Financial Constraints, Debt Capacity, and the Cross Section of Stock Returns in Nepalese Listed Non-Financial Firms

Nabraj Bhandari[1]

Abstract

This study aims to determine whether debt capacity holds differential impact in the cross section of stock return for financial constrained and financial unconstrained Nepalese enterprises. Considering listed non-financial firm as population, study collect quantitative nature of 10 year balanced panel data from 11 nonfinancial firms listed in Nepal Stock Exchange (NEPSE) and actively traