



INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION AND MANAGEMENT

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FINANCIAL FLEXIBILITY AND RISK MANAGEMENT

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ABSTRACT

The purpose of this study was to examine the financial flexibility and risk in various sizes of firms. The research for this study was based on secondary data collected from the annual Compustat files for the period of 1971 – 2005. The variables studied are total assets, total debt, retained earnings, debt issue, equity issue, cash and dividend. To study the variables, multivariate analysis has been applied. I have found that small firms have lower debt because of additional equity financing. This finding is based on Compustat data. Small firms maintain low leverage by issuing equity and building up cash holdings for financial flexibility. Small firms maintain cash holdings through increasing equity financing for the purpose of financial flexibility. When I account for financial flexibility, positive relationship among solvency, retained earning, debt, equity, cash and dividend are found. The higher the financial flexibility, then the lower the risk will be. A highly liquid or solvent firm is same as financially flexible. Firms may increase retained earnings, debt financing, and equity financing to create financial flexibility which results declining of risk. Reducing dividends and not holding excessive cash are the other two points among five – which would also maintain exchange between financial flexibility and risk.

KEYWORDS

Solvency, Financial Flexibility, Liquidity, Risk, Trade-off.

INTRODUCTION

The purpose of this study is to find out financial flexibility and risk between small firms and large firms in the US. This approach allows comparing financial flexibilities among the firms. As a result, this approach should better acknowledge the impact of a firm's financial flexibility on the investment and financing decisions. The rest of the paper is structured as follows.

In Section 2, I introduce cash flows to be balanced and financial flexibility to be broadened through profitability and liquidity which is a multidimensional concept and liquidity includes both the short term ability to meet immediate cash and raise cash in the mid and long run. The resources of financial flexibility may take forms of borrowing money from banks, selling bonds, commercial papers, delaying payments of trade creditors, liquidating assets, reducing cost, reducing dividend, and issuing capital stocks.

Section 3 introduces a rapidly changing concept risk including business risk, credit risk, market risk which is the movement of equity prices, foreign exchange rates, interest rates, and commodity prices, and operational risk including fraud, failure of management, and process errors.

The data, the set of variables, and the selection of periods are used to find the relationship among the variables is described in Section 4. In section 5, the results are presented and analysis is discussed. Recommendation is made based on results in section 6. Finally, section 7 concludes.

THE CONCEPT OF FINANCIAL FLEXIBILITY: A LITERATURE REVIEW

The FASB (1984) defines financial flexibility as the ability of an enterprise to take effective actions to alter the amounts and timing of future cash flows so that it can respond to unexpected needs and opportunities.

The basic form of financial flexibility may be described in terms of the amount or the number of financial resources available in the future. However, many of the actions taken today for the future can be very costly. Thus, it would be fundamentally inappropriate for a firm to maximize financial flexibility. Eventually, maximizing the firm value should be the ultimate goal of optimizing financial flexibility. Accordingly, we define financial flexibility as a firm's capacity to mobilize its financial resources in order to take preventive and exploitive actions in response to uncertain future contingencies in a timely manner to maximize the firm value.

Bernstein (1993) defines flexibility as the ability of an enterprise to take steps to counter expected interruptions in the flow of funds for reasons however unexpected. In this view, financial flexibility means the ability to borrow from a variety of sources, to raise equity capital, to sell and redeploy assets, and to adjust the level and the direction of operations in order to meet changing circumstances

Donaldson (1971) views financial flexibility from the perspective of balancing cash flows. One can expect cash flows to be out of balance (i.e. show an access or shortfall). Cash imbalances result in either cash surpluses which should be invested or cash deficit which should be financed by existing or potential lines of credits. Financial flexibility encompasses more than balancing of cash flows.

The scope of financial flexibility may be broadened through its relationships with profitability, cash flow, solvency and liquidity. According to FASB (1980b, p.46) corporate treasurers recognize the relationships between cash flows, liquidity, and financial flexibility where liquidity as a multidimensional concept that includes both the short term ability to meet immediate cash needs and ability to raise cash in the mid and long run.

According to Heath (1978, p.2, 23) liquidity and financial flexibility are narrower concept. He notes that profitability and solvency are also interdependent, with solvency depending on long term profitability. However this correlation between profitability and solvency does not exist in the short run.

Hendriksen and Van Breda (1992, p.72) hold a different view of relationship between solvency, liquidity, and financial flexibility. They agree that the three concepts are related but financial flexibility is a broader concept than solvency, and solvency in turn is a broader concept than liquidity. Unfortunately, Hendriksen and Van Breda do not address the relation existing between profitability and financial flexibility.

Financial Flexibility is gained from resources both in and outside the financial statements. Heath (1978, p.21) classifies the resources of financial flexibility into five categories:

- Borrowing Money from banks, selling bonds, commercial papers, delaying payments to trade creditors, extending due dates of loans and so forth.
- Liquidating assets by selling marketable securities, factoring receivable, selling plant and equipment and so forth;
- Reducing cost;
- Reducing dividends;
- Issuing Capital Stocks.

Graham and Harvey (2001) see financial flexibility as "preserving debt capacity to make future expansions and acquisitions" or "minimizing interest obligations, so that they do not need to shrink their business in case of an economic down turn."

RISK MANAGEMENT: A LITERATURE REVIEW

Risk management can be defined as a discipline for "Living with the possibility that future events may cause adverse effects" (Kloman 1999). Risk management is a rapidly developing discipline and there are many and varied views and descriptions of what risk management involves, how it should be conducted and what it is for. Risk management is not just something for corporations or public organizations, but for any activity whether short or long term. The benefits and opportunities should be viewed not just in the context of the activity itself but in relation to the many and varied stakeholders who can be affected.

A BRIEF TAXONOMY OF RISKS

Peter (2003, p.4,5) classifies risk into five categories: Market risk is defined as the risk to a financial portfolio from movements in market prices such as equity prices, foreign exchange rates, interest rates, and commodity prices.

Liquidity risk is defined as the particular risk from conducting transactions in markets with low liquidity as evidenced in low trading volume and large bid-ask spreads. Under such conditions, the attempt to sell assets may push prices lower, and assets may have to be sold at prices below their fundamental values or within a time frame longer than expected.

Operational risk is defined as the risk of loss due to physical catastrophe, technical failure, and human error in the operation of a firm, including fraud, failure of management, and process errors.

Credit risk is defined as the risk that a counterparty may become less likely to fulfill its obligation in part or in full on the agreed upon date. Thus, credit risk consists not only of the risk that a counterparty completely defaults on its obligation, but also that it only pays in part or after the agreed upon date.

Business risk is defined as the risk that changes in variables of a business plan will destroy that plan's viability, including quantifiable risks, such as business cycle and demand equation risk, and non-quantifiable risks, such as changes in competitive behavior or technology. Business risk is sometimes simply defined as the types of risks that are an integral part of the core business of the firm and that should therefore simply be taken on.

RESEARCH DESIGN

Sample: The initial sample consists of all available U.S. firms for the period of 1971–2005 from the annual Compustat files. Following previous studies I exclude financial firms from the sample and I need to have positive total assets, book value of equity, market value of equity, and net sales. After these requirements are applied, the sample consists of 173,515 firm-year observations.

DATA: The study is based on secondary data collected from the annual Compustat files for the period of 1971 – 2005. The variables studied are total assets, book total debt, and market total debt, firms with zero debt, cash, retained earnings, debt issue, equity issue, and dividend.

DATA ANALYSIS TOOLS: A 35 years period (1971-2005) has been selected for evaluating the performance. The logic of selection of this period is to find out financial flexibility of a firm in terms of cash, retained earnings, dividends, and external financing activities including new debt issue and new equity issue with considering risk management.

ANALYSIS AND FINDINGS

TABLE I

The data consists of firm-year observations for the period 1985-2005. Size is size deciles based on total assets. Book /Market Long-term/Total Debt is long term/total debt over book/market value of total assets. % of Firms with Zero Debt is the percentage of firms with no debt relative to the total number of firms in each size deciles.

TABLE II

The data consists of firm-year observations for the period 1971-2005. Size deciles are based on total assets. All the variables are reported as a proportion of total assets including Cash Holdings, Retained Earnings, total debt, total equity, and dividend.

TABLE III (MULTIPLE REGRESSION RESULTS)

I have estimated multiple regressions with variables to have significant impacts on solvency. The following firm and industry characteristic variables are included:

Ret = Retained earnings

Debt = Total Debt

Equity = Total equity

Cash = Cash and Equivalent

Div = Dividends

The multiple regression equation comprising all the variables is $Solvency = 73487.2 - 5013.89 Ret - 660593 Debt - 105152 Equity - 140576 Cash - 1092104 Div$.

