



Effect of the Financial Dominance of Financial Institutions on the Risk-Taking Level of Managers

Mohsen Omid ^a, Majid Zanjirdar ^{b,*}

^aDepartment of Accounting, Arak Branch, Islamic Azad University, Arak, Iran

^bDepartment of Finance, Arak Branch, Islamic Azad University, Arak, Iran

ARTICLE INFO

Article History:

Received 19 November 2019

Accepted 8 November 2020

Keywords:

Financial Dominance

Risk-Taking level of managers

Human Resources Expenses

Unexpected Marketing Costs

ABSTRACT

The present study aimed to evaluate the effect of the financial dominance of financial institutions on the risk-taking level of managers. The study was conducted on the companies listed in Tehran Stock Exchange (TSE) during 2013-2017. In total, 110 companies were selected using the systematic removal method. Financial dominance of financial institutions was considered as the independent variable, and the risk-taking level of the managers was considered as the dependent variable. This was applied research in terms of type and a correlational study in terms of methodology. Data were collected using the library method by referring to financial statements, exploratory notes, and stock exchange monthly journal. In addition, descriptive and inferential statistics are applied to describe and allocate the collected data. Data analysis was performed using the analysis of variance (ANOVA), F-Limer test, Hausman test, and Jarque and Bera test. Afterwards, multivariate regression analysis was used to accept or reject the research hypotheses in the EVIEWS software. According to the results, financial dominance of financial institutions affects the risk-taking level of the managers. In addition, unexpected marketing costs and human resources expenses influence the association between the financial dominance of financial institutions and risk-taking level of managers.

1 Introduction

Considering the lack of national research on the topics of the present study and its variables simultaneously in the capital market of Iran, there is a research gap on the impact of the financial dominance of financial institutions on the risk-taking of managers. Therefore, independent and efficient studies must be conducted in this regard. According to Hall and Oriani [9], the risk-taking level of managers in the United States, Britain, Germany, and France is 4.9%, 2.9%, 4.5%, and 4.2%, respectively. In 1992, research and development (R&D) expenditures reached 1.97% of the gross domestic product (GDP), while these rates reached 1.86%, 2.40%, and 2.16% in the United States, England, Germany, and France, respectively by the end of the 20th century. According to Xie and Fang [18], banking corrections and regional financial development promote investment in the innovation of the companies that are eager to expand their funding channels, and transmission mechanisms change the external funding of a firm into innovation. On the same note, Carmeli and Schaubroeck [4] report

* Corresponding author. Tel.:
E-mail address: m-zanjirdar@iau-arak-ac.ir

that higher efficiency of the knowledge of firm employees (unique, extraordinary, and irreplaceable function) increases the value of the staff to the company [4]. The current research has emphasized on the effect of bank stock transfer mechanisms on the risk-taking level of the managers (tendency toward innovation). Furthermore, we assessed the impact of unexpected marketing, human resource costs, and their interactions with the financial dominance of financial institutions on the risk-taking level of the managers, assuming that companies with high levels of financial dominance are likely to commit to focusing on long-term goals. In the present study, the investigated funding channels included internal and external financing. Internal financing is associated with higher independency and lower risk, while it is a challenging funding to be used in an innovation project. This is not only due to the limitations imposed by business profits and fluctuations, but is also due to the structure of dominance, management incentives, investment risk, sovereignty of institutional investors, and competition in the product market. In fact, access to external funds is crucial to enhancing the risk-taking of finance managers [18]. Investors and shareholders are the individuals and organizations that are primarily involved in this area, who could benefit from the results of the present study to assess the risk-taking level of corporate managers and make decisions based on this information. In addition, our findings could be used for investment in corporate shares and selection of appropriate stocks. Investors could also evaluate firms more accurately, so that the issues assessed in the study would have no negative impact on their investment results. Moreover, financial analysts and capital market activists could benefit from our findings in line with corporate assessments in order to determine the extent to which the dominance of financial institutions affects the decisions of managers and their risk-taking level. In the present study, we attempted to assess the impact of the financial dominance of financial institutions on the risk-taking level of the managers. Some of the research questions were as follows:

1. What is the impact of unexpected marketing costs on the correlation between the financial dominance of financial institutions and risk-taking level of the managers?
2. How do financial resource costs affect the correlation between the financial dominance of financial institutions and risk-taking level of the managers?

