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The Relationship between Return Equities, Independence of the Board of Directors and Environmental Sensitivity of Industry Group and the Social Responsibility

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ABSTRACT

The current research aims to analyze the relationship between return of stockholders' equities, independence of the board of directors and environmental sensitivity of industry group and the social responsibility of enterprises based on integrated factors of sustainable development. The social responsibility includes the obligations for which the enterprise is responsible to contribute to the community where it acts. The integrated factors of sustainable development review the cases of backgrounds for disclosure, the framework of disclosure, report of the board of directors, concentration of stockholders, goals of sustainable development, and achievement of these objectives. The study period is related to years (2012-2016) and the selected sample is composed of 82 companies. The Ordinary Least Square (OLS) regression method was adapted to test the research hypotheses. The research findings indicate that there is a positive and significant relationship between return of equity of stockholders,

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independence of the board of directors, and environmental sensitivity of industry group and social responsibility of enterprises based on the integrated factors of sustainable development after controlling ratio of book value to market value for equity of stockholders and systematic risk (market risk). This means that by rising in the rate of return on equity of stockholders and independence of the board of directors, the level of social responsibility increases, as well. Similarly, social responsibility was more observed environmentally in the sensitive enterprises. Hence, it is suggested to enterprises to address specifically return of stockholders' equity and independence of the board of directors to increase the level of social responsibility as an important topic. Likewise, it is suggested to the sensitive enterprises to try to improve the social responsibility.

Keywords: Social responsibility, return of stockholders' equity, Independence of board of directors, Environmental sensitivity, Integrated factors of sustainable development.

Introduction

The enterprises are exposed to a major pressure from legislators and regulatory institutions to behave in a specific form and they should take transparent and proper attitudes regarding their methods and approaches in this field (Lozano and Huisingh, 2011). Similarly, they should establish a suitable relation to several conducted activities and express the result at economic, social, and environmental dimensions (Elkington, 1998). The economic dimension usually indicates financial resources and return and the social case related to this point shows how an enterprise considers the diversification of social requirement. Likewise, environmental dimensions represent a mutual association with the natural environment (Daub, 2007). Whereas the social responsibility of an enterprise has been converted into a major commercial activity, thus one can assume it as the main management field along with marketing, accounting, and or financial issues (Crane, Matten, and Spence, 2008). On the other hand, the organization is everincreasingly responsive in terms of the effect on community and environment, so that this fact can be perceived by growing numbers of rules, regulations, and penalties in this field (Henri and Journeault, 2008). Review and guiding of these items are placed within the scope of sustainable management. Sustainable management is also defined as a tool for assessing the performance of the latest information that helps the directors to respond to the related issues, to present the economic, social, and environmental

information of the enterprise, and to express how enterprises act in order to be able to improve their economic, social, and environmental efficiency and to make it more effective (Daub, 2007).

The accounting researchers propose some concerns about the potential of various activities of sustainable development in enterprises. To solve this problem, the analysis of integrated factors of sustainable development is one of the most effective tools to measure the sustainable development that includes review of economic, social, and environmental dimensions in which organizations should integrate their economic, social, and environmental dimensions with their general management systems (Dissanayake and Lobo, 2016). As described by International Integrated Reporting Council (IIRC), the integrated report tries to overcome the reporting constraints by integrating the information systems and support from domestic and foreign reports (Giovannoni and Fabietti, 2013). This report requires the enterprises to describe how different sustainability dimensions are linked that not only include their performance, but also comprise the conducted activities to achieve a favorable performance (Figge et al., 2002).

Notwithstanding, the organizations have used various methods of sustainability reporting for several years and the resultant findings from economic, social, and environmental activities are often considered separately or distinctively from each other. In contrast, the integrated report of sustainability aims to determine these realities altogether (Figge et al., 2002). The review of this issue creates causal relations among financial and non-financial performances and causes an increase in the transparency of internal and external processes which enable the stockholders to perceive the sustainability approach better.

