Relationship between Firm Investment and Financial Status of Nepalese Enterprises

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Abstract

The purpose of this study is to examine the relationship of business fixed investment with internal funds and investment opportunities of Nepalese enterprises. It presents evidence supporting the results of earlier studies that investment decisions of almost all firms are sensitive to the availability of internal funds. More important, the results indicate that investment decisions of the enterprises that are moderately financially constrained are more sensitive to current liquidity. But fixed investment shows its negative relationship with investment opportunities measured by market value to book value of equity.

Introduction

A firm's financial status is irrelevant for real investment decisions in a world of perfect and complete capital markets, as has been demonstrated by Modigliani and Miller (1958). However, financial structure may be relevant to the investment decisions of companies facing uncertain prospects that operate in imperfect or incomplete capital markets where the cost of external capital exceeds that of internal funds. For example, Greenwald et al. (1984), Myers and Majluf (1984), and Myers (1984) provide a foundation for these market imperfections by appealing to asymmetric information problems in capital markets. Alternatively, Bernanke and Gertler (1989, 1990) and Gertler (1992) demonstrate that agency costs can also cause a premium on external finance that increases as borrower net worth decreases. The investment decisions of firms operating in such environments are sensitive to the availability of internal funds because they possess a cost advantage over external funds.

Fazzari et al. (1988) and a number of subsequent empirical studies provide strong support for the existence of the financing hierarchy, which is most prevalent among firms that have been identified as facing a high level of financial constraints (Hoshi et al., 1991; Oliner and Rudebusch, 1992; Whited, 1992; Schaller, 1993; and Gilchrist and Himmelberg, 1995).

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These studies categorize firms according to characteristics (such as dividend payout, size, age, group membership, or debt ratings) that are designed to measure the level of financial constraints faced by firms. The results suggest that investment decisions of firms that are more financially constrained are more sensitive to firm liquidity than those of less constrained firms.

Debate over this matter has been fueled by the recent work of Kaplan and Zingales (1997), who challenge the generality of the conclusions summarized above. They classify firms according to their degree of financial constraints, based on quantitative and qualitative information obtained from company annual reports. Contrary to previous evidence, they find that investment decisions of the least financially constrained firms are the most sensitive to the availability of cash flow. They suggest these controversial results "capture general features of the relationship between corporate investment and cash flow" and are not specific to the sample or techniques utilized.

As discussed above, Kaplan and Zingales (1997, 2000) question the validity of the investment-cash flow sensitivity as a measure of financing constraints. They show that the sensitivity is not necessarily higher for firms that are more constrained. The similar view is also presented by Cleary (1999). His finding is that the investment decisions of firms with high creditworthiness are significantly more sensitive to the availability of internal funds than are firms that are less creditworthiness. The applicability of the findings of both of these two studies along with other empirical works by different scholars in the area of firm investment decisions is yet to be seen in the context of Nepal. This study therefore attempts to assess the relationship between firm investment and financial status of Nepalese enterprises. A major focus of the study is the comparison of investment-liquidity sensitivities across different groups of enterprises. In an attempt to compare investment-liquidity sensitivities across different groups of Nepalese enterprises, it specifically examines the relationship of investment in fixed assets with liquidity status as proxied by cash flow and investment opportunities as proxied by market value to book value of equity.

The remainder of the paper is organized as follows. Data Section describes enterprises chosen and the data used. The Model Section presents the model to be estimated, and The Results Section analyses the regression results. Finally, the last Section summarizes the results with justification and offers some directions for future research.

Data

There are ninety-six enterprises listed in Nepal Stock Exchange Limited (NEPSE Ltd.) by the end of FY 2001/02, which is regarded as size of population for the study (SEBO/N : 2002, 17). The study covers a sample of 33 enterprises in banking, finance, insurance, hotel, manufacturing and processing, trading, and other sectors that are listed in NEPSE Ltd. for the 1996/97 to 2000/01 period by using judgmental non-random sampling method. The earlier years are not considered as they could decrease the number of enterprises to be selected for the study. It does not cover all the listed enterprises because of data problem. The 33 enterprises selected for the study form the important enterprises and seem to be representative of the Nepalese enterprises as a whole. They represent 34.38 percent of the entire listed enterprises.

Banks, Finance Companies, Insurance Companies, Hotels, Manufacturing and Processing Companies, Trading Companies, and Other Enterprises taken as sample represent respectively 50.00%, 36.67%, 45.45%, 25.00%, 25.00%, 25.00%, and 33.33% of total listed enterprises in each sector. For the purpose of the study, the necessary data on fixed investment, market value to book value of equity, cash flow, and other related variables were collected from different financial statements reported by the website of NEPSE Limited (http://www.nepalstock.com). Considering the study period of 1996/97 to 2000/01, usable data could be obtained for 33 enterprises as indicated in Table I.

Table I shows that there are 123 observations selected for the study out of 165 population observations (33 enterprises x 5 years). Therefore, the percentage of selected observations is $n/N = 123/165 = 74.55$ percent. Thus, this study is based on pooled cross-section analysis of 123 observations for analyzing the relationship between firm investment and financial status of Nepalese enterprises. More data could not be obtained as NEPSE Ltd. does not have financial statements of all listed enterprises from the year of listing. Data could also not be obtained on contacting the individual enterprises as they treated them as confidential.

Table 1. Number of Observations Selected for the Study

S.N.	Name of the Enterprises	Years	Observations
	A. Banks		
1	Nepal Bangladesh Bank Ltd. (NBB)	1997/98 to 2000/01	4
2	Standard Chartered Bank Ltd. (SCB)	1997/98 to 2000/01	4
3	Himalayan Bank Limited (HBL)	1997/98 to 2000/01	4
4	Nepal SBI Bank Ltd. (NSB)	1997/98 to 2000/01	4
5	Bank of Kathmandu Ltd. (BOK)	1999/00 to 2000/01	2
6	Everest Bank Ltd. (EBL)	1998/99 to 2000/01	3
	Total Observations		21
	B. Finance Companies		
7	Nepal Share Markets and Finance Ltd. (NSMF)	1997/98 to 2000/01	4
8	National Finance Company Ltd. (NFC)	1997/98 to 2000/01	4
9	Kathmandu Finance Limited (KFL)	1997/98 to 2000/01	4
10	Nepal Housing and Merchant Finance Ltd. (NHMF)	1997/98 to 2000/01	4
11	Yeti Finance Company Ltd. (YFC)	1997/98 to 2000/01	4
12	Ace Finance Company Ltd. (AFC)	1997/98 to 2000/01	4
13	Narayani Finance Ltd. (NFL)	1997/98 to 2000/01	4
14	Universal Finance and Capital Markets Ltd. (UFCM)	1997/98 to 2000/01	4

15	Mahalaxmi Finance Company Ltd. (MFC)	1997/98 to 2000/01	4
16	Hisef Finance Ltd. (HFL)	1997/98 to 2000/01	4
17	Nepal Aawas Bikas Bitta Company Ltd. (NABB)	1997/98 to 2000/01	4
	Total Observations		44
	C. Insurance Companies		
18	Premier Insurance Company (Nepal) Ltd. (PIC)	1997/98 to 2000/01	4
19	Nepal Insurance Company Ltd. (NIC)	1997/98 to 2000/01	4
20	United Inusrance Company (Nepal) Ltd. (UIC)	1997/98 to 2000/01	4
21	Everest Insurance Company Ltd. (EIC)	1997/98 to 2000/01	4
22	Neco Insurance Company Ltd. (NICL)	1997/98 to 2000/01	4
	Total Observations		20
	D. Hotels		
23	Soaltee Hotel Limited (SHL)	1997/98 to 2000/01	4
	Total Observations		4
	E. Manufacturing & Processing Companies		
24	Nepal Lube Oil Limited (NLO)	1997/98 to 2000/01	4
25	Bottlers Nepal Limited (BNL)	1997/98 to 2000/01	4
26	Bottlers Nepal (Tarai) Ltd. (BTL)	1997/98 to 2000/01	4
27	Nepal Lever Limited (NLL)	1997/98 to 2000/01	4
28	Jyoti Spinning Mills Ltd. (JSM)	1997/98 to 2000/01	4
29	Raghupati Jute Mills Ltd. (RJM)	1997/98, 2000/01	2
30	Sriram Sugar Mills Ltd. (SSM)	1999/00 to 2000/01	2
	Total Observations		24
	F. Trading Companies		
31	Bishal Bazar Company Ltd. (BBC)	1997/98 to 2000/01	4
32	Salt Trading Corporation (STC)	1998/99 to 2000/01	3
	Total Observations		7
	G. Other Enterprises		
33	Necon Air Limited (NAL)	1997/98 to 1999/00	3
	Total Observations		3
	Grand Total Observations		123

