The Relationship between Investment Decisions and Financing Decisions: Iran Evidence

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ABSTRACT

The present research will experimentally study the relationship between financing decisions and investment decisions in different economic conditions. Today this issue has been hotly debated in academic circles. This research will investigate and analyze the effects of the financial crisis in the year 2007-2008 on American economy and following that on world's economy on the Iranian economy. Thus, 50 firms Listed in Tehran Stock Exchange during the time period between 2005 and 2010 were studied. Also the present research is trying to control the effect of realized growth, firm size, and dividend policy, accounting return rate, and liquidity on financing decisions. To study the validity of the results of this research, we have used White regression analysis. The results show that the investment decisions have a positive effect on financing decisions in less and high uncertainty condition. This means that the global financial crisis does not affect the relationships between these decisions.

KEYWORDS: Financing decision, Investment decision, Financial crisis, Tehran stock Exchange.

1. INTRODUCTION

The global financial crisis (2007-2008) is said to have begun in the USA, spreading to Europe and Asia due to globalization of markets and its ubiquitous ethos. This crisis clearly demonstrated how events and activities in one part of the globe could come to have far-reaching and significant consequences for distant communities elsewhere. If the problem was confined in one place where it originated, it would have been purely an American problem and little of anybody else concern. The crisis was triggered by liquidity shortfall in the US sub-prime markets and the banking system. Through innovative financial products, risks are said to have been repackaged as derivative products and sold to European and Asia markets (Mugarura, 2011). As a result, this changed the dynamics of the problem to the current euphemism of "we are all in it together."

According to Fisher's separation theorem (1930) the managers will do the best way for shareholder's wealth. If there is information asymmetry, the managers will try to choose those financial decisions which maximize stockholders' wealth (Myers, 1984). Pecking order theory and signaling theory will describe the relationship between financing decisions and investment decisions. Both these theories presuppose that there is an information asymmetry and managers are concerned about maximizing the stockholders' wealth. This presupposition is the same as agency theory (Jensen &Meckling, 1976). It presupposes that there is a conflict between the benefits of stockholders and the benefits of managers. These conflicts lead managers to do moral hazard. Hence maximizing shareholder's wealth is no longer exists.

Since the investment decisions are not directly observable, Myers (1997) introduce the term investment opportunity set (IOS) to refer to the amount of firm value to be dependent on future discretionary expenditures. Several indexes were utilized in financial and accounting literature for investment opportunities. Researchers such Smith & Watts (1992), Gover (1993), and Kallapour&Trombely (1999) have categorized these proxies, into three types. Price based proxies, investment based proxies, and variance measures. They concluded that price based proxies are better than other investment opportunities' proxies in investigating the companies.

Financing decisions in companies are one of the most challenging issues in capital markets. Two theory of pecking order theory and static trade-off theory were introduced in the financial literature regarding companies' financing decisions. According to static trade-off theory, we can have access to methods which maximize the company's value through the implementation of balance between the benefits of financing decisions through debt and expenses related to debt and capital structure. In pecking order theory, the defects of capital market are considered and the exchange expenses, information asymmetry and the capability of the company to accept new investments are related to the internal cashes and resources (Hong & Johnson, 2006)

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There is information asymmetry according to Fisher's separation theorem. This research reasons that the investment decisions influence financing decisions. Meanwhile, the investment opportunities may have different effects on firms' financial decisions in different economical conditions. Low uncertainty condition reduces investment risk. Thus, the balancing theory suggests that using more debt financing. Thus, the effect of the set of investment opportunities will be positive on financial decisions. On the contrary, high uncertainty condition, the investment risk is high. Thus, the balancing theory suggests that reducing debt financing. As a result, the effect of investment opportunities on financial decisions will be negative.

2. LITERATURE REVIEW

Fisher separation theorem argues that given perfect and complete capital markets, the production decision is governed solely by an objective market criterion (represented by maximizing attained wealth) without regard to individual's subjective preferences that enter into their consumption decisions (see Copeland and Weston, 1988: 12). Modigliani and Miller (1958) study support the financing irrelevant proposition, which are leads the theory of financial leverage began to attract a great deal of attention among researchers in finance and economics. The financing irrelevant proposition was supported by Miller (1977), DeAngelo and Masulis (1980a).