This study mainly aims to analyze the relationship between return of stockholders' equities, independence of the board of directors, and environmental sensitivity of industry group and social responsibility of enterprises based on integrated factors of sustainable development according to the model of Dissanayake and Lobo (2016). According to this information, the rate of social responsibility (accountability) increases by the rising level of financial performance in enterprises. Moreover, there is a positive and significant relationship among financial performance, independence of the board of directors, and environmental sensitivity of industry in corporative activity with the reported rate of sustainable development (Stacchezzini, Melloni and Lai, 2016). Likewise, with respect

to the importance of the related issues to sustainable development for directors, legislators, investors, creditors, and other users it is necessary to conduct some studies in this field to clarify the importance of this study more clearly. Hence, since no study carried out so far in Iran in this field, the analysis of this topic is the matter of the utmost importance. Then, primarily theoretical bases and background of the study are proposed and afterward methodology and testing of hypotheses will be discussed. In the end, the discussion and conclusion are expressed.

Theoretical framework

Social responsibility is composed of tasks and obligations which should be done by the organization for preservation, protection, and contribution to the community where it acts (Fleming, 2002). Similarly, one can assume the social responsibility of enterprises as a correlation and unity between organizational activities and values, so that to reflect interests of all beneficiaries including stockholders, customers, personnel, investors and all members of the community in policies and performance of that organization. In other words, an organization should always consider itself as a part of society and feel the sense of responsibility for the community and try to improve public welfare independently from direct corporative interests (Forooghi et al., 1999). Similarly, social responsibility is a task undertaken by institutes; namely, they should not affect adversely in social life scene where they work (French et al., 2004). The level of this task generally includes some duties, like not polluting the environment, nondiscrimination in employment, avoidance from immoral activities, and giving information to the consumer about the quality of products. Likewise, this issue may be assumed as a duty based on positive participation in the life of members of the community (Fleming, 2002). The enterprises with higher social performance tend more to public disclosure of their social activities, therefore, a high level of information transparency causes a reduced information asymmetry among enterprise and investors and this decreases risk per se (Serafeim et al., 2011). The subject of social responsibility of an enterprise and sustainable development is still going to spread as a concept and it is discussed along with some cases, including corporative citizen and activities of sustainable development (Reddy and Gordon, 2010). As a result, according to commercial approaches, sustainable development can be defined as organizational responsiveness to direct and indirect requirements for the individuals without negative effect in the future (Dyllick and Hockerts, 2002). The conducted studies in the field of sustainable development suggest that the reports of sustainable development are previously related to the investors and this information is deemed as a signaling factor for potential investors (Güler and Crowther, 2009; Bassen and Kov_acs, 2008; Kolk, 2004; Schaltegger and Wagner, 2006). Thus, presenting relevant reports to sustainable development is assumed vital for the enterprises.

The previously conducted studies in the field of sustainable development and corporative social responsibility have shown that the financial performance might influence the reporting process of sustainable development in enterprises. Due to effective costs in this field for the of sustainable development-related activities, performance is considered as one of the important factors in the report of sustainable development (Prado-Lorenzo, Gallego-Alvarez, Garcia-Sanchez, 2009). Dilling has also found that there is a positive relationship between higher financial performance and reporting sustainable development. Moreover, poor corporate governance may assume as a favorable presentation of inadequate information. In this regard, further independence of the board of directors encourages favorably and suitably directors to present information (Stacchezzini, Melloni and Lai, 2016). In addition to aforesaid issues, industrial properties may influence the reporting of sustainable development since in this sense the industries with higher environmental sensitivity are exposed to more public assessments than other industries. As a result, membership in such industrial groups may increase the proposing reports of sustainable development.

Review of this literature also showed that among local researchers, Hejami (2012) found a negative relationship between disclosure of social responsibility and institutional ownership.

In an investigation done by Hajiha and Sarfaraz (2014) an association was formed among social responsibility of cost of equity of shareholders in enterprises. The findings of their studies indicate that social responsibility is inversely and negatively related to the cost of equity of shareholders. Thus, directors may reduce the rate of return expected by investors (cost of equity of shareholders) with an increase in disclosure of social performance field and this is followed by lower financing costs for the enterprise. In other words, the data of social responsibility of an enterprise have information contents for the investors.

