



## Investigation on the effect of the variability of risk and funding on innovation on firms

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### ABSTRACT

*The aim of this study was to evaluate the effect of the variability of risk and funding on innovation. This study is based on analysis of library study and also based on analytical panel (data panel data). In this study, financial information of 109 firms listed in the Tehran Stock Exchange during the period 2009 to 2013 is studied. To analyze the results of this investigation some software like, SPSS 20, Eviews 17 and Minitab 16 has been used. The results in connection with the confirmation of the first assumption suggest that the variability of risk and innovation of firms, there is a significant relationship. Also with regarding of the analysis made in connection with the second assumption to the conclusion that between the funding of research and innovation, there is a significant relationship and finally, according to the analysis made in connection with the assumption a third study found that the variability of the risk of financing and innovation, there is a significant & direct relationship.*

### Keyword:

- / Variability of risk
- / Innovation
- / Financing
- / risk variability of funding and data panel

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**INTRODUCTION**

One of the most important topics of study in the management field is investment and risk topics. Managers are always looking for solutions that are possible with the least liquidity, the greatest benefit and least risk experience (Ayagari et al. 2011). The growth rate of investment reflects the company's capital increase with increasing critical decisions managers (Benfrattello et al. 2008). The effect of funding and investment decisions on the value of the company's origins in research Acharya et al. (2011). Theory of capital complete assets in the market, disregarding the value of the company, is in connection with the financing of productive assets and has been assumed as a solid base on its investments. In fact, some authors such as spring and colleagues (2011), were the fan of the view. Although other authors in comparison with this theory, mentioned a significant positive correlation between investment and funding (Azizkhani et al. 2007). This view and similar ones do not entirely cover assumptions of Modigliani and Miller. More investors are seeking stable returns with increased volatility (Balasubramian & sivadasan, 2011).

Balasubramian & sivadasan, 2011, pointed out that the investment firm in connection with stock returns and two two-way interaction that ultimately leads to a positive relationship between these two variables. Abnormal stock returns and risks originating from other more unusual economic changes, depended in the fundamental changes in companies (Almedia & et al. 2004). More fluctuations over the average investment can have long-term effects on the diversity of risk involved (Bertrend & Mulasan, 2003). In the meantime, another issue that is somehow associated with finance companies is investment and in order to achieve innovation and creativity at work (Atalah et al. 2012). Return on equity plays an important role in enabling managers to invest in the future of the company (Bleck and Strehan, 2002). Volatility risks originating from over-investment companies and developments may cause an increase in productivity (Campelo et al. 2010). Investment is predicted based on the company's ability to take effective measures to change the amount and timing of cash flows of the business so that it can respond appropriately to the events and opportunities of unexpected and non-pre-show (Crun and Clytun, 2005). Managers are always looking for opportunities to increase the amount of investment in a positive abnormal returns and corporate profits led to near optimum point and have ultimately innovation in new investments (Cornnagia et al. 2012). Appropriate and timely return on investment and innovation to enable business to be considered in advance in relation to the sums for investment in addition to meeting the needs of ordinary investment company, as well of the investment is unexpected opportunities (Dmeiac et al. 2007) and at a time when cash flow from operations due to the unexpected drop in demand for products such entity is low, and possibly negative, survive according to the trust and confidence of shareholders (Dick & Lanert, 2010). Difficulties in the capital markets, including maintain funding for companies to take advantage of profitable opportunities is required (Behars et al. 2011). The results of experimental studies indicate that the threat of corporate debt and budgeting, capital structure, or rather how they may affect the

Company's financial flexibility of its own and creates the risk of uncontrollable (Schkreft, 2005).

The main objective of this study was to research seeks to answer the question of whether the variability of risk, funding risk and variability of supply reliability and innovation in companies listed on the Tehran Stock Exchange is effective or not?

**Theory Fundamentals**

Expenditure on research and development (R & D) and innovation

In terms of research, science and technology, which in effect Mjhlvaty or professional information in the field of scientific, social or economic and appears bright. Research can be seen as a set of activities that researchers use them to understand the reality of research methods and tools have access to the facts (Nader, 1372).

Research and development (R & D), three types of research that are covered include: basic research, applied research and development research. Basic research is the primary research for new scientific knowledge is carried out. Basic research is based on scientific findings in the form of general rules and with the use of drawings and explanatory theories. The results of basic research in general has exchange value is usually printed in scientific journals or has been sent to institutions and universities applying these results (Fazari et al. 2005).

In all these cases the importance of research and development in the transformation industry, the long-term survival and profitability specifies. But in our country the amount of importance to research and development in industries such as automotive or nuclear energy is given, is given to small and medium industries and governments to restructure their budgets by creating a new role in the process of industrial development and spend the proceeds of natural resources for activities such as infrastructure development, education, research and development, technology transfer and technical knowledge, what is thought?

Despite the economic forces that elsewhere in the world have taken the lead in science and technology, have been formed in Iran, but still long way to go to realize the potential of their community in this regard (Jalal Abadi, 1380).

Research in Iran, particularly in organizations and state-owned companies, along with other elements of the development of growth has not been satisfactory so far, theories and different reasons given by the experts in this case. Mainly from the macro, in this regard, although not a close relationship between these two levels (national and organizational level) denied, but be sure to check more detailed about the challenges facing government agencies and research with a focus on issues facing the units responsible for investigating these organizations (Bond & Moghir, 1994).

According to government organizations and special features of the structure of the research in these organizations is able to find its rightful place in the meantime, the service is in addition to many organizations. Continuing efforts have been made to the main challenges facing R & D units in government agencies, in particular banks, discussed and examined. Research on the causes of poor growth and

development in government agencies for various reasons have been proposed by researchers with experience in research units governmental organizations, in this case can be described as the most important challenges facing the research organizations and state-owned companies named (Magna & Clock, 1993).

It seems, there is not a belief in research between managers and authorities, as well as neglect and distrust managers and attitude towards research achievements and gaps between managers and researchers in various decision-making and decision-making, distrust prevails country managers of the role and importance of research has caused. Also, as long as the need for reliable research results and influence on decision-making among senior managers not feel there is little hope of promotion of the R & D units. Of course, time consuming research projects, they are not functional at the operational level of the organization and managers rush to use its results in the form of consuming it is not impact relations (Nader, 1372).

Hu and colleagues are also using the new theory of economic growth suggests that productivity growth is innovation. According to theoretical discussions on international economic relations, especially in trade, as a transition mechanism and said that the growth of total factor productivity of a country depends on domestic resources, economic development partners. Carpenter and Gvaryjlya Fazary studies and colleagues also suggest that the accumulation of the most important R & d determinant of total factor productivity growth of the economy.

#### **Practices Finance**

Now two sources of funds available to finance their investment: the internal resources (through retained earnings) and external sources (debt, equity and excellence) (White, 2006). In other markets, financing practices in three major categories, debt (bonds and bank loans), preferred shares and the share capital (equity and retained earnings) is divided.

#### **Debt**

##### **Financing through debt has the following costs:**

- 1) An increased risk of bankruptcy due to debt requirements and costs, financial pressure
- 2) represent costs of monitoring and control of operations by lenders
- 3) costs due to asymmetric information More information managers about various aspects of the company to creditors (Efeck & Richardson, 2003)

#### **Issued ordinary shares**

This form of financing, at least for diffuser limitations associated companies are not legally required to pay dividends. Financial equity financing through the company's future borrowing capacity increases, such as with a share capital increase, the financial director of flexibility and opportunity for its borrowing. On the other hand, issuing new shares, resulting in a negative effect on the company's stock price (Rayoh, 2006).

Managers who consider a longer-term time horizon deals, the new share issue and sale of shares to the extent, continue with the marginal cost equals marginal revenue deals, but managers who take care of short-term stock price are new ordinary shares less a virgin.

#### **Published in preferred stock**

The attractiveness of preferred stock by the current interest rate and capital structure of the company. Financing using

preferred stock, common shareholders change control able to meet. Preferred stock often combination, corporate restructuring and reduction process occurs released. Most preferred stock issued to the company's common stock purchased is made and the possibility that the owners bought from a continuous-flow of dividends (Almedia et al. 2004).

#### **Retained earnings**

Accumulated revenues as mentioned internal resources is an important way of allocating a capital in modern industrial economies. While foreign funds are usually for specific sectors or companies to be considered for certain assets, domestic sources can make up a large part of the investment. For example, 1981 to 1991, domestic sources more than 75% of capital costs of US non-financial corporations limit coverage. And at the same time 80% of real gross investment is made in Germany from domestic sources (Oscar et al. 2010).