The **F ratio** (in the Analysis of Variance Table) is 31.51161 and significant at $F = .002$. This provides evidence of existence of a linear relationship between the solvency and the all variables (Ret, Debt, Equity, Cash and Div). Coefficients (β_1, β_2 , and so on) are correlated with other independent variables. Here $R^2 = .975$ indicates that the variation in the independent variables accounted for 97.5 percent of the variance in the dependent variable. Table III also shows that there is a positive relation between solvency and other independent variables (retained earnings, total debt, total equity, cash, and dividends). It is observed from the variables that Ret, Debt, Equity, Cash, and Div have direct impacts on solvency whether they are positive or negative.

FINANCIAL FLEXIBILITY AND RISK: There is an inverse relationship between flexibility and risk (koornhop, 1988). To illustrate, Evaringham and Hopkins (1982) mention that an enterprise that has fully utilized its borrowing capacity in capital intensive projects may achieve extremely high rates of return but at the expense of its financial flexibility and increasing its risk profile. So, this relationship applies a financial flexibility. Excessive financial flexibility may result in waste, inefficiencies and declines in profitability which increase the risk profile of organization, and may, as was stated earlier, even result in a chaotic firm (volberda, 1998).

The evaluation of firm's financial flexibility and risk is important to stakeholders to ensure the security of investment, interest, dividends, and growth which may be affected by risk exposures. The higher the return, the lower the risk and vice versa. It is important that management of a firm evaluates the financial flexibility because actual and potential financial flexibility provides an indication of rate of return, level of risk as well as survival potentiality. Any decision affecting financial flexibility may be made with due consideration to impact positive on risk and return.

RECOMMENDATIONS

Financial flexibility and risk are inversely related. The higher the level of risk, the lower the rate of return. The key to increase financial flexibility is to reduce level of risk. I have the following suggestions for the firms.

They may increase retained earnings – Although plowback shows a potential growth of a firm but at the same time it gives liquidity, solvency, and financial flexibility. On the other hand, retained earning is potential for further investment that might bring more returns in future.

They may increase debt financing – High debt means high levered firm. Firm may have high debt which has to be fully utilized in the capital intensive projects and gain extremely high rates of return.

They may increase equity financing – A firm should have a well organized capital structure with equity financing. Proportion of equity may be larger than debt to maintain accountancy standard as well as protect the risk of bankrupt.

They may reduce dividends – Retaining portion of profit at a level which allows as accounting standard and provides solvency to the firm.

They may hold cash but not excessive – Cash holding is good for the firm for the liquidity purpose but excessive cash holdings may create waste, if they are idle.

CONCLUSIONS

The key to success in the competitive business environment is trade-off between financial flexibility and risk. The higher the financial flexibility, then the lower the risk will be. A highly liquid or solvent firm is same as financially flexible. I suggest five points – firms may increase retained earnings, debt financing, and equity financing to create financial flexibility which results declining of risk. Reducing dividends and not holding excessive cash are the other two points among five – which would also maintain exchange between financial flexibility and risk.

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APPENDIX

TABLE I. FIRM SIZE DECILES AND LEVERAGE RATIOS FOR 1985 – 2005 PERIOD (119,813)

A. FOR 1985 – 2005 PERIOD (119,813)

Size Deciles	Total Assets	Book Long- Term Debt	Book Total Debt	Market Long- Term Debt	Market Total Debt	% of Firms With Zero Debt
1	3.36	0.0903	0.2087	0.0463	0.1003	0.2170
2	10.67	0.1134	0.2110	0.0763	0.1433	0.1822
3	23.72	0.1190	0.2023	0.0903	0.1548	0.1790
4	46.41	0.1241	0.1934	0.1006	0.1586	0.1877
5	84.14	0.1479	0.2078	0.1236	0.1751	0.1631
6	154.28	0.1792	0.2323	0.1461	0.1920	0.1282
7	293.57	0.2131	0.2628	0.1709	0.2133	0.0910
8	611.28	0.2486	0.2963	0.1985	0.2382	0.0538
9	1678.72	0.2479	0.2950	0.1962	0.2343	0.0379
10	2.778.29	0.2334	0.3005	0.1914	0.2458	0.0083

