheme is also similar to the Ponzi or the pyramid scheme. There are numerous methods for identifying companies involved in money laundering (Ponzi scheme). This study selected the following two criteria for simultaneously calculating the money laundering criterion (Ponzi):

1. Debt growth exceeding asset growth ($\Delta D > \Delta A$)
2. Company financing costs exceeding average market rate ($\Delta FC > \Delta AMR$)

3.2. Calculating the Independent Variable

This model (the effect of corporate governance mechanisms) has the following independent variables:

Board of Directors Size: Calculating company board of directors' size [17].

The ratio of non-Commissioned Board of Directors Members: The ratio of non-commissioned board members to total board members [13].

Major Shareholder Ownership: From collective ownership, the total percentage of shares owned by major shareholders (minimum ownership of 5% from the company's stock-flow) to total capital [30].

Percentage of Free Float Stocks Studied: In terms of free float stocks, there are companies with less than 20% free float stock and those with higher than 20% free float stock. Note that free float stocks are announced by the Tehran Securities and Exchange Organization every three months [1].

Percentage of Government-Owned Shares: Companies with all or at least 50% of their capital owned by the government are public [13].

Auditor's Comment Type: An acceptable statement by the company auditor will classify the company's corporate governance as optimal, conditional statements will classify the company's corporate governance as moderate, negative or rejected statements will classify the company's corporate governance as poor, and lack of statement will also classify the company's corporate governance as poor [31].

Disclosure of Transactions with Affiliates: The Securities and Exchange Organization's annual scores given to companies listed on the stock exchange were used for calculations. By virtue of the Iranian Financial Statement Standard no. 12, if the required disclosure items include public disclosures and other disclosure items, the company will have optimal corporate governance, if the required disclosure items in financial statements only state public disclosures, the company will have moderate corporate governance, and if the required disclosure items in financial reports exclude public disclosures and other disclosures, the company will have poor corporate governance [28].

The present study uses the following control variables according to Biddle et al. [5], Chen et al. [7], and Gomariz and Ballesta [14]:

Company size $SIZE_{it}$: Natural logarithm of assets at the start of the year

Company lifespan AGE_{it}: Years since company founding until the research time horizon.

4. Research Findings

4.1. Descriptive Statistics

Table 1 shows the descriptive statistics of research variables, which actually show the level of each variable in the sample.

Table 1: Descriptive Analysis of Research Variables

English	Variable	Mean	Median	Standard Deviation	Skewness	Kurtosis	Min.	Max.
Ponzi (Money Laundering)	P	0.532	-	0.217	0.687	0.835	0	1
Board Size	BSize	5.665	0.331	0.678	0.921	0.545	0.162	0.909
Ratio of Non-Commissioned Board Members	PNEXEC	0.575	0.438	0.217	0.479	1.103	0.048	0.495
Major Stockholder Ownership	INS	0.568	0.453	0.170	-0.05	3.145	0.243	0.523
Free Float Stock Percentage	Free Float	0.492	-	1.083	1.105	1.535	0	1
Company Type	KCOR	0.075	-	0.072	0.721	0.345	0	1
Auditor Statement	Auditor	1.765	2	0.345	0.091	1.463	1	3
Information Disclosure	Disclosure	1.708	-	1.325	1.568	1.192	1	3
Company Size	Size	14.266	12.487	1.683	1.105	5.535	2.309	15.056
Company Lifespan	AgeT	0.578	-	0.189	0.897	1.654	0	1

4.2. Data Normality Test

Parametric statistics (the Kolmogorov-Smirnov statistics (K-S), the Jaque-Bera test, or mean and average proximity for normal data distribution) were used to test the independent variable's normality hypothesis [29]. Accordingly, as mentioned in analysis of descriptive statistics, the mean and average of variables were compared and shown to be normal. The mean and median proximity suggests that the variable is normal. Table 2 shows that the variable's significance level is above 5%, meaning that H0, or the normality of error terms, is not rejected; and the dependent variable's error terms have a normal distribution.

Table 2: Jarque-Bera Test Results

Variable	Jarque-Bera Test Results	Significance Level	Result
Ponzi Scheme (Money Laundering)	12.94	0.142	Confirmed normality of error terms.

4.3. Data Collinearity Test

The STATA Collin test can be used for detecting collinearity. Table 3 shows the collinearity test results for the regression model. According to the table, the collinearity test results show no collinearity problem in the regression model between research variables.