2 Theoretical Foundation and Research Background

Connection to bank shares is a common mechanism in many developing countries. Based on the social capital theory, the links and communication between the members of a network is a valuable resource, and the development of norms and mutual trust results in the realization of the goals of the members. A network of social relations is formed by connecting to bank shares, helping provide the necessary resources for the innovation of firms [2]. On the other hand, the resource-based theory shows that a firm is a combination of resources and capabilities, with the capabilities referring to the ability of a firm to use the required resources (input) in order to achieve favorable goals (output). Therefore, it could be inferred that connection to bank shares could improve information, business sharing, and coordination between banks and companies through organizational arrangements, thereby internalizing the external taxes. This process contributes to resolving the problem of investment in innovation by reducing the loan limitations and increasing the credits. According to the information asymmetry theory, the reduction of information asymmetry decreases funding constraints [12].

The discrepancy between the underlying resources and investment risks of innovative projects is intensified by political interference [16]. Managers have more information regarding the future of their

company compared to the investors, finding no reason for sharing the future profits with others when the prospects of the corporation are rather clear; consequently, they meet their financial needs by financing debts. If their prediction of the future is improper, they will meet their financial needs through publishing shares, and higher commitment to marketing expenditures will also be beneficial in the association between the financial governance of financial institutions and risk-taking level of the managers. For instance, a freight company could assess its employees and managers more appropriately by focusing on the process of service provision, education, and development of the employees. Teoder Shultz and Gary Baker are two contemporary economists who have changed the human capital theory from its classic, elementary stages into an advanced, modern analysis, defining investment in human capitals as the expenditures in social projects, such as the promotion of health, education, and social services. In this section, we have provided a review of some foreign and domestic studies performed on the research subject. Dostar et al. reported a reverse association between the risk-taking and herding behaviors of the managers of investment companies. In another research, Taghizadeh Khanghahi and Zeynali [17] marked that social accountability had a positive, significant effect on investment efficiency, while it negatively affected excessive and restrained investment. In addition, social responsibility was observed to have positive, significant impact on innovation. On the other hand, Mahmoudabadi and Zamani [13] realized that risk-taking level had a positive, significant correlation with financial performance, while the proportion of the independent members of the board of directors had a negative, significant impact on the risk-taking level. In addition, the independence and size of the board of directors and proportion of the ownership of institutional shareholders positively influenced and enhanced the correlation between risk-taking and financial performance. According to Yahyazadeh and Amiri, marketing costs had a positive, significant effect on the performance level [20]. In another research, Kazerouni et al. [10] denoted that GDP, accumulation of human capital, R&D expenditures, and intellectual property rights had positive, significant effects on innovation. With respect to international studies, Currim et al. [6] reported that the stock market performance of the companies that were committed to marketing costs in the past was higher under the pressure of analysts. Chung and Low [5] have also documented that the overall impact of finances on the effective management of marketing costs deteriorates with increased market turbulence, while the overall impact of financial issues on R&D costs deteriorates with increased technological turmoil. Xing and Shuiquan [19] affirmed that the correlation between banking shares and risk-taking level of managers not only significantly increases innovation, but it also improves innovative performance, and banking share relations have a significant, positive effect on innovation in companies. On the same note, Dzhumashev et al. [8] claimed that export has a competitive effect on the survival of companies. While export and investment complement each other in the profitability of activities, export activities are an additional source of uncertainty for companies. Schimke and Brenner [14] have reported that R&D activities positively influence the growth of financial return, while capital investments affect the growth of companies both negatively and positively. On the other hand, Ahmadi and Kordloui [1] evaluated the effect of financial pressure on the investment behavior of the firms in Tehran Stock Exchange (TSE), reporting that firms with fewer investment opportunities have lower tendency to investment, while anxious economic agencies with more investment opportunities are likely to increase their investment. In another study, Bohlouli et al. [3] assessed the effect of financial structure on the financial performance of the banks listed on TSE, and the results confirmed the positive effects of financial structure, demonstrating the significant decline in the intensity of investment and size of the correlations between financial structure, ROA, and ROE.

3 Research Hypotheses

Considering the theoretical framework proposed in the current research, the research hypotheses are as follows:

Hypothesis 1: Financial dominance of financial institutions affects the risk-taking level of managers.

Hypothesis 2: Unexpected marketing costs affect the correlation between the financial dominance of financial institutions and risk-taking level of managers.

Hypothesis 3: Human resource costs affect the correlations between the financial dominance of financial institutions and risk-taking level of managers.

4 Methodology

This was an applied, descriptive research in terms of the design, and a correlational study in terms of methodology. Data were collected using the library method by referring to financial statements, exploratory notes, and the TSE monthly journal. Descriptive and inferential statistics were applied to describe and allocate the collected data. Data analysis was performed in the EViews software using F-Limer, Hausman, and Jarque and Bera tests, as well as multiple regression analysis, to accept or reject the research hypotheses. The sample population was the companies listed on TSE during 2013-2017. In total, 110 firms were selected via purposive sampling, and 550 data years were selected for each research variable to evaluate the statistical hypotheses.