Donaldson (1990) states that managers prefer internal resources, such as funding through internal funds management and complete control tries faced with minimal resistance. Other reasons can be cited for superior internal resources on external sources, the cheaper cost difference between internal and external sources and internal sources. Internal sources of information because of the difference, motivational and asset allocation, cost control rights or exchange of different foreign sources. That the price difference between domestic and foreign resources depends on the degree of asymmetric information and transaction costs are different. Evidence suggests that the gap between the cost of internal and external resources is high (Boruks & Katsaris, 2005).

#### **The definition of risk**

Risk refers to circumstances that can be attributed to the subjective probability distribution of returns unknown. Risk is the probability of different real rate of return the investor's expected rate of return. (Hemmati, 1376). Bull defined the risk as any phenomenon that can result from what the investor expects to divert. Markotiz defined the risk as a period of a variable standard deviation and a numerical index (Ahmadpour, 1378). To calculate the standard deviation and beta risk of the method used.

The risks that are indicative of internal features include: business risk, financial risk, default risk and default risk, liquidity risk, management risk, interest rate fluctuation risk, political risk, market risk, inflation risk (purchasing power), the risk the boom and bust of the securities market, redemption risk, is the risk industry.

Previous attitudes about risk, the fundamental approach. Another approach to risk, the concept of full theory and capital market, have been proposed, including:

#### **Systematic risk, or the risk of unavoidable**

Risk factors simultaneously in effect on prices, especially the price of securities in a specific market comes into existence. Changes in the economic environment, political and social that such securities have an impact on the overall efficiency are systematic risk factors. Changes in interest rates, balance of payments, balance of trade, monetary and fiscal policies and economic conditions such as inflation and recession that affects the general condition of the market, are the main causes of this type of risk. On average 30% of the deviation of the price per share may be due to deviation of market index, meaning that approximately 30% of risk

per share systematic risk or constitutes an unavoidable (Hemmati, 1376).

Because of the risk associated with the overall market to market risk, say the reforms. To determine the relationship between beta coefficient to measure systematic risk as the slope of the regression line between the rate of return on equity and return on the market index. If securities beta coefficient is larger than a rate of return yields above the market will change and sensitive to changes in market index, the price of such shares at the time of the boom, up and as a result, increase their efficiency At the time of recession and deflation increases and vice versa, prices and returns to market returns than other securities decreased by beta coefficient is smaller than one, the price and yield performance of the Market changes, and the changes in securities of less than securities beta coefficient is less than zero, changes in their efficiency against the direction of movement and the changes in the securities market is the beta coefficient is equal to exactly one market changes. (Dorou et al. 2005).

#### **Unsystematic risk or possible loss**

It's part of the risk portfolio through increasing or decreasing the number of shares is called unsystematic risk can be reduced. In fact, this part shows the risk of the entire risk portfolio that is unique to a particular company or industry. Some of the factors that led to the creation of unsystematic risk are including: goods and services produced by the company or the industry, competitors' actions, management and corporate cost structure (Diang et al. 2001).

#### **background research**

Jenz (2013), in a survey conducted between voluntary disclosure of research and development costs and the ratio of book value to market (accounting as one of the important information) tested. He found that companies that are less than the book value of the market is willing to voluntarily disclose information about the cost of research and development.

Vieira and Hoskin (2012), examines the development of management information systems at the Bank of Portugal have focused on activity-based costing approach. In this paper has been to provide a model that allows for the effect of structural changes on accounting practices, disclosure of the effect of both on the power relations from the perspective of Foucault provided.

Urpert and Zhang (2009), the relationship between the impact of the disclosure of cash flow statement, direct method to predict cash flows and dividend payments. The results show that the presentation of the cash flow statement, direct method of greater ability to predict future cash flows.

Tan and colleagues (2007) examined the relationship between intellectual capital and financial performance of companies listed on the Stock Exchange of Singapore's. In this regard, 150 companies in the period 2002-2000 and examined using intellectual added value. The results suggest that intellectual capital and firm performance is positively related to both, the future performance of the company's intellectual capital and there is a significant correlation between the rate of growth of intellectual capital directly related to the company's performance and the impact of

capital thoughts on the performance of companies operating in different industries, are different.

Dastgir and Ghalebi (1391), in an article titled qualitative characteristics of accounting information systems in a case study to evaluate the qualitative characteristics of accounting systems, including understandability, relevance, reliability, comparability and timeliness of the organization the study was conducted to provide information needed for decision management. The results of the study indicate that the accounting system of accounting information systems in its quality attributes.

Ghaemi and Vatanparats (1390), studied the role of accounting information to reduce information asymmetry in the stock market in Tehran. The results show that there is information asymmetry between investors, and this pre-announcement, the announcement is more of a post. The asymmetry of information on trading volume and stock prices in the period prior to the announcement effect and increase trading volume and stock price fluctuates.

Arabmazar Yazdi, Alame Tabrizi and Arizton (1386), in a study titled "The Relationship between financial structure and functional properties of faces financial firms to disclose information with the companies listed in Tehran stock exchange" to check the relationship between financial structure and functional characteristics of firms with the disclosure of information. The results obtained from this study showed that the financial structure and functional characteristics of firms with adequate disclosure in the financial faces significant relationship.

#### **Assumptions**

After the preliminary research and studies on possible solutions, to answer questions on the findings, following concepts have been developed:

1. There is a significant relationship between the variability of risk and innovation.
2. There is a significant relationship between finance and innovation.
3. the variability of the risk of funding and there is a significant innovation.

#### **Research Methodology**

The methodology used in this study is a correlation research, descriptive research types (descriptive and correlational study, the researchers examined the relationship between two or more variables). Research method is reasoning, deductive, inductive. Scalable because as the theoretical framework and literature from the library, papers and because the Internet is used and inductive data analysis of primary data path to accept or reject hypotheses have been performed. In this study, the type of data and methods of analysis, the method of "data panel" is used. Because to study the variability of risk and funding on innovation, the predictor variables and estimates from two different aspects discussed. On the one hand, these variables among different companies in the Tehran Stock Exchange and on the other hand, in the period 1387-1392 are tested. The sample is selected by default Cup and after exercising. Model derived from research gentlemen and colleagues (2013) and adjusted variables study, Emory et al (2014) are estimated as follows:

$$\ln(R \& D)_{i,t} = \alpha_0 + \beta_1 E(yIDR)_{i,t} + \beta_2 Credits_{i,t} + \beta_3 E(yIDR)_{i,t} * Credits_{i,t} + \beta_4 Tang_{i,t} + \beta_5 \ln(Sales)_{i,t} + \beta_6 CashHOLDing_{i,t} + \beta_7 \ln(K / L)_{i,t} + \beta_8 ROA_{i,t} + \beta_9 \ln(Age)_{i,t}$$

The model Ln (R & D), innovation firm i in year t, EyIDR, variability of risk firm i in year t, Credits, fund firm i in year t, EIDR \* Credits variability of risk arising from finance company i in year t, Tang, tangible assets of firm i in year t, Sales, sales of firm i in year t, CashHoldings, the ratio of financial assets of firm i in year t, Ln (K / L), the logarithm of the ratio of fixed assets to the company overhead i in year t, ROA, return on assets of the company i in year t, Age, life is an important loss of firm i in year t. Final data analysis software for SPSS 20, Eviews 7 and Minitab16, was used.

**research findings**

Brief descriptive statistics of the variables after removing the outliers screening software SPSS 20 was calculated. Innovation average sample firms respectively 0.6328 and

0.0110 and 6.8448 is the minimum and maximum amount equal to. Skewness and kurtosis assess these variables which is normally distributed variables, shows that this variable is not normally distributed. The descriptive statistics presented in Table 4.1, the average variability of risk, funding risk and variability of fund companies during the period of investigation, respectively positive and 0.2709, 0.1390 and 0.1473. The positive average tangible assets, sales ratio and the ratio of liquid assets respectively 0.7689, 0.0881 and 0.5593 and positive average overhead logarithm of the ratio of fixed assets, return on assets and the company's life, respectively by 5.8548, 0.6180 and 0.9478 respectively.