The idea that managers prefer internal financing to external financing is, of course, old (e.g., Butters (1949)). Traditionally the argument was that outside financing required managers to explain the project details to outside investors and therefore expose them- selves to investor monitoring. Managers dislike this process and prefer retained earnings over external financing. But there is no direct prediction about the relative use of debt versus equity when seeking external financing. These ideas were subsequently developed into agency theories with Jensen and Meckling (1976) being a prominent contribution.

Myers (1977) argues there are exists an agency problem between shareholders and debt holders which leads to an underinvestment problem. Since the agency costs between shareholders and debt holders are assumed to be higher for firms with higher growth opportunities, firms with good investment opportunities are more likely to have less debt.

2.1 Fisher Separation Theorem

Under certainty, Fisher (1930) demonstrated a result that subsequently became known as Fisher separation theorem. In the classic version of the Fisher model, the individual makes a consumption choice and an investment decision to maximize utility subject to a budget constraint. The investment decision requires expenditure now and yields a known dollar return then based on the size of the investment expenditure. The investment decision alters the temporal income distribution of the individual but that can be compensated for by borrowing or lending in the financial market. It is the ability to compensate for any changes in the temporal distribution of income that generates the Fisher separation result, which says that the investment decision is independent of the individual's preferences for consumption now versus then. The individual selects that investment decision which maximizes the present value of her income stream and then selects the optimal consumption pair by borrowing or lending in the financial market. Of course, the investment and its return are part of the individual's income stream and so a corollary to the Fisher separation theorem follows immediately and says that the selected investment level is the one that maximizes net present value. Hence, the theorem and corollary have become an important part of corporate finance. The corollary has been used as a theoretical justification for the use of net present value and, in particular, for its use as the corporate objective function (Richard &Macminn, 2005).

2.2 Pecking Order Theory

Myers (1984) uses Myers and Majluf (1984) to motivate the pecking order. In Myers and Majluf (1984), managers use private information to issue risky securities when they are overpriced. Investors are aware of this asymmetric information problem, and the prices of risky securities fall when new issues are announced. Managers anticipate the price declines, and may forego profitable investments if they must be financed with risky securities. To avoid this distortion of investment decisions, managers follow what Myers (1984) calls the pecking order. They finance projects first with retained earnings, which have no asymmetric information problem, then with low-risk debt, for which the problem is negligible, then with risky debt. Equity is issued only under duress, or when investment so far exceeds earnings that financing with debt would produce excessive leverage. Myers (1984) also posits that in the short term, dividends are (for unspecified reasons) sticky, leaving variation in net cash flows to be absorbed mainly by debt. (Eugene et al 2004).

2.3. The Trade-off Theory

It states that every company has an optimal debt-equity ratio which maximizes the firm value. In moving towards the target leverage ratio, firms trade-off the advantages and disadvantages of borrowing. Advantages of debt are mainly tax benefits and the great financial discipline, while bankruptcy costs, agency costs and loss of financial flexibility are among its most important disadvantages. According to this theory, more profitable firms have a higher debt to equity ratio because they have more income to shelter and are in less danger of bankruptcy. However, empirical evidence does not fully support this model.

Empirical evidences show the mix result between the theories of financing decision relevancy. Some studies support *pecking order theory*, such as Carleton and Silberman (1977), Baskin (1989), Barton et al. (1989), Bayless and Diltz (1994), Adedeji (1998), and Syham-Sunder and Myers (1999). Some studies support the balancing theory, including Crutchley and Hansen, (1989), Kale et al. (1991), and Gardner and Trzcinka (1992). Other studies support combination theories, including Murali and Welch (1989), Jensen et al. (1992), and Griner and Gordon (1995) support both agency theory and pecking order theory.

Some scholars of political and economical issues in the country believe that the economy of Iran will get the least damages resulted from the present time financial crisis because it has a little interaction with advanced economies (which have encountered a financial crisis). On the other hand, most other economists and administers throughout the country predict the effect of the present situation in global economy on the economy of Iran will be very serious and damaging and predict that our economy will hurt severely and it will encounter crisis.

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Regarding the fundamental issues discussed above, our research hypotheses are as follows:

First Hypothesis: There is a positive relationship between investment opportunities and financial decisions in less uncertainty condition.

Second Hypothesis: There is a negative relationship between investment opportunities and financial decisions in high uncertainty condition.