In a survey entitled, 'the effect of ownership structure and composition of

board of directors on social responsibility of enterprises', Razmjooei et al. (2015) found that among independent variables, ownership concentration rank and ratio of tasked members might have the highest effect on social responsibility of enterprises and among controlling variables, only educational degree could influence the dependent variable (i.e. social responsibility of enterprises).

In their study entitled, 'analyzing the role of social responsibilities in activities of petrochemical industries', Poormohammad and Saadi (2016) found that the higher attention paid by the organization to the subject of social responsibilities might increase the corporate revenue and credit.

In addition to aforementioned cases, among foreign researchers, Gelb and Strawser (2001) also came to the result in a survey that active companies might present more tax declarations in terms of social responsibility. They argued if the enterprises with a higher level of social responsibility could consider a higher level of ethical standards in their financial reports, the transparency level might increase and it would be less likely in such companies to hide bad news from investors; as a result, they would be exposed to lesser risk for falling stock price.

In a study, Kim et al. (2012) found that the enterprises which enjoyed the social responsibility would present responsible behavior versus financial reports. They believe that obligation of enterprises for higher ethical standards might positively affect the quality of accounting information.

In their investigation, Kim and Siqi Li (2014) explored the relationship between corporate social responsibility and the risk of a falling stock price. The findings of their research suggest that the risk of the falling stock price and corporate social responsibility have an inverse and significant relationship with each other; in other words, the risk of falling stock price reduces as responsibility decreases in enterprises.

In a study done in Sri Lanka, Dissanayake and Lobo (2016) found a positive and significant relationship between the size of company (using criterion of logarithm of assets), age, and return of equity of stockholders and corporate social responsibility and the rate of social responsibility might increase by rising in size, age, and return on equity of stockholders of company.

Likewise, Stacchezzini et al. (2016) found a positive and significant relationship between financial performance using the criteria of equity of stock and return of equity for stockholders, independence of the board of directors, and environmental sensitivity of industry in corporative activity,

and the rate of reporting sustainable development. Namely, the rate of reporting sustainable development is added by an increase in financial performance and return on equity of shareholders. Therefore, sustainable is more reported in industries which are more sensitive environmentally.

Research methodology

Research hypotheses

The following hypotheses have been designed and formulated to achieve the objectives and are in accordance with theoretical bases and literature of proposed study in previous sections:

First hypothesis: There is a significant relationship between independence of the board of directors and social responsibility of enterprises based on integrated factors of sustainable development.

Second hypothesis: There is a significant relationship between the environmental sensitivity of industry group and social responsibility of enterprises based on the integrated factors of sustainable development.

Third hypothesis: There is a significant relationship between return on equity of shareholders and the social responsibility of enterprises based on the integrated factors of sustainable development.

This study is quantitative since it employs the scientific method of empirical structure and proving and it is conducted according to predetermined research hypotheses and designs. This class of studies is used when the criterion of data measurement is quantitative and statistical techniques are used for the extraction of findings.

Research variables Independence of board of directors Environmental sensitivity of industry group

To analyze the subject, two industry groups sensitive to the environment were utilized and the industries were employed with lesser sensitivity to the environment. The environmental-sensitive enterprises are the companies where raw materials are directly extracted from natural resources, like chemical and petrochemical industries, metals, mines, oil exploration, paper, and crude oil. In this regard, the environmental-sensitive industries were scored as dummy variable-one and those industries with lesser environmental sensitivity were ranked as dummy variable-zero. The current study followed the research done by Mahdavi et al. (2015), in which the active companies in industries of mines, oil, and metals extraction,

petrochemical and chemical, wood, paper, and cardboard industries were assumed as sensitive and other industries were considered as insensitive to the environment.

Return of equity

This ratio is derived from dividing net profit into the equity of shareholders.

Social responsibility based on factors of sustainable development integrated report

The model of Dissanayake and Lobo (2016) adapted in this study that was modified according to the cultural and economic status of Iran to explore the related information to social responsibility based on the factors of integrated report of sustainable development.

In this model, the items of disclosure background and framework, report of the board of directors, focus of shareholders, objectives of sustainable development, and achievement of goals of sustainable development have been investigated and also scored (1-5), where 1 is considered as the lowest and 5 as the highest score. In addition, the factor 'no criterion' indicates non-allocation of a score for the given variables. Disclosure background denotes the history of relevant information to disclosure of environmental information and sustainable development by the enterprise in this model. Disclosure framework also indicates devoting of some pages to report on corporate sustainable development. Similarly, the report of the board of directors refers to the review of the sustainable development related cases in the report of the board of directors. The factor of focus of shareholders also determines the number of shareholder's groups. The variables of sustainable development objectives and achievement of sustainable development goals also show the determination of goals and refer to the rate of achievement of sustainable development goals in disclosed reports and information of enterprise (Dissanayake and Lobo, 2016). Table (1) indicates the model in the research as follows.

Table 1. Integrated model of sustainable development for social responsibility of enterprise (Dissanayake and Lobo, 2016)

enterprise (Dissanayake and Lubo, 2010)						
Variable- score	1	2	3	4	5	
Disclosure background	There is no report of sustainable development	No criterion	There is the report of sustainable development	There is the report of sustainable development for three years ago or more.	There is the report of sustainable development for last year and this year.	
Disclosure framework	Non- allocation of specific location for disclosure of reports	No criterion	Disclosure of sustainable development information of enterprise in one page or less	No criterion	Disclosure of sustainable development information of enterprise in five page or more	
Report of board of directors	There are not sustainable development plans	No criterion	No criterion	No criterion	There are sustainable development plans	
Focus of shareholders	There is no shareholder group	There is one shareholder group	There are two shareholder groups	There are three shareholder groups	There are four or more shareholder groups	
Objectives of sustainable development	There are not sustainable development goals for the current and next years	No criterion	No criterion	No criterion	There are sustainable development goals for the current and next years	
Achievement of goals of sustainable development	These goals have been achieved	No criterion	No criterion	No criterion	These goals have not been achieved	

Controlling variables

With respect to the conducted studies by Hill and Leos as well as Daliole et al. (2006) regarding the related subjects to social responsibility, they have considered the following controlling variables (Mishra et al., 2011).

BTM: Ratio of book value to market value of shareholders' equity

BETA: Systematic risk (market risk)

Beta denotes sensitivity of corporative return to market return that is calculated by means of Rahavard Novin Software.

Statistical population and research sample

In order to use the statistical sample as an appropriate agent of the given statistical population in this study, the systematic deletion method is adapted. To this end, the following 6 criteria have been considered and if an enterprise possesses all criteria it will be selected as research sample and the rest will be deleted.

- 1. The company should be admitted to Security and Exchange Organization (SEO) before 2012 and should be active in SEO up to the first quarter of the year 2016.
- 2. Due to special nature of the activity of holding companies, financial brokerages, and investment companies and their noticeable differences from manufacturing and commercial companies, the selected enterprise should be excluded from the aforesaid companies.
- 3. In order to increase the comparability, the fiscal year of the enterprise should be ended to 21st March (Iranian calendar) and this enterprise should not have any change in fiscal year and type of activity within this time interval.
- 4. There should be financial statements and notes accompanied by the enterprises within the aforesaid time schedule and they should be available on the website of SEO.
- 5. The financial transaction of these enterprises should not be stopped in SEO during the study period for more than three months.
- 6. The information related to the report of the board of directors and their social performance report should be available.
- 7. With respect to aforesaid criteria, 82 enterprises were selected as the sample of the study.

Data analysis tools

Regarding data analysis in this study, the research variables were initially prepared from raw data and Rahavard Novin Software (v.3) by means of Excel-2013 Software and then they were finally analyzed using Stata Software (v.11) and E-views (v.9).

Research findings

Descriptive statistics of research variables

The related descriptive statistics of studied variables are depicted in Table (2). It should be noted that the number of studied observations is

410year-company for the calculation of the given dependent, independent, and controlling variable.

Table 2. Descriptive statistics of research variables

Title of variable	Mean	Maximum	Minimum	Standard deviation
Independence of board of directors	63.47	100	10	27.25
Environmental sensitivity of industry group	0.3824	1	0	0.1137
Return of equity of shareholders	0.9318	9.3291	-4.0199	1.2618
Social responsibility based on factors of integrated report of sustainable development	1.7647	5	1	0.6947
Ratio of book value to market value for equity of shareholders	0.4352	3.6116	-3.3046	1.4914
Systematic risk	0.4031	3.4038	-1.9115	0.3347

The mean and standard deviation rates are shown for research variables in Table 2. Among independent variables, the independence of the board of directors has devoted the highest mean and standard deviation. Likewise, between controlling variables, the highest mean and standard deviation have been allocated to the ratio of book value to market value for the return of shareholders' equity.

Analysis of stationary (reliability) of research variables

Based on unit root test (of Hadri test type), if the significance of testing statistic is smaller than 0.05, independent and dependent and controlling variables of research are reliable (stationary) during the studied period. The findings obtained from the analysis of the reliability of research variables by means of this test are presented in Table (3).

With respect to the listed findings in Table (3), the significance level is smaller than 0.05 for all variables in Hadri unit root test and this indicates the research variables are reliable (stationary). In other words, the mean and variance of variables are fixed over the time with covariance of variables between different years. As a result, the studied enterprises lacked the structural changes and employing these variables does not lead to the creation of a false regression in the model.

Table 3. The resultant findings from Hadri test

Title of variable	Testing statistic	Significance
Independence of board of directors	21.2859	0.0000
Environmental sensitivity of industry group	9.4758	0.0000
Return of equity of shareholders	10.3574	0.0000
Social responsibility based on factors of integrated report of sustainable development	6.2695	0.0000
Ratio of book value to market value for equity of shareholders	5.9738	0.0000
Systematic risk	2.6857	0.0000

Testing of research hypotheses

Test for selection of model

With respect to the given findings in Table 4 and whereas the significance level is less than 0.05 in Cho and Haussmann tests, therefore the model of fixed effects can be utilized to test the research hypotheses. The resultant findings from the estimation of ordinary least square (OLS) regressive model by means of fixed effects are presented in Table 4.

Table 4. The related findings to selection of the given model for testing hypotheses

Hypothesis	Test	Testing statistic	Significance
First large others	Cho test	11.2658	0.0000
First hypothesis	Haussmann test	39.3472	0.0000
Second hypothesis	Cho test	13.3876	0.0000
Second hypothesis	Haussmann test	63.2760	0.0000
Third hypothesis	Cho test	9.3748	0.0000
Inira nypoinesis	Haussmann test	66.3759	0.0000

Testing of research findings

In order to test first to third hypotheses, the relationship was analyzed between variables of independence of the board of directors, environmental sensitivity of industry group, and return of equity of shareholders and social responsibility based on the factors of integrated report of sustainable development. The findings of testing hypotheses are shown in Tables 5 to (7).

Second hypothesis: There is a significant relationship between the environmental sensitivity of industry group and social responsibility of enterprises based on the integrated factors of sustainable development.

Third hypothesis: There is a significant relationship between return on equity of shareholders and social responsibility of enterprises based on the

integrated factors of sustainable development.

Table 5. The findings of approximation of regressive model related to the first hypothesis testing

Dependent variable: Social responsibility					
Variables	t- statistic	Significance			
Independence of board of directors	8.2375	0.0000	Determination coefficient (R^2)	0.4575	
Ratio of book value to market value for equity of shareholders	-6.5849	0.0068	Adjusted determination coefficient	0.4126	
Systematic risk	1.8758	0.0685	F-statistic	14.4678	
Fixed rate	0.6884	0.4758	Significance	0.0028	
Durbin-Watson			1.9846	•	

Table 6. The findings of approximation of regressive model related to the second hypothesis testing

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Dependent variable: Social responsibility					
Variables	t- statistic	Significance			
Independence of board of directors	6.4692	0.0000	Determination coefficient (R^2)	0.3567	
Ratio of book value to market value for equity of shareholders	-5.4696	0.0000	Adjusted determination coefficient	0.3116	
Systematic risk	2.3695	0.0127	F-statistic	17.2374	
Fixed rate	0.5895	0.3470	Significance of F- statistic	0.0006	
Durbin-Watson			2.0796		