Model one was developed to evaluate the first hypothesis, as follows:

$$RIM_{i,t} = \beta_0 + \beta_1 BEC_{i,t} + \beta_2 CF_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Age_{i,t-1} + \beta_5 Debt_{i,t-1} + \beta_6 Growth_{i,t-1} + \beta_7 ROA_{i,t} + \beta_8 IMR_{i,t} + Ind + Year + Region + \varepsilon \quad (1)$$

Model two was proposed to assess the second hypothesis, as follows:

$$RIM_{i,t} = \beta_0 + \beta_1 BEC_{i,t} + \beta_2 \widehat{M}_{i,t} - \bar{M}_t + \beta_3 \widehat{M}_{i,t} - \bar{M}_t \times BEC_{i,t} + \beta_4 CF_{i,t-1} + \beta_5 Size_{i,t-1} + \beta_6 Age_{i,t-1} + \beta_7 Debt_{i,t-1} + \beta_8 Growth_{i,t-1} + \beta_9 ROA_{i,t} + \beta_{10} IMR_{i,t} + Ind + Year + Region + \varepsilon \quad (2)$$

Model three was suggested to evaluate the third hypothesis, as follows:

$$RIM_{i,t} = \beta_0 + \beta_1 BEC_{i,t} + \beta_2 TR_{i,t} + \beta_3 BEC_{i,t} \times TR_{i,t} + \beta_4 CF_{i,t-1} + \beta_5 Size_{i,t-1} + \beta_6 Age_{i,t-1} + \beta_7 Debt_{i,t-1} + \beta_8 Growth_{i,t-1} + \beta_9 ROA_{i,t} + \beta_{10} IMR_{i,t} + Ind + Year + Region + \varepsilon \quad (3)$$

In the models above, RIM is the risk-taking level of the managers of the i th company in the t period, BEC is the financial dominance of the financial institutions of the i th company in the t period, CF shows the operating cash flow (OCF) of the i th company in the t period, $size$ is the size of the i th company in the t period, $growth$ shows the growth of the i th company in the t period, ROA is the return on the assets of the i th company in the t period, $debt$ represents the financial leverage of the i th company in the t period, age is the age of the i th company in the t period, IMR shows the inverse Mills ratio of the i th company in the t period, $year$ is the annual dummy variable of the i th company in the t period, ind is the industry dummy variable of the i th company in the t period,

$\widehat{M}_{i,t} - \bar{M}_t$ shows the unexpected marketing costs of the i th company in the t period, and TR is the human resource costs of the i th company in the t period. The measurement method of research variables is presented below:

4.1 Dependent Variable

A) *Risk-taking level of managers*: In this research, the index of investment in research and development was used to estimate the risk-taking level of the managers, which also shows the participation levels of the company in innovative activities and risk-taking of the managers. This factor was calculated based on the sales rate of each company in order to eliminate the error caused by relative difference. Moreover, homogenization and R&D expenditure were divided by the company sales [17].

4.2 Independent Variable

A) *Financial dominance of financial institutions*: This variable was estimated using model 4, as follows [19]:

$$BEC_{i,t} = \alpha_0 + \alpha_1 Political_{i,t} + \alpha_2 FD_{i,t} + \alpha_3 Growth_{i,t} + \alpha_4 ROA_{i,t} + \alpha_5 Debt_{i,t} + \alpha_6 Size_{i,t} + \alpha_7 State_{i,t} + Year + Ind + \varepsilon \quad (4)$$

where *BEC* is the investment percentage of the financial institutions in the common stock of the *ith* company in the *t* year, *political* shows the political relations, *FD* is the financial deepening, *growth* is the growth opportunities, *ROA* represents the return on assets, *debt* shows the financial leverage, *size* is the firm size, *state* is the ownership state, *year* shows the time variable, and *ind* is the variable of industry. The measurement of the mentioned variables is shown below:

Political relations: This was a virtual variable with the values of zero and one, which with the companies with political relations allocated value one value, and the others assigned value zero. In the current research, two criteria of long-term debt and the presence of state-dependent members of the board of directors were applied, as follows:

- The ratio of the long-term debts to the total debts each year was estimated for each firm.
- The ratio of the state-dependent members of the board of directors to the entire members of the board of directors each year was estimated for each firm.

Accordingly, the companies with a higher long-term debt ratio to the total debt ratio and higher rate of state-dependent members to the entire members of the board of directors than the median of the other firms were recognized as the companies with political relations (value 1). Meanwhile, value zero was assigned to the remaining firms.