The statistical population of the present research involves 50 firms listed in Tehran stock Exchange in the two industries of Pharmaceutical and cement. These two industries are among the pioneering industries in Tehran Stock Exchange. The time period of the present research is considered to be between 2005 and 2010. The years 2005-2006 and 2009-2010 are categorized as the usual condition of economy and the years 2007-2008 are introduced as the high uncertainty condition. The firms chosen include the manufacturing companies and their fiscal year ends on the end of fiscal year.

On the whole, the present research follows previous studies in measuring the variables that be used in this study. The financial leverage used as the dependent variable and the investment opportunity is considered to be the independent variable. To calculate investment opportunity, we have used the ratio of earning per share to stock price (Kalapour and Trumly, 1999; Gover, 1993). Also the present research has considered several other controlling variables to control the effect of investment opportunity on financing decisions. These variables are described in table 1.

Regression model based on White heteroscedasticity-consistent standard errors and covariance is used in this study. This tool is useful to eliminate heteroscedasticity problem in ordinary least square. The hypotheses are tested by regression t test.

Table 1: Variable Definitions

Variable Category	Variable	Description
Dependent	Leverage (IBDTA)	interest bearing debt ratio to total assets
Independent	IOS proxy (EPSSP)	earning per share ratio to closing stock price
Controlling	Total Asset Growth (TAG)	$(TA_t - TA_{t-1}) / TA_{t-1}$
Controlling	Sale Growth (SG)	$(S_t - S_{t-1}) / S_{t-1}$
Controlling	Dividend Yield (DY)	D / SP_{t-1}
Controlling	Profitability (ROA)	operating income ratio to total assets
Controlling	Current ratio (CR)	current assets ratio to current debts
Controlling	Asset size (LnTA)	Log natural of total assets
Controlling	Sales size (LnS)	Log natural of sales

Table 2 shows the results of descriptive statistics of research variables. Panel A shows that the average leverage and variation of leverage during the period under investigation, increase sharply from less uncertainty condition toward uncertainty condition caused by economic crisis. There are two probable descriptions why the in less uncertainty condition has been lower than high uncertainty condition. First, probably the firms use debt in foreign currency the depreciation of Rial led into the increase in debts value. Secondly, the high value of debts raises the cost of debt. Thus, is it not surprising that there is not a considerable difference ROA in less uncertainty condition and uncertainty condition Thus, the net income level is relatively low. Besides that, low income forces the companies not to rely on the resources resulted from fund internally. The pecking order theory (Myers &Majluf, 1984) suggests that if there is a need for external fund, firms prefer to use debt than issue new equity.

Table 2: Descriptive Statistics

Variable	2005	2006	2007	2008	2009	2010
Panel A: IBDTA						
Mean	0.5957	0.5908	0.6995	0.7077	0.5788	0.5766
Minimum	0.1688	0.2426	0.4121	0.3671	0.1835	0.1682
Maximum	0.8653	0.8650	0.9041	0.9067	0.8517	0.8620
Std. Deviation	0.1684	0.1485	0.1327	0.1296	0.1528	0.1650
Panel B: EPSSP						
Mean	0.9515	1.069	0.9089	0.8144	0.7219	0.7055
Minimum	0.4726	0.5031	0.2621	0.3084	0.2492	0.2321
Maximum	2.6155	3.065	3.118	2.721	1.546	1.465
Std. Deviation	0.3301	0.4157	0.4184	0.3431	0.2169	0.2169
Panel C: TAG						
Mean	0.3472	1.063	26.919	0.2541	0.1794	0.3480
Minimum	-2.890	-1.000	24.377	0	-8.002	-3.432
Maximum	1.2997	1.116	28.866	0.7542	0.9775	8.227
Std. Deviation	0.3153	2.517	0.9129	0.1916	0.2202	1.168
Panel D: SG						
Mean	0.1593	0.1979	0.3410	0.3389	0.2335	0.2356
Minimum	-0.7610	-1.000	-0.3405	-0.1463	-1.000	-1.000
Maximum	1.0285	4.685	2.453	5.212	1.057	1.057
Std. Deviation	0.2771	0.8420	0.4393	0.7565	0.3084	0.3084
Panel E: DY						
Mean	1.001	0.7410	0.8237	0.4435	0.8084	0.9492
Minimum	0.1247	0.000	0.2538	0.000	0.000	0.000
Maximum	7.008	0.7077	1.955	0.079	5.6568	3.670
Std. Deviation	0.9570	0.4138	0.3881	1.861	1.108	0.7367
Panel F: ROA						
Mean	0.0287	0.3613	0.3668	0.3295	0.2180	0.2056
Minimum	0.0007	0.1177	0.007	0.0157	0.002	0.005
Maximum	0.0747	1.7069	0.674	1.266	0.996	1.0328
Std. Deviation	0.6979	0.3663	0.4793	0.2806	0.1930	0.1876
Panel G: CR						
Mean	1.365	1.471	1.248	1.2777	1.196	1.056
Minimum	0.5870	0.6825	0.3534	0.4507	0.2310	0.2348
Maximum	4.945	5.705	5.509	4.163	3.496	3.326
Std. Deviation	0.769	1.471	0.9399	0.8324	0.779	0.614
Panel H: Ln.TA						
Mean	26.487	26.669	26.919	27.134	27.285	27.480
Minimum	23.974	24.252	24.377	24.377	25.059	25.238
Maximum	28.575	28.791	28.866	28.951	29.074	29.172
Std. Deviation	0.8539	0.8777	0.9129	0.9275	0.900	0.883
Panel I: Ln.S						
Mean	26.060	26.162	26.209	26.462	26.709	26.920
Minimum	23.833	24.030	24.163	24.621	24.805	24.879
Maximum	27.609	27.703	27.777	27.963	28.207	28.312
Std. Deviation	0.6979	0.7353	0.7203	0.6336	0.6064	0.6037