Table 7. The findings of approximation of regressive model related to the third hypothesis testing

Dependent variable: Social responsibility					
Variables	t- statistic	Significance			
Independence of board of directors	11.3685	0.0000	Determination coefficient (R^2)	0.4126	
Ratio of book value to market value for equity of shareholders	-7.4792	0.0001	Adjusted determination coefficient	0.3686	
Systematic risk	4.0974	0.0257	F-statistic	15.3469	
Fixed rate	-0.7192	0.1245	Significance of F- statistic	0.0000	
Durbin-Watson			2.3537		

The research findings suggest that there is a positive and significant relationship between the independence of the board of directors, environmental sensitivity of industry group, and return of shareholders' equity and social responsibility based on the factors of integrated report of sustainable development.

Discussion and conclusion

As observed in findings from the related tests on the research hypotheses, there is a positive and significant relationship between the independence of the board of directors, environmental sensitivity of industry group, and return of shareholders' equity and social responsibility based on the factors of integrated report of sustainable development. Moreover, the given findings of the analysis of autocorrelation by Durbin-Watson statistic on erroneous sentences also show the lack of autocorrelation error in all models. Likewise, values of F-statistic and related significance to this statistic in all related tests to this study indicate that the hypothesis of the insignificance of the total model (all zero coefficients) is rejected and the estimated regressive model is totally significant. On the other hand, the review of adjusted determination coefficients for studied criteria also shows the variables of independence of the board of directors (41%), environmental sensitivity of industry group (31%), and return of shareholders' equity (36%) interpret dependent variable. In addition to the necessity of paying attention to the subject of sustainable development, this finding is deemed as an introduction to emphasize the importance and requisite for the implementation of social auditing in joint stock companies. The social audit is a process that enables the trading unit to assess and justify environmental, economic, and social interests and constraints. This is a method for which an organization is undertaken to create value and to achieve the given goals. The social audit indicates an assessment of nonfinancial goals of the organization and reflects systematically and legally organizational performance and attitude of beneficiaries of that organization.

The research findings in this section show a positive relationship between the independence of the board of directors and social responsibility based on the factors of integrated report of sustainable development which are consistent with the findings of Stacchezzini, Melloni and Lai (2016) and in other section the relationship between return of equity of shareholders and environmental sensitivity of industry group and social responsibility are

based on the factors of integrated report of sustainable development which are in coordination with the findings of (Dissanayake and Lobo, 2016). It should be mentioned that the findings related to relationship between return of equity of shareholders and environmental sensitivity of industry group and social responsibility are unlike to the findings of the study done by Mahdavi et al. (2015) and this issue may be due to difference of the studied model and/or time period ended in 2012 in study of Mahdavi et al. (2015). Therefore, it can be implied that over the time and changing conditions and with the improvement of environmental regulations in the previous years, they were more committed to the observance of the issues related to sustainable development and social responsibility.

Concerning the studied variables, it can be mentioned that the art of commitment to social responsibilities is improved in them by an increase in the independence of the board of directors and return on equity of shareholders. This issue may be due to this point that the greater and more profitable companies are more accurately analyzed by the investors, media, and other observers and for meeting their requests and/or even justifying these requests they should be more committed to factors of sustainable development. In addition, the environmental-sensitive enterprises are more committed to factors of sustainable development. Similarly, the general result of this study suggests paying more attention to sustainable development and social responsibility that is consistent with that of the Hajiha and Sarfaraz, (2014); Poormohammad and Saadi, (2016); Stacchezzini, Melloni and Lai, (2016); Dissanayake and Lobo, (2016).

Furthermore, it is also suggested to the directors to pay attention to attraction of investors, coordination with environment (for example, the disclosure of commitment to environmental accounting, commitment to international rules of pollution, membership on international sustainable development associations, and international quality certificates) rising value of company and other efficient cases to improve corporate responsibility and put them in their plan. It is also suggested for future studies and better perception of efficient factors on the level of social responsibility to analyze some cases, like the risk of falling stock price, the capability of directors, lifetime cycle, and also review on the commitment to corporative ethics.

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