Financial deepening: This concept is equal to the ratio of the bank loans to the GDP, which was directly extracted from the central bank website in the present study.

Growth opportunities: This parameter was defined as the difference between the sales of this year and last year, divided by the sales of last year.

Return on assets: This variable was estimated using model 5, as follows [15]:

$$\text{Return on asset rate} = \frac{\text{Net Income}}{\text{Total Assets}} \quad (5)$$

Financial leverage: This variable was equal to the total debt divided by the total assets.

Firm size: This parameter was estimated using model 6, as follows [15]:

$$Size_{i,t} = \ln(TA_{i,t}) \quad (6)$$

State of ownership: This variable was equal to the percentage of the shares in the hands of the government.

Time variable: This represented the variable of year, where the observation related to a specific year was equal to one; otherwise, it was equal to zero.

Industry variable: If the observation was related to a specific year, it was equal to one; otherwise, it was equal to zero.

4.3 Control Variables

- A) OCF, which was equal to the operating cash flow homogenized to the total assets;
- B) Firm size, estimation of which is shown in model 6;
- C) Firm growth, which is equal to the corporate sales growth obtained based on the difference ratio in the sales of two years [15];
- D) Return on assets, which was calculated using model 5;
- E) Financial leverage, which is presented in the description of the independent research variable;
- F) Firm age, which is equal to the logarithm of the difference in the date of the establishment of the company until this year;
- G) Inverse Mills ratio for the *ith* company in *t* time, which was estimated using model 7, as follows:

$$TEM_{i,t} = \alpha_0 + \alpha_1 MBE_{i,t} + \alpha_2 BtoM_{i,t} + \alpha_3 ROA_{i,t} + \alpha_4 SHARES_{i,t} + \alpha_5 ISSUE_{i,t} + \alpha_6 LEV_{i,t} + \varepsilon \quad (7)$$

$$TEM_{i,t} = (\Delta Cat - \Delta CASH_t + \Delta STDEBT_t - DEPNT); \quad (8)$$

$TEM_{i,t}$: Total accruals in *t* year

ΔCat : Changes in the non-cash current assets

$\Delta CASH_t$: Changes in the cash amount

$\Delta STDEBT_t$: Current maturing portion of the received facilities

$DEPNT$: Depreciation of tangible and intangible assets

MBE : The dummy variable equal to one if there is a profit; otherwise, it was equal to zero

$BtoM$: The ratio of the book value to the capital market of the *ith* company in the *t* year

ROA : return on assets

$Shares$: The natural logarithm of the number of the common stocks for the *ith* company in the *t* year

$Issue$: The dummy variable equal to one if the company publishes the stocks during the financial year otherwise, it was equal to zero

Lev : Financial leverage

$Year$: The dummy variable of year

Ind : The dummy variable of industry

4.4 Moderating Variables

- A) *Unexpected marketing expenses:* We initially estimated the variable of predictable marketing expenses using model 9, as follows [6]:

$$M_{it} - \bar{M}_t = \delta_{0i} + \delta_1 (M_{it-1} - \bar{M}_{t-1}) + \delta_2 (M_{it-2} - \bar{M}_{t-2}) + \delta_3 (ROA_{it-1} - \overline{ROA}_{t-1}) + \delta_4 (ROA_{it-2} - \overline{ROA}_{t-2}) + \mu_{it} \quad (9)$$

where *M* is the ratio of the marketing expenses to the total sales (marketing costs defined as general sales and other administration costs than R&D expenses),

\bar{M}_t is the mean ratio of the marketing expenses to the total sales, ROA shows the return on assets (equal to net profit on the total corporate assets), and \overline{ROA}_t is the mean return on assets.

The value obtained from $M_{it} - \bar{M}_t$ was defined as the amount of the variable of predictable marketing costs. After estimating the predictable marketing expenses, the unexpected marketing costs were calculated using model 10 (non-regression), as follows:

$$M_{it} - \bar{M}_t = \delta_{0i} + \delta_1(M_{it-1} - \bar{M}_{t-1}) + \delta_2(M_{it-2} - \bar{M}_{t-2}) + \delta_3(ROA_{it-1} - \overline{ROA}_{t-1}) + \delta_4(ROA_{it-2} - \overline{ROA}_{t-2}) + \mu_{it} \tag{10}$$

The absolute value of $M_{it} - \bar{M}_t$ was considered as the unexpected marketing expenses [6].

B) Human resource costs (TR): The data on the human resource costs were based on the study prime cost model, which involved the prime costs of the recruitment, training, and learning of the staff based on model 11, as follows:

$$TRChr = achr + tchr \tag{11}$$

where TR is the total study prime (preliminary) costs of the firm’s human resources, $ACHR$ shows the costs of the recruitment of the human resources, and $TCHR$ is the human resource learning and training costs.

5 Findings

5.1 Descriptive Statistics of the Research Variables

Before testing the hypotheses, the research variables were briefly evaluated, as presented in Table 1.

Table 1: Descriptive Statistics of Firms' Variables

	Managers' risk-taking level	Financial dominance of financial institutions	Unexpected marketing costs	unexpected marketing costs with financial institutions' financial	Human resource costs	interaction and financial dominance of financial	Operating cash flow	Firm size	Firm age	Financial leverage	Firm growth	Return on assets	Inverse Mills ratio	Industry variable	Year variable
Mean	0.039	0.004	0.216	0.001	296.0	1.302	0.107	14.13	3.58	0.717	0.201	0.099	11.78	10.17	3.000
Median	0.038	0.004	0.163	0.000	0.000	0.000	0.091	14.05	3.68	0.668	0.140	0.082	2.119	10.00	3.000
Maximum	0.087	0.021	12.77	0.091	21741	101.7	0.642	19.05	4.17	2.852	7.815	0.902	9232.	22.00	5.000
Minimum	0.000	-0.011	0.001	-0.003	0.000	-45.34	-0.460	10.53	2.56	0.048	-0.931	-1.038	-4381.	1.000	1.000
Standard Deviation	0.019	0.004	0.625	0.004	1657.	7.865	0.129	1.429	0.35	0.352	0.552	0.178	492.1	5.137	1.415
Skewness	0.063	0.438	16.52	19.72	8.928	7.591	0.344	0.596	-0.74	1.979	5.570	0.072	11.17	0.335	0.000
Kurtosis	2.511	4.224	311.7	430.0	91.38	84.31	4.794	4.090	2.69	10.98	69.63	8.037	242.8	1.964	1.700
Jarque-Bera test	5.850	51.94	22101	421532	18634	15682	84.72	59.86	52.4	1821.	10458	582.0	13301	34.87	38.72
Significance Level	0.053	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.000
Observations	550	550	550	550	550	550	550	550	550	550	550	550	550	550	550

According to the information in Table 1, the mean value that showed the balance point and center of the distribution mass, as well as a good criterion to indicate the centrality of the data, was equal to 0.039 for the variable of the risk-taking level of the managers. The median was another central indicator, showing that half of the data was below this amount, while the other half was above this amount. In addition, the equal amounts of the mean and median were indicative of the normality of the variable, which was estimated at 0.038 for the variable of the risk-taking level of the managers. Dispersion indices are a criterion to determine the degree of data dispersion from each other or rate of dispersion relative to the mean. Standard deviation is one of the most important dispersion indicators, which was estimated at 0.019 for the variable of the risk-taking level of the managers. The degree of asymmetry in the frequency curve is often referred to as skewness, the amount of which was positive and close to zero for the risk-taking level of the managers in the present study, thereby showing the normal distribution and very small, right-skewed distribution. Furthermore, the dispersion indicator of the elongation of the frequency curve to the normal standard curve is referred to as kurtosis, which was possible for all the variables in the current research. The results of the F-Limer and Hausman tests for the research hypotheses are presented in Table 2.

Table 2: F-Limer and Hausman Test Results

	F-Limer Test	Significance Level	Hausman Test	Significance Level
Model of First Hypothesis	3.476513	0.0000	409.419216	0.0000
Model Second Hypothesis	3.284600	0.0000	430.614729	0.0000
Model of Third Hypothesis	6.781504	0.0000	403.710996	0.0000

With regard to the research models, the possibility of the Chi-square was below 5%. Therefore, the fixed effects model was applied to estimate and analyze the models of the first, second, and third hypotheses. The results of the testing of the first hypothesis are shown in Table 3.

Table 3: Results of First Hypothesis Model

Variables	Coefficients	Standard Error	t-statistic	Significance Level
y-intercept	-0.414213	0.031315	-13.22749	0.0000
Financial Dominance of Financial Institutions	0.779332	0.183543	4.246041	0.0000
Operating Cash Flow	0.011421	0.003411	3.348698	0.0009
Firm Size	-0.003252	0.001704	-1.908402	0.0570
Firm Age	0.141655	0.009356	15.14104	0.0000
Financial Leverage	-0.001677	0.001626	-1.031294	0.3030
Firm Growth	-0.003157	0.000589	-5.360970	0.0000
Return on Assets	-0.032660	0.004072	-8.019934	0.0000
Inverse Mills Ratio	-2.09E-05	6.76E-06	-3.090234	0.0021
Coefficient of Determination	0.895199		f-statistic	31.53918
Modified Coefficient of Determination	0.866815		Significance Level	0.000000
	Durbin-Watson		1.932778	