Source: Web Page of NEPSE Ltd.: http://www.nepalstock.com

The Model

The theoretical statement of the model is that the investment in fixed assets (IFA) may be regarded as subject to the constraints of market value to book value of equity (M/B) and cash flow (CF). The theoretical statement may be framed as follows:

$$IFA = f(M/B, CF) \quad ...(1)$$

The equation to be estimated has, therefore, been specified as under:

$$\frac{I_{FA}}{K} = a + b1\,(M/B) + b2\left(\frac{CF}{K}\right) + Ui \quad ...(2)$$

Where, the dependent variable, I_{FA}/K, has been specified as the investment in fixed assets during the year to the net fixed assets at the beginning of the year.

The independent variables are specified as:

M/B   = Firm's common equity market value to book value ratio based on the previous year's actual market value at year-end.

CF/K   = Current period cash flow to the firm as measured by net income plus depreciation during the year to the net fixed assets at the beginning of the year.

Ui   = Disturbance or error term.

Results

In this section, an attempt is made to determine the relationship of investment in fixed assets with cash flow and market value to book value of equity across different groups of Nepalese enterprises based on pooled cross-sectional data. The financially constrained (FC), partially financially constrained (PFC), and not financially constrained (NFC) groups are formed by sorting all sampled enterprises according to their dividend payout ratios. Every year, the enterprises with the lowest dividend payout ratios (the bottom one-third) are categorized as financially constrained (FC); the next one-third are categorized as partially financially constrained (PFC); and the top one-third are categorized as not financially constrained (NFC). Then the linear regression equations for different groups of enterprises are estimated to compare investment-liquidity sensitivities across these groups. The results of linear regression equations for the entire sample; and for FC, PFC, and NFC enterprises showing the relationship of investment in fixed assets with investment opportunities as proxied by market value to book value of equity, and liquidity variable as proxied by cash flow are presented in Table 2.

The results are based on pooled cross-sectional data for the period of 1996/97 to 2000/01 by using linear regression equation. The equation is: IFA/K=a + b1 (M/B) + b2(CF/K) + Ui. Where, IFA/K, M/B, and CF/K are investment in fixed assets to net fixed assets, market value to book value of equity, and cash flow to net fixed assets respectively.

Table 2. Comparison of Investment-Liquidity Sensitivities

Enterprises	Intercept	Regression Coefficients of		R²	SEE	F	Number of observations
		M/B	CF/K				
Total sample	0.246 (1.796)	-0.020 (0.783)	0.203 (3.282)*	0.095	0.856	6.310	123
FC enterprises	0.406 (1.641)	-0.034 (0.840)	0.220 (1.337)	0.065	1.065	1.331	41
PFC enterprises	0.106 (0.406)	-0.011 (0.462)	0.361 (3.778)*	0.283	0.781	7.497	41
NFC enterprises	0.249 (1.068)	-0.007 (0.161)	0.113 (1.250)	0.044	0.686	0.866	41

Notes: *Figures in parentheses are t-values.*
   * denotes that the results are significant at 1 percent level of significance.
Source: *Worksheet prepared by authors (available upon request).*