Panel B shows that the ratio of earnings per share to the close price in 2005 and 2006 which have had the normal economy status, has been more than other periods. The results should not be considered surprising because the economic crisis has created financial and business problems for most companies. Also the period after crisis has had lower growth opportunities due to being affected by this period compared to the years 2005 and 2006. The controlling variables are described in next panel. Economic crisis can change the average value of most of the controlling variables.

Table 3 shows the analysis results of White's regression without controlling variables. The research results show that EPSSP, as a proxy of growth opportunity, statistically significant influence leverage. The effect of growth opportunities on leverage has been positive during the whole research period. Thus, the first hypothesis

shows that in less uncertainty condition, there is a positive and significant relationship between investment opportunity and leverage in firms listed in Tehran Stock Exchange and it is accepted. On the other hand, the second hypothesis remarks that there is a negative significant relationship between investment opportunity and leverage in firms listed in Tehran Stock Exchange. The surprising results of the research show that the global financial crisis has not had a reverse effect on Iranian economy regarding the relationships between growth opportunity and leverage. Thus the second hypothesis is rejected.

Table 3: White Regression of Leverage without Controlling Variables

	2005	2006	2007	2008	2009	2010
C	0.569	0.573	0.460	0.470	0.210	0.164
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)
EPSSP	0.146	0.119	0.149	0.148	0.511	0.585
	(0.009)	(0.009)	(0.009)	(0.016)	(0.000)	(0.000)
R^2	0.138	0.138	0.137	0.117	0.527	0.590
Adjusted R^2	0.120	0.120	0.119	0.098	0.517	0.582

Table 4 shows the analysis results of White's regression with controlling variables.

The growth of total assets and the growth of sales which show the realized growth have an inconsistent effect on financial leverage. Although TAG and EPSSP have the same effect on leverage, the significant effect of TAG on leverage has only occurred in the year 2009. Also, the effect of dividend policy on leverage has been inconsistent during the study period. All our study findings show that dividends policy has had a negative effect on leverage but the significant results have only occurred in the years 2008 and 2010. These results do not accord with the results of agency theory (Jensen, 1986; Easterbrook, 1984; Kalay, 1982; and Jensen &Meckling, 1976) in which there has been a positive relationship between dividends policy and financial decisions. However, these results support pecking order theory (Myers, 1984) in which it is supposed that dividends policy is sticky. Dividend is relatively constant while leverage is accidentally dependent on investment policy and level of uncertainty conditions. Thus, pecking order theory suggests that there is not any relationship between dividend policy and financial decisions.