According to the information in Table 3, the probability of the t-statistic for the variables of the financial dominance of financial institutions, OCF, firm age, firm growth, ROA, and inverse Mills ratio regarding the risk-taking level of the managers was below 5%. Therefore, the mentioned

correlation was considered statistically significant. However, the variable of the financial dominance of financial institutions had a negative, significant impact on the risk-taking level of the managers. The modified coefficient of determination indicated the explanatory power of the independent variables, explaining 87% of the changes in the dependent variable. In addition, the probability of the f-statistic demonstrated that the entire model was statistically significant. Since the variable of the financial dominance of financial institutions had a negative, significant impact on the risk-taking level of the managers, the zero hypothesis was rejected, confirming the impact of the financial dominance of financial institutions on the risk-taking level of the managers. The results of the testing of the second hypothesis are shown in Table 4.

Table 4: Results of Second Hypothesis Model

Variables	Coefficients	Standard Error	t-statistic	Significance Level
y-intercept	-0.411356	0.030594	-13.44584	0.0000
Financial Dominance of Financial Institutions	-0.977421	0.184444	-5.299296	0.0000
Unexpected Marketing Costs	-0.006664	0.001759	-3.789714	0.0002
Interaction between Unexpected Marketing Costs and Financial Dominance of Financial Institutions	0.957519	0.206234	4.642885	0.0000
Operating Cash Flow	0.010259	0.003354	3.058964	0.0024
Firm Size	-0.003411	0.001675	-2.036161	0.0423
Firm Age	0.141896	0.009163	15.48585	0.0000
Financial Leverage	-0.001723	0.001589	-1.084806	0.2786
Firm Growth	-0.003185	0.000580	-5.488918	0.0000
Return on Assets	-0.032274	0.003979	-8.111584	0.0000
Inverse Mills Ratio	-1.99E-05	6.61E-06	-3.012200	0.0027
Coefficient of Determination	0.900482		f-statistic	32.69611
Modified Coefficient of Determination	0.872941		Significance Level	0.000000
Durbin-Watson			1.926064	

According to the information in Table 4, the probability of the t-statistic for the variables of the financial dominance of financial institutions, unexpected marketing costs, interaction between the unexpected marketing costs and financial dominance of financial institutions, OCF, firm size, firm age, firm growth, ROA, and inverse Mills ratio on the risk-taking level of the managers was below 5%. Therefore, the mentioned correlation was considered statistically significant. On the other hand, the probability of the f-statistic was indicative of the statistical significance of the entire model. With regard to the hypothesis, since the variable of the interaction between the unexpected marketing costs and financial dominance of financial institutions was positive and significant, the zero hypothesis was rejected. In other words, the unexpected marketing costs affected the correlation between the dominance of financial institutions and risk-taking level of the managers. The results of the testing of the third hypothesis are shown in Table 5. According to the information in Table 5, the probability of the t-statistic for the variables of the financial dominance of financial institutions, interaction between the human resource costs and financial dominance of financial institutions, OCF, firm size, firm age, firm growth, ROA, and inverse Mills ratio on the risk-taking level of the managers was below 5%. Therefore, the mentioned correlation was considered statistically significant. With regard to the hypothesis, since the variable of the interaction between the human resource costs and financial dominance of financial institutions was positive and significant, the zero hypothesis was rejected. In

other words, the human resource costs affected the correlation between the financial dominance of financial institutions and risk-taking level of the managers.

Table 5: Results of Third Hypothesis Model

Variables	Coefficients	Standard Error	t-statistic	Significance Level
y-intercept	-0.400749	0.031827	-12.59146	0.0000
Financial Dominance of Financial Institutions	-0.666982	0.189811	-3.513926	0.0005
Human Resource Costs	8.29E-05	4.73E-05	1.752443	0.0804
Interaction between Human Resource Costs and Financial Dominance of Financial Institutions	0.000167	7.11E-05	2.353753	0.0190
Operating Cash Flow	0.011013	0.003401	3.237825	0.0013
Firm Size	-0.003831	0.001719	-2.228735	0.0263
Firm Age	0.140196	0.009344	15.00449	0.0000
Financial Leverage	-0.002199	0.001638	-1.342909	0.1800
Firm Growth	-0.002992	0.000591	-5.060781	0.0000
Return on Assets	-0.034860	0.004184	-8.330856	0.0000
Inverse Mills Ratio	-2.09E-05	6.73E-06	-3.102421	0.0020
Coefficient of Determination	0.896538	f-statistic		31.31184
Modified Coefficient of Determination	0.867905	Significance Level		0.000000
Durbin-Watson			1.929761	