TABLE II. FIRM SIZE DECILES, CASH HOLDINGS, RETAINED EARNINGS AND EXTERNAL FINANCING ACTIVITIES

A. ALL FIRM-YEAR OBSERVATIONS (173,515)

Size Deciles	Cash and Equivalents	Retained Earnings	Net Long term Debt Issue	Net Total Debt Issue	Net New Equity Issue	Dividend
1	0.4141	-3.8807	0.0023	-0.0004	0.2527	0.0077
2	0.4012	-0.8725	0.0024	0.0027	0.1164	0.0068
3	0.3989	-0.4103	0.0007	0.0025	0.0852	0.0078
4	0.3958	-0.1390	0.0013	0.0024	0.0777	0.0083
5	0.3725	0.0244	0.0044	0.0059	0.0604	0.0093
6	0.3475	0.0961	0.0103	0.0113	0.0453	0.0097
7	0.3157	0.1656	0.0174	0.0183	0.0273	0.0117
8	0.2784	0.1940	0.0219	0.0229	0.0158	0.0136
9	0.2469	0.1995	0.0219	0.0227	0.0082	0.0170
10	0.2195	0.2102	0.0163	0.0172	0.0017	0.0193

TABLE III. PARAMETER ESTIMATES FROM MULTIPLE REGRESSIONS ON DETERMINANTS OF SOLVENCY

The sample consists of 146,553 firm-year observations with relevant Compustat data from 1971 to 2005. The dependent variable is the total assets (TA) divided by total debt (TD). The independent variables are as follows: retained earnings (Ret); debt (Debt); cash (Cash); dividends (DIV), equity (Equity):

Size Deciles	Y=(TA/TD)	X1= Ret	X2= Debt	X3= Equity	X4= Cash	X5= Div
1	16.1	-3.8807	-0.0004	0.2527	0.4141	0.0077
2	50.56	-0.8725	0.0027	0.1164	0.4012	0.0068
3	117.25	-0.4103	0.0025	0.0852	0.3989	0.0078
4	240.00	-0.1390	0.0024	0.0777	0.3958	0.0083
5	404.9	0.0244	0.0059	0.0604	0.3725	0.0093
6	664.14	0.0961	0.0113	0.0453	0.3475	0.0097
7	1117.08	0.1656	0.0183	0.0273	0.3157	0.0117
8	2063.04	0.1940	0.0229	0.0158	0.2784	0.0136
9	2690.57	0.1995	0.0227	0.0082	0.2469	0.0170
10	9245.55	0.2102	0.0172	0.0017	0.2195	0.0193

REGRESSION

Descriptive Statistics

	Mean	Std. Deviation	N
Y	1660.9190	2814.9607	10
X1	-.4413	1.2570	10
X2	1.055E-02	9.064E-03	10
X3	6.907E-02	7.436E-02	10
X4	.3391	7.031E-02	10
X5	1.112E-02	4.251E-03	10

Correlations

		Y	X1	X2	X3	X4	X5
Pearson Correlation	Y	1.000	.323	.538	-.506	-.820	.875
	X1	.323	1.000	.597	-.960	-.547	.459
	X2	.538	.597	1.000	-.780	-.915	.835
	X3	-.506	-.960	-.780	1.000	.756	-.677
	X4	-.820	-.547	-.915	.756	1.000	-.982
	X5	.875	.459	.835	-.677	-.982	1.000
Sig. (1-tailed)	Y	.	.181	.054	.068	.002	.000
	X1	.181	.	.034	.000	.051	.091
	X2	.054	.034	.	.004	.000	.001
	X3	.068	.000	.004	.	.006	.016
	X4	.002	.051	.000	.006	.	.000
	X5	.000	.091	.001	.016	.000	.
N	Y	10	10	10	10	10	10
	X1	10	10	10	10	10	10
	X2	10	10	10	10	10	10
	X3	10	10	10	10	10	10
	X4	10	10	10	10	10	10
	X5	10	10	10	10	10	10

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.988 ^a	.975	.944	664.3995

a. Predictors: (Constant), X5, X1, X2, X4, X3

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	69550327	5	13910065.32	31.512	.003 ^a
	Residual	1765707	4	441426.672		
	Total	71316033	9			

a. Predictors: (Constant), X5, X1, X2, X4, X3

b. Dependent Variable: Y

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	73487.197	22193.875		3.311	.030
	X1	-5013.894	4064.358	-.239	-1.234	.285
	X2	-660593	140958.0	-.2127	-4.686	.009
	X3	-105152	88515.939	-.2778	-1.188	.301
	X4	-140576	45855.640	-.3511	-3.066	.037
	X5	-1092104	562241.0	-.1649	-1.942	.124

a. Dependent Variable: Y

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