Table 3: Collin Test Results for Evaluating Model Significance

Model	Variable	vif statistic	cond index statistic
Main Research Model	P	1	1
	BSize	1.02	2.3245
	PNEXEC	1.01	2.3475
	INS	1.02	2.6241
	Free Float	1.02	3.6558
	KCOR	1.02	3.5324
	Auditor	1.01	2.6547
	Disclosure	1.01	2.5687

5. Inferential Statistics

5.1. Research Model Test

This section explores the effect of corporate governance systems on stock market companies avoiding Ponzi schemes (money laundering) using the logit regression test. This model's independent variables are the effect of companies with optimal, moderate, and poor governance systems, and the dependent variable represents companies involved in Ponzi schemes (money laundering). Moreover, the research model's control variables are company size and lifespan.

This study has the following regression model:

$$P_{it} = \beta_0 + \beta_1 CL + it + \beta_2 SIZE_{it} + \beta_3 AGE_{it} + \varepsilon_{it}$$

Table 4 shows the results of testing the first research model.

Table 4 shows a z-score probability of 0.006 for the Ponzi scheme (money laundering) involvement variable in the 95% confidence level and p-value< 0.05. Since the value is below 0.05, the coefficient is statistically significant and the research hypothesis is not rejected.

Table 4: Research Model Test

Research Model			$P_{it} = \beta_0 + \beta_1 CL_{it} + \beta_2 siz_{it} + \beta_3 AGE_{it} + +\varepsilon_{it}$			
Variable	Symbol	Variable Name	Estimated Coefficient	Standard Error	z-score	z-score probability
Intercept	β		-21.5472	3.5472	-6.08	0.012
Dependent Variable	P	Ponzi Trap (Money Laundering)	7.5270	2.3472	6.35	0.006
Independent Variable		Optimal Governance System	0.676	0.5214	4.24	0.000
		Moderate Governance System	0.457	0.3748	3.85	0.000
		Poor Governance System	0.265	0.4217	5.37	0.000
		Governance System	0.347	0.5478	2.76	0.000
Control Variables		Company Size	0.584	0.2147	3.23	0.001
		Company Lifespan	0.623	0.3652	2.85	0.000
McFaden R-squared Coefficient			0.3140			
Log Likelihood			18.67			
Log Likelihood Probability			0.000			
Model Goodness of Fit (LR Statistic)			183.217			

5.2. Comparison of Means

This section evaluates the state of companies involved in Ponzi schemes and those avoiding them. The test compares the means of two groups of corporate governance variables.

The independent t-test was used to analyze and compare the state of corporate governance variables among companies involved in Ponzi schemes and those avoiding it. Tables 5 and 6 show the results of the independent samples t-test or comparison of means.

Table 5: Descriptive Results of the Corporate Governance Comparison t-Test and Research Variables

Variable	Groups	Qty	Mean	Standard Deviation
Social support	In Ponzi traps	74	398.17	386.1
	Avoided Ponzi traps	58	865.8	260.1

The t-test results with equal variances show the F value of 0.438 from Levene's test, which is insignificant and means that the variances are equal. Therefore, the research hypotheses are checked using the first row of results from the independent samples t-test. The results of the independent samples t-test suggest a significant difference between the means of corporate governance systems among companies involved in Ponzi schemes (2.389) and those avoiding them (3.865). In other words, the t statistic of 5.467 is higher than the 1.96 level and the significance level of 0.023 is below the 0.05 level. Therefore, H0 is rejected; and the first hypothesis cannot be rejected. Accordingly, there is a significant difference between corporate governance systems among companies involved in Ponzi schemes or those avoiding them. The results show that companies involved in Ponzi schemes have a poor governance system and companies avoiding these schemes have an optimal governance system.

Table 6: Descriptive Results of the Equal-Variance t-Test and Levene's Test

Corporate Governance System	Equal-Variance t-Test						Levene's Test	
	95% Confidence Interval		Mean Difference	Significance Level	Degree of Freedom	t-Statistic	Significance Level	F Statistic
	Lower Bound	Upper Bound						
Assuming Equal Variances	1.2158	1.8632	1.476	0.023	98	5.467	0.510	0.438
Assuming Unequal Variance	1.1046	1.7684	1.476	0.180	97.117	1.151		

First Question Test: Is there a significant correlation between optimal corporate governance and companies avoiding Ponzi (money laundering) schemes?