The effect of ROA on leverage has been inconsistent during the study period. All findings show that ROA has had a negative effect on leverage and it has not been significant only in the year 2005 when there was less uncertainty condition. The negative effect of ROA on leverage is consistent with pecking order theory because the firms prefer to internal fund than external fund. There are two possible estimations about why the effects of ROA on leverage are inconsistent. First, there has been the role of earning management which might cause white noise the result. Especially in compensation theory, it is stated that lower and upper bound of bonus plan leads managers to take a bath in disadvantage condition to get higher gain of bonus in subsequent period (Kaaro 2002). Secondly, theories based on financing decision relevant proposition have contradictory explanation describing financing decisions. The agency theory agrees that cash flows result in managers to do of moral hazard. However, this theory suggests that by increasing high profitability, paying the dividends will also increase. While pecking order theory states that company firms prefer using internal fund compared to external fund. However, high profitability will increase free cash flows. In cross section analysis, the heterogeneity of the sample can not be controlled exactly, thus, the results can not show precisely that managerial behavior follows a certain pattern.

Table 4: White Regression of Leverage with Controlling Variables

	Prediction	2005	2006	2007	2008	2009	2010
C		-1.886	-4.684	-3.990	-5.588	-4.883	-4.887
		(0.095)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)
EPSSP	(+),(-)	0.226	0.227	0.267	0.454	0.780	0.743
		(0.012)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
TAG	(+)	0.081	-0.005	0.012	0.130	-0.092	0.002
		(0.223)	(0.467)	(0.865)	(0.070)	(0.002)	(0.803)
SG	(+)	0.038	0.044	-0.030	0.007	-0.014	-0.002
		(0.534)	(0.036)	(0.593)	(0.730)	(0.560)	(0.949)
DY	(+)	-0.004	-0.051	0.016	-0.031	-0.020	-0.032
		(0.808)	(0.165)	(0.731)	(0.002)	(0.017)	(0.002)
ROA	(-)	-1.866	-0.301	-0.215	-0.326	-0.342	-0.329
		(0.100)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
CR	(-)	0.071	0.035	0.069	0.000	-0.018	0.014
		(0.009)	(0.051)	(0.010)	(0.981)	(0.232)	(0.319)
LNTA	(+)	-0.066	0.047	.0109	0.138	0.123	0.094
		(0.314)	(0.209)	(0.012)	(0.000)	(0.000)	(0.000)
LNS	(+)	0.156	0.152	0.054	0.081	0.063	0.090
		(0.042)	(0.000)	(0.157)	(0.011)	(0.004)	(0.001)
R^2		0.409	0.600	0.574	0.773	0.942	0.941
Adjusted R^2		0.290	0.520	0.489	0.727	0.931	0.929

In high uncertainty conditions, the current ratio statistically significant influences leverage, but these results are inconsistent. It was imagined that companies will face lack of high liquidity during the crisis, while the results are opposite to the expectations. In fact, managers are not concerned about bankruptcy risk in high uncertainty conditions.

The effect of firm size on financial leverage is consistent. Thus, both total assets and sales can describe financing decisions.

3. Conclusions

This research studied the relationship between financing decisions and investment decisions in high uncertainty conditions and low uncertainty conditions in firms listed in Tehran Stock Exchange. Leverage was considered as the dependent variable and investment opportunities as a proxy of investment decisions were considered as the independent variable. To achieve research goals, two hypotheses were posed. The first hypothesis states that in low uncertainty conditions, the relationship between investment decisions and financing decisions is positive. The results of testing this hypothesis approved the existence of a positive relationship between investment decisions and financing decisions. Thus, in Iranian companies in the previous period and after the crisis, there has been a positive relationship between financial leverage and investment opportunities. The second hypothesis stated that in high uncertainty conditions, the relationship between investment decisions and financing decisions is negative in firms listed in Tehran Stock Exchange. But testing this hypothesis showed that in crisis period (high uncertainty conditions) still the relationship between leverage and investment opportunities is positive. This means that unlike other studies in the field, the financial crisis in America and in the whole world has not affected this relationship to change from positive to negative and still this relationship is positive during the crisis period. Thus, the second hypothesis is rejected. The results of the second hypothesis are not very surprising. This has been due to the sanctions against Iran in recent years and Iran has not had many interactions with global economy. Thus, there is a logical reasoning for this positive relationship during the recent financial crisis period and it is the lack of having a relationship with global economy.

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