Test the normal distribution of the dependent variable In this study was to estimate the parameters used and the method of ordinary least squares method based on the assumption that the dependent variable is normally distributed,

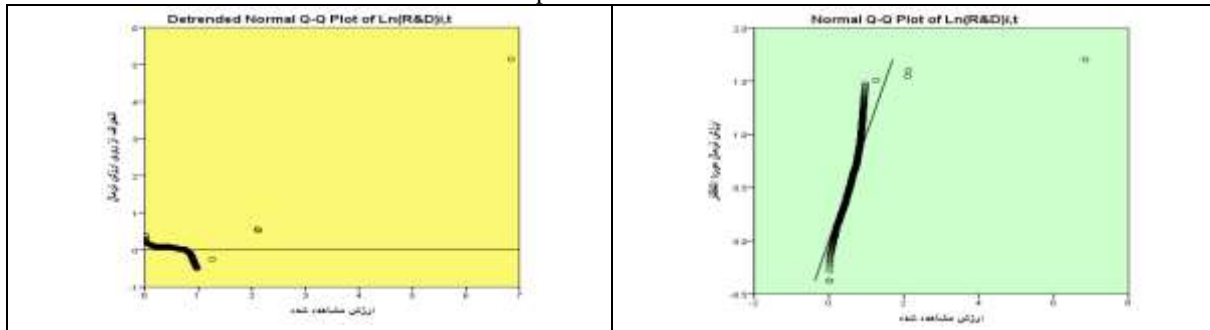
Table 1: Results of normality of the dependent variable

(Sig)	Statistic(K-S)	(N)	Variables
0.019	4.336	654	Firma innovation

Given that the dependent variable level of KS statistic is less than 05/0, so the hypothesis of normal distribution of the variables was rejected at 95%, indicating that the dependent

variables do not have a normal distribution. Figure 1 (QQ plot), a non-normal distribution of the dependent variable is displayed.

Figure 1 displays the graph of normal distribution of variables Innovation (QQ plot), showing non-normal distribution of the dependent variable



Normality of the dependent variable, a prerequisite for regression models, so be sure to test the hypothesis that normalization is variable. In this study, normal data transfer

Table 2: Results of the dependent variable normal after normalization process

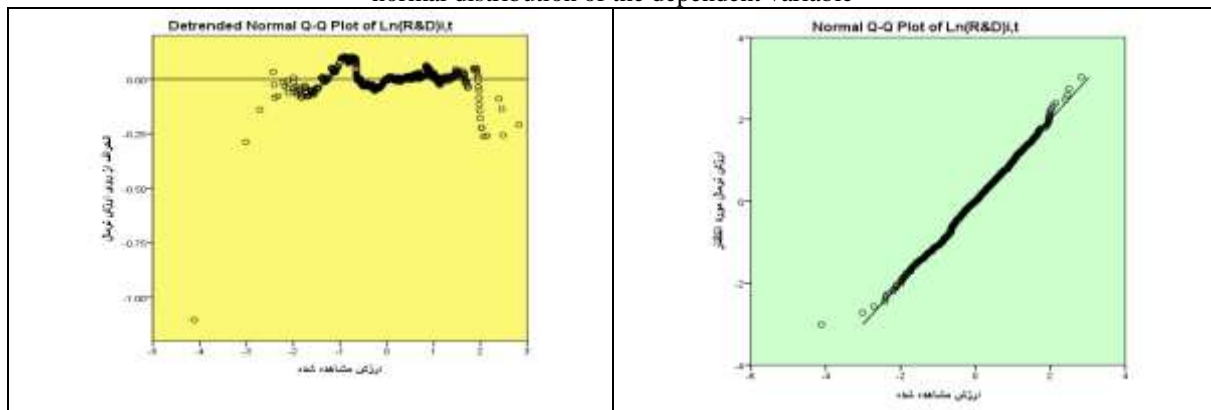
(Sig)	Statistic(K-S)	(N)	Variables
0.548	0.798	654	Firma innovation

According to Table 2, since data after the normal level of significance (Sig.) Kolmogorov-Smirnov test for the dependent variable is higher than 05/0 (548/0), so the hypothesis is confirmed and represents 95% this is the

function Johnson were employed and analyzed by software Minitab 16 is located. The results of the KS test after the normal process of the data is in table 2.

dependent variable after normalization process, are normally distributed. Figure 2 (QQ plot), normally distributed dependent variable after normalization process by Johnson transfer function, is displayed.