As regards cash flow, the results are encouraging. The signs of all the estimated cash flow coefficients are as per priori expectation. The coefficient of cash flow for the entire sample is positive and statistically significant indicating that investment in fixed assets is positively related to cash flow of Nepalese enterprises. This result seems to be consistent with the positive relationship between business fixed investment and availability of internal funds indicated by almost all earlier studies in the area of firm investment decisions including Greewald et al. (1984), Myers and Majluf (1984), Myers (1984), Jensen (1986), Bernanke and Gertler (1989), Mayer (1990), Gertler (1992), Whited (1992), Hubbard et al. (1995), Lamont (1997), Kaplan and Zingales (1997), Cleary (1999), and Alti (2003).

Furthermore, among FC, PFC, and NFC groups of enterprises, the estimated cash flow coefficients are statistically significant only for PFC enterprises. It is also observed that the coefficient of cash flow is higher for PFC enterprises as compared to the estimated cash flow coefficients for FC and NFC enterprises. Thus, it can be concluded that the investment decisions of moderately financially constrained (i.e., PFC) enterprises are more sensitive to cash flow than that of FC, and NFC enterprises. This finding seems to be contradictory to the results which suggest that investment decisions of firms that are more financially constrained are more sensitive to firm liquidity than those of less constrained firms indicated by Fazzari et al. (1988), Hoshi et al. (1991), Oliner and Rudebusch (1992), Whited (1992), Schaller (1993), Gilchrist and Himmelberg (1995) etc. It also contradicts the findings which conclude that investment decisions of the least financially constrained firms are the most sensitive to the availability of cash flow indicated by Kaplan and Zingales (1977), and Cleary (1999).

As regards market value to book value of equity, the results are not as per priori expectation. The estimated market value to book value of equity coefficients for the entire sample; and for FC, PFC, and NFC enterprises are all negative indicating that investment in fixed assets of Nepalese enterprises is negatively related to their market value to book value of equity ratios. This result is in contradiction with the positive relationship between investment in property, plant, and equipment and investment opportunities indicated by Fazzari et al. (1988), and many subsequent studies as well as Kaplan and Zingales (1997), and Cleary (1999). Moreover, the coefficients of market value to book value of equity for the entire sample; and for FC, PFC, and NFC enterprises are all statistically insignificant. Thus, the market value to book value of equity is less important factor in predicting investment in fixed assets of Nepalese enterprises as compared to other related variables.

Conclusions

The sensitivity of firm investment decisions to liquidity status was examined using pooled cross sectional data of 33 enterprises that were listed in NEPSE Limited over the 1996/97 to 2000/01 period. For the purpose of the study, sampled enterprises were classified into financially constrained (FC), partially financially constrained (PFC), and not financially constrained (NFC) groups according to their dividend payout ratios. Then, regression coefficients of market value to book value of equity and cash flow to net fixed assets for different groups of enterprises were estimated. The results revealed that:

- Internal financing is the dominant source of financing for all firms, which implies that investment decisions of the majority of firms are sensitive to current liquidity. This is perhaps due to the fact that internal funds of firms operating in imperfect or incomplete capital markets possess a cost advantage over external funds.

- Investment decisions of firms that are moderately financially constrained (i.e., paying neither very high nor very low dividend) are more sensitive to firm liquidity than are firms that are less financially constrained (i.e., paying higher dividend), and more financially constrained (i.e., paying lower dividend).

- Business fixed investment is negatively related to investment opportunities measured by market value to book value of equity. The relationship between them is very weak as well. This is perhaps due to the fact that the Nepalese Stock Market is characterized by a low trading volume, absence of professional brokers, early stage of growth, limited movement of share prices, and limited information available to investors.

This paper can be extended by using a combination of qualitative and quantitative information extracted from company annual reports to rank enterprises in terms of their apparent degree of financial constraint. A second avenue of research is to conduct study by taking a sample only of the enterprises that are in manufacturing and processing sectors to get possibly more concrete results. A final research avenue is to make study by adding additional years and the number of companies to get greater insight into the investment behavior of Nepalese enterprises.

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