6 Discussion and Conclusions

The present study aimed to evaluate the effect of the financial dominance of financial institutions on the risk-taking level of the managers. According to the obtained results, the financial dominance of financial institutions had a direct, positive effect on the interaction between the unexpected marketing costs and risk-taking level of the managers. According to the information asymmetry theory, since the information asymmetry, ethical risk, and incorrect selection problems that are caused by information asymmetry are the key factors for financial support, connection to bank stocks could enhance the information, as well as business sharing and coordination between banks and companies through organizational arrangements, thereby internalizing external taxation. As a result, the risk-taking level of managers increases with higher investment in R&D expenses, which might be caused by the diminished problem of investment in innovation through reducing loan limitations and increasing credit. In a study in this regard, Xing and Shuiquan [19] claimed that the link between bank share and risk-taking level of the managers not only significantly increases innovation, but it also improves innovation performance, which is in line with our findings. According to the second hypothesis of the current research, it is beneficial to instigate more commitment to marketing costs through the association between the financial dominance of financial institutions and risk-taking level of the managers. This assumption relies on marketing studies, with the theory based on the notion that asset marketing protects the company against the price competition created by low-quality brands, while also increasing the acceptance and loyalty of the clients and distributors. Therefore, there should be more commitment to marketing costs through the past courses of analysts' pressures to create and enhance the marketing assets that could improve financial performance. These are the key reasons that managers could help increase their degree of risk-taking. In another research in this regard, Schimke

and Brenner [14] reported that R&D activities had a positive effect on turnover growth, while the capital investments negatively and positively affected the firm growth. According to the third hypothesis of the current research, the financial dominance of financial institutions had a significant, direct effect on the interaction between the human resource costs and risk-taking level of the managers. According to the human capital theory, human resource cost indicators involve various perspectives, and it seems that this approach to human resource evaluation increases the accuracy of firm evaluations, thereby enhancing the risk-taking of managers. In a study in this regard, Kazerouni et al. [10] stated that higher education of an individual is associated with a more significant impact on the improvement of innovation. Moreover, higher R&D expenses were associated with higher innovation, which is consistent with our findings. Based on the results of the first hypothesis of the current research, it is proposed that the bank dependency of companies be emphasized by investors, creditors, and analysts in their evaluation of the competitive market in order to make proper decisions. This is mainly due to the fact that the companies that rely on commercial banks are often affected by risk. Based on the results of the second hypothesis of the current research, it is suggested that educational classes and seminars be held by TSE in this regard in order to explain the extent to which a company enjoys information on unexpected marketing costs and its impact on achieving sustainable, competitive advantages, as well as higher innovation when providing counseling services to investors and shareholders. Based on the results of the third hypothesis, it is suggested that the recruitment system of the evaluated companies be assessed, and rational motivational programs be provided in order to enhance the role of human capital in improving the risk-taking level of the managers, which in turn reduced inefficiency and improved the performance quality of the employees.

References

- [1] Ahmadi, R., Kordloei, H., *The Effect of Financial Distress on the Investment Behavior of Companies Listed on Tehran Stock Exchange*. *Advances in Mathematical Finance and Applications*, 2018, **3**(4), 17-28. Doi: 10.22034.amfa.2019.565459.1108.
- [2] Allen, F., Qian, J., Qian, M.J., *Law, finance, and economic growth in China*, *Journal of Finan. Econ.* **77** (1), 57–116 Doi: .10.1016.j.jfineco.2004.06.010.
- [3] Bohlouei, E., Anvary Rostamy, A., Sadeghi Sharif, S., Saeedi, A., *The Impacts of Financial Structure on Financial Performance of Banks listed in Tehran Stock Exchange: An Empirical Application*. *Advances in Mathematical Finance and Applications*, 2018, **3**(3), 11-26. Doi: 10.22034.amfa.2018.544946.
- [4] Carmeli, A., Schaubroeck, J., *How Leveraging Human Resource Capital with its Competitive Distinctiveness Enhances the Performance of Commercial and Public Organizations*. *Human Resource Management*, 2005, **44** (4): 391–412. Doi: 10.1002.hrm.20081.
- [5] Chung, T.S. and Low, A., *The Impact of Investor Impatience and Environmental Turbulence on Myopic Marketing Management and Stock Performance*, *International Journal of Research in Marketing*, 2017. Doi: 10.1016.j.ijresmar.2017.01.004.
- [6] Currim Imran, S. Jooseop Lim, Yu, Zhang., *Effect of analysts' earnings pressure on marketing spending and stock market performance*. *Journal of the Academy of Marketing Science*, 2017, pp 1–22. Doi: 10.1007.s11747-017-0540-y.