Figure 2 displays the normal distribution of variables Innovation after normalization process diagram (QQ plot), showing normal distribution of the dependent variable



**Correlation between variables**

In this section, using Pearson's correlation coefficient to assess the relationship between the variables and the correlation between them will be discussed. Matrix of correlations between variables is presented in Table 3. Based on the results of reason, innovative company shows a significant positive correlation with the ratio of liquid assets and return on assets and a significant negative correlation with the ratio of tangible assets. Variability of the risk of funding News is positively correlated with the funding. Funding is also positive and significant correlation with the

risk of funding variability and significant negative correlation with corporate life of their shows. Tangible assets also has a positive and significant correlation with the logarithm of the ratio of fixed assets overhead and significant negative correlation with their shows return on assets. A significant proportion of sales also positively correlated with the return on assets. The ratio of liquid assets and a significant positive correlation with the return on assets. Logarithm of the ratio of fixed assets overhead is also significant negative correlation with the return on assets.

Table 3: Matrix Pearson correlation coefficients between variables

	Innovation	Variability of risk	Funding	Variability of the risk of funding	The proportion of tangible assets	Of sales	The ratio of liquid assets	Logarithm of the ratio of fixed assets to overhead	Return on assets
Innovation (P-Value)	1								
Variability of risk (P-Value)	0.041 0.296	1							
Funding (P-Value)	0/034 (0/381)	0/809 (0/000)	1						
Variability of the risk of Funding (P-Value)	0/041 (0/298)	0/019 (0/632)	0/222 (0/000)	1					
The proportion of tangible assets (P-Value)	-0/084 (0/032)	0/017 (0/656)	0/012 (0/757)	-0/062 (0/115)	1				
Of Sales (P-Value)	-0/047 (0/230)	0/020 (0/618)	-0/014 (0/720)	0/031 (0/435)	-0/026 (0/503)	1			
The ratio of liquid assets (P-Value)	0/110 (0/005)	0/015 (0/703)	-0/014 (0/716)	-0/061 (0/119)	0/013 (0/744)	0/076 (0/053)	1		
Logarithm of the ratio of fixed assets to overhead (P-Value)	-0/074 (0/060)	0/000 (0/999)	-0/001 (0/988)	-0/059 (0/130)	0/984 (0/000)	-0/032 (0/414)	0/003 (0/949)	1	
Return on assets (P-Value)	0/093 (0/018)	-0/001 (0/975)	0/021 (0/591)	-0/034 (0/380)	-0/112 (0/004)	0/093 (0/017)	0/442 (0/000)	-0/125 (0/001)	1
Company life (P-Value)	0/017 (0/673)	-0/041 (0/298)	-0/089 (0/023)	-0/073 (0/061)	0/044 (0/265)	-0/004 (0/910)	-0/049 (0/210)	0/057 (0/142)	-0/064 (0/100)

**Study co-linearity between variables**

Multicollinearity means there is a linear relationship between the explanatory variables or independent. One of the ways to identify the relationship or not multicollinearity. Multicollinearity investigate the correlation between independent variables. If there is no strong correlation

between the independent variables, multicollinearity problem is not occurred. In this study the relationship between multicollinearity between independent variables using Pearson's correlation coefficient was used. As indicated in Table 3, the variability of risk factors, funding and risks of supply variability Atbarhmbstgy direct

correlation between these variables together that it is very strong. Therefore, there is the problem of co-linearity between these variables, simultaneous arrival of these variables in a model may need to check and test is impossible and take them into separate models. No association with other variables can be difficult due to strong co-linearity exists between them and their simultaneous entry model will cause multicollinearity problem.

The results of the first hypothesis

To be certain whether the use of panel data in estimating the model will be efficient or not, the Chow test in order to determine which method of tying or F (fixed effects or random effects) is more appropriate to estimate (recognition of the differences between fixed or random cross-sectional units) used the Hausman test. The results of these tests are presented in Table 4.

Table 4: Results Chow and Hausman test for the model (1)

P-Value	Degrees of freedom	Static Values	Static	Number	Test
0.0268	538,108	3.9205	<i>F</i>	654	Chaw
0.0354	9	8.2727	$\chi^2$	654	Housman

According to Chow test and P-Value of (0.0268), test hypothesis rejected at 95%, indicating that the method can be used panel data. Also according to the results of Hausman and P-Value of (0.0354), which is less than 0.05, test assumptions and hypotheses are rejected at the 95% confidence level is accepted. Therefore, the model is estimated using fixed effects.