The results indicate a Z-score probability of 0.0000 for companies with optimal governance systems in the 95% confidence level and p-value< 0.05. Therefore, optimal corporate governance systems affect involvement in Ponzi schemes, hence the significant correlation between optimal corporate governance systems and companies avoiding Ponzi schemes.

Second Question Test: Is there a significant correlation between moderate corporate governance and companies avoiding Ponzi schemes?

The results indicate a Z-score probability of 0.0000 for companies with moderate governance systems in the 95% confidence level and p-value< 0.05. Therefore, moderate governance systems affect involvement in Ponzi schemes, hence the significant correlation between moderate corporate governance and avoiding Ponzi schemes.

Third Question Test: Is there a significant correlation between poor corporate governance and avoiding Ponzi schemes?

The results show a Z-score probability of 0.0000 for companies with poor governance systems in the 95% confidence level and p-value< 0.05. Therefore, poor governance systems are not related to avoiding Ponzi schemes; and there is no significant correlation between poor corporate governance and avoiding Ponzi schemes.

The main research question: Is there a significant correlation between corporate governance and avoiding Ponzi schemes?

The results present a Z-score probability of 0.0000 for companies with optimal governance systems in the 95% confidence level and p-value< 0.05. Since the value is below 0.05, the coefficient is statistically significant; and there is a significant correlation between corporate governance systems and avoiding Ponzi schemes.

6. Discussion and Conclusion

This study aimed to find the optimal corporate governance model for avoiding Ponzi schemes in the Tehran Stock Exchange. Therefore, 132 companies were selected in the 2015-2019 timeframe using elimination sampling. The independent samples t-test was used to analyze and compare corporate governance variables among companies involved in Ponzi schemes and those avoiding it. Then, the research hypotheses were separately tested for each governance system. The first question's test

results using logit regression indicates a significant correlation between optimal corporate governance and avoiding Ponzi schemes. This question's results are consistent with Lee [21] and McKnight et al. [24], who showed that companies should not rely on money laundering for adequate fiscal performance and should present a transparent financial structure since money laundering will damage financial transparency and trust, and may even affect and turn negative the financial performance of companies. The second question's test results suggest a significant correlation between moderate corporate governance systems and avoiding Ponzi schemes. This question's results are consistent with Liang [22] and C.G. Lord, L. Ross and M.R. Lepper [23], who showed that companies with adequate governance systems are hesitant to use money laundering. In this regard, a desirable governance system means to move away from negative factors such as money laundering, which is essential for the health of companies' capital structure and improves overall organizational performance. The third question's results suggest no significant correlation between poor corporate governance and avoiding Ponzi schemes. This question's results are consistent with McKnight et al. [24] and Viltin [33], who found that companies with inadequate governance systems for their investment and capital structure try to mix money laundering with financing and are inattentive to trust and transparency. These companies will rely on money laundering more than the other companies who try to operate legally and transparently. The main question's results suggest a significant correlation between corporate governance systems and avoiding Ponzi schemes. This question's results are consistent with C.G. Lord, L. Ross and M.R. Lepper [23] and McKnight et al. [24], who showed that companies try to sustain their economic life by mergers and expanding target markets. These companies also resort to financing from domestic and international capital markets. The corporate governance system is a fundamental factor for investors and lenders, making companies hesitant to use money laundering. According to hypotheses tests and findings, financial statement users are recommended to study companies' financial statements while considering corporate governance systems. Likewise, managers of companies listed on the Stock Exchange and individuals who appoint and dismiss them can improve their knowledge using these results. It is also recommended to increase the ratio of non-commissioned board members and employ individuals who are not involved in administrative procedures to improve supervision of company performance. Companies listed on the stock exchanges are also recommended to consider the board's transparency and performance to achieve adequate corporate governance in capital markets.

Future studies should consider that interim financial statements are essential for making economic decisions (The Accounting Standards Codification Committee) and provide useful information about the finances of investors, creditors, and other users. It is also recommended to study this subject in a comparison of two different industries. Implementing this study in various industries listed on the Tehran Stock Exchange can provide guidelines regarding the condition and differences of corporate governance systems. Finally, the present study has limitations and its results were stated cautiously. The various limitations of this study are the uncontrollability of variables such as economic and political circumstances, industry type, company operation, national and international rules and regulations, and the limiting timeframe from 2015 to 2019, which can affect research variables.

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