- [7] Dostar, M., Mohammadnejad, A., Javadian Langeroodi, M., *Investigation of the Impact of Herding Behavior of Fund Managers on Their Risk Taking in Tehran Stock Exchange*, Asset Management and Financing, Article 9, 2017, Vol 5, 2: 129-148. Doi: 10.22108.AMF.2017.21577.
- [8] Dzhumashev, R., Mishra, V., Smyth, R., *Exporting, R&D investment and firm survival in the Indian IT sector*, Journal of Asian Economics, 2016, Vol.42, pp.1-19 .Doi: 10.1016.j.asieco.2015.10.002.
- [9] Hall, B.H, Oriani, R., *Does the market value R&D investment by European firms? Evidence from a panel of manufacturing firms in France, Germany, and Italy*. Int. J. Ind. Organ, 2006, **24**(5), 971–993. Doi: 10.1016/j.ijindorg.2005.12.001.
- [10] Kazerouni, A., Akbari, A., Ashrafi, M., *Investigating the Impact of Intellectual Property Rights and Human Capital on Innovation in Mina Countries*, the Second National Conference on Modern Management, Iran, Tehran, Association for the Development and Promotion of Fundamental Sciences and Technologies, 2015, EMCONF02_080. (in Persian).
- [11] Kehoe, R. R. and Wright, P., *The Impact of High Performance Human Resource Practices on Employees' Attitudes and Behaviors*. Journal of Management, 2013, **39**(2), 366-391. Doi: 10.1177.0149206310365901.
- [12] Liu, X., Jiang, S.Q., *Bank equity connection, banking competition and financing constraints of private enterprises*, Chin. J. Manage, 2015, Sci. 12, 1–10 (in Chinese).CJFDTotal-ZGGK201512001.htm.
- [13] Mahmoodabadi, H., Zamani, Z., *Investigating the Relationship between Corporate Risk Taking and Financial Performance with Emphasis on Corporate Governance*, Empirical Studies in Financial Accounting, 2016, Article 6, 49: 141-170. Doi: 10.22054.QJMA.2016.4197
- [14] Schimke, A., Brenner, T., *The role of R&D investments in highly R&D- based firms*, *Studies in Economics and Financial*, 2014, Vol.31, No.1, pp.3-45. Doi: 10.1108.SEF-02-2012-0017.
- [15] Shahalizadeh, B., *Evaluation of Using Modified Dupont Ratio for Prediction of Firms' Profitability at each Stage of the Company's Life Cycle*, the Second National Conference on Modern Management, 2013, Shiraz.FNCAM01_060. (in Persian).
- [16] Song, Z, Storesletten, K., Zilibotti, F., *Growing like China*, Am. Econ. Rev. 2011, **101** (1), 196–233. Doi: 10.1257.aer.101.1.196.
- [17] Taghizade Khanghah, V., Zeynali, M., *Investigating the Effect of Corporate Social Responsibility on the Investment Efficiency and Innovation*, Journal of Health Accounting, Fifth year, 2017, 16: 1-27. Doi :10.30476.JHA.2017.39316.
- [18] Xie, W.M., Fang, H.X., *Financial development, financing constraints and firm R&D investment*. J. Finan. Res, 2011, 5, 171–183 (in Chinese)
- [19] Xing, Liu, Shuiquan, Jiang., *Bank equity connections, intellectual property protection and enterprise innovation – bank ownership perspective*, China Journal of Accounting Research, 2016. Doi: 10.1016.j.cjar.2016.04.002.
- [20] Yahyazadehfar, M., Hasiri Amiri, N., *Investigating the Effect of Marketing Costs on the Financial Performance of Companies Listed in Tehran Stock Exchange*, the First International Conference on Management, Accounting, Education and Resistance Economy; 2016 Action and Proceeding, Sari, Baran Andisheh Scientific Research Company. MAESREAI01_442. (in Persian).

[21] Zanjirdar, M. , Sefi ,m. , *Review of relationship between dividend policy and performance: Evidence of Iran's capital market*, African Journal of Business Management, 2012,6 (40), 10507-10513. DOI: 10.5897/AJBM11.2860

[22] Zanjirdar ,M., Madahi, Z., Kasbi , p. , *Comparative analysis of sticky SGA costs and cost of goods sold: Evidence from Tehran Stock Exchange*, Management Science Letters ,2014 ,4(3), 521-526.