In this study correlated to test the residuals of a regression analysis and correlation assumptions, analysis and called the Durbin Watson (DW) is used. According to preliminary

results of the Durbin-Watson statistic estimation of between 1.5 and 2.5 is 2.26, and since it can be concluded that the residuals are independent. In addition, to test whether the linear regression model and whether the model of the relationship between linear and non-linear explanation is correct or not coded test was used. Due to the level of a symbolic test (0.4133) is larger than 0.05, so the null hypothesis of this test has been verified that the linear model and the model error is not specified. Summary results are presented in Table 5 above.

Table 5: results of the statistical assumptions of the model (1)

Static Ramsey		Static Durbin-Watson	Static Breusch-Pagan		Static Jarque-Bera	
<i>P-Value</i>	<i>F</i>	D	<i>P-Value</i>	<i>F</i>	<i>P-Value</i>	$\chi^2$
0.4133	7.8848	2.26	0.023	4.4862	0.5692	1.5753

According to the results of tests Chow and Hausman and also test classic assumptions of the regression model (1)

research using panel data and as fixed effects are estimated. The results are presented in Table 6. Estimated model using Pro 7 Eviews as follows:

$$\begin{aligned} \ln(R \& D)_{i,t} = & 1.5637 + 0.0701E(yIDR)_{i,t} + 0.0592Credits_{i,t} + 0.0207E(yIDR)_{i,t} * Credits_{i,t} \\ & - 2.6316Tang_{i,t} - 0.1503Ln(Sales)_{i,t} + 0.0754CashH0Lding_{i,t} + 0.1830Ln(K / L)_{i,t} - 0.0674ROA_{i,t} \\ & + 0.0209Ln(Age)_{i,t} + \epsilon_{i,t} \end{aligned}$$

Table 6: The results of the first hypothesis using fixed effects

Dependent variable Innovation Views: 654 years - the company				
Relation	P-Value	Static t	Coefficient	Variables
Positive	0/0136	2/4750	1/5637	Constant Component
Positive	0/0121	1/5913	0/0701	Variability of risk
Positive	0/0395	1/9075	0/0592	Funding
Positive	0/0430	1/6828	0/0207	Variability of the risk of funding
Negative	0/0225	-1/2887	-2/6316	The proportion of tangible assets
meaningless	0/1862	-1/3236	-0/1503	Of Sales
Positive	0/0150	1/2975	0/0754	The ratio of liquid assets
Positive	0/0436	1/4747	0/1830	Logarithm of the ratio of fixed assets to overhead
Negative	0/0327	-1/3978	-0/0674	Return on assets
meaningless	0/5446	0/6062	0/0209	Company life
Determining factor model				
0/8793				
2/3535				
(0/0000)				
<i>F</i> ( <i>P-Value</i> )				

In considering the significance of the F-statistic model, given that the probability of smaller 0.05 (0.0000), with 95% of the model is confirmed significant. Determining model suggests that 87.93% of innovation, is explained by variables in the model. Reviews significant factors in the results presented in Table 6, since the probability of the t-

statistic for variable coefficient of variability of risk is smaller than 0.05 (0.0121), resulting in a significant relationship between risk and innovation variability at 95 percent is approved. The first hypothesis is accepted and can say with 95% of the variability of risk and innovation, there is a significant relationship. The positive coefficient for this

variable (0.0701) show a direct relationship between risk and variability of the company's innovation, so that an increase of 1 unit variability of risk, innovation as well as the 0.0701 unit increases. Thus, according to the analysis made in connection with the confirmation of the first hypothesis we can conclude that the variability of risk and innovation, there is a significant relationship.

#### **The results of the second hypothesis**

Reviews significant factors in the results presented in Table 6, since the probability of the t-statistic for variable rate financing is smaller than 0.05 (0.0395), so there is a significant correlation between funding and innovation at the level of 95 percent is approved. The second hypothesis is accepted and can say with 95% confidence between finance and innovation, there is a significant relationship. The positive coefficient for this variable (0.0592) show a direct relationship between the fund and the company's innovation, so that an increase of 1 unit financing, innovation unit has also increased in 0.0592. Thus, according to the analysis made in connection with the second hypothesis can be concluded that the funding of research and innovation, there is a significant relationship.

The results of the third hypothesis

Reviews significant factors in the results presented in Table 6, since the probability of the t-statistic for variable coefficient of variability of the risk of the fund is less than 0.05 (0.0430), the result of a significant relationship between the variability of the risk of supply reliability and innovation is at 95 percent approved. The third hypothesis was accepted and we can say with 95% of the variability of the risk of financing and innovation, there is a significant relationship. The positive coefficient for this variable (0.0207) show a direct relationship between the variability of the risk of the company's funding and innovation so that the increase of 1 unit variability of the risk of funding, innovation is the single 0.0207 increase. Thus, according to the analysis made in connection with approved third hypothesis we can conclude that the variability of the risk of financing and innovation, there is a significant relationship.

#### **Conclusion and Recommendations**

Given that the likelihood of significant coefficients in the first t-statistic for variable coefficient of variability of risk is smaller than 0.05 (0.0121), the result of a significant relationship between the variability of risk and innovation are at 95 percent approval be. The first hypothesis is accepted and can say with 95% of the variability of risk and innovation, there is a significant relationship. The positive coefficient for this variable (0.0701) show a direct relationship between risk and innovation variability is increased by 1 unit so that the risk of variability of innovation as well as the 0.0701 unit increases. Thus, according to the analysis made in connection with the confirmation of the first hypothesis we can conclude that the variability of risk and innovation, there is a significant relationship.

Reviews significant factors in the results, since the probability of the t-statistic for variable rate financing is smaller than 0.05 (0.0395), resulting in a significant relationship between finance and innovation at 95 percent approval placed. The second hypothesis is accepted and can say with 95% confidence between finance and innovation,

there is a significant relationship. The positive coefficient for this variable (0.0592) show a direct relationship between the fund and the company's innovation, so that an increase of 1 unit financing, innovation unit has also increased in 0.0592. Thus, according to the analysis made in connection with the second hypothesis can be concluded that the funding of research and innovation, there is a significant relationship.

Reviews significant factors in the results, since the probability of the t-statistic for variable coefficient of variability of the risk of the fund is less than 0.05 (0.0430), the result of a significant relationship between the variability of the risk of financing and innovation Companies at 95 percent is approved. The third hypothesis was accepted and we can say with 95% of the variability of the risk of financing and innovation, there is a significant relationship. The positive coefficient for this variable (0.0207) show a direct relationship between the variability of the risk of the company's funding and innovation so that the increase of 1 unit variability of the risk of funding, innovation is the single 0.0207 increase. Thus, according to the analysis made in connection with approved third hypothesis we can conclude that the variability of the risk of financing and innovation, there is a significant relationship.

#### **Proposals based on the results**

1. Stock Exchange can According to the results of this study and similar research more comprehensive information regarding innovation, to publish the shareholders.
2. Accounting Standards recommended references to voluntary disclosure of information concerning the level and variability of risk, finance, risk variability of funding and innovation.
- 3- Since the increase in the level of variability of risk, finance, risk variability of funding can have important effects on investment decisions, provide full and transparent information on the variability in risk management, finance, risk variability of finance and innovation, will be very useful.
- 4 better financial analysts active in the capital market, investment advisors on the stock exchange in the analysis and conventional techniques that do specific analysis based on the state of innovation and its influencing factors and variability of risk, finance, risk variability of funding Companies with respect to the accounting standards to take action.

#### **Research limitations**

- 1- The basis of the research information that will test hypotheses using them. Obviously, no matter how accurate and complete information is given to researchers, the results of research will be more reliable and more credible research.
- 2- One of the limitations of research, there is some discrepancy between statistical data reported by the company on the stock exchange and the information contained in the database in which the information provided by the reliance on stock and exchange.
- 3- Information gathered in this study includes the companies listed in Tehran Stock Exchange during the period 1387 to 1392, the number of observations as to increase information and test



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results will be higher and consequently the validity of research results, may different results achieved by increasing the time period.

- 4- once the great care taken in collecting information and trying but because of lack of resources, especially regarding innovation, some companies were excluded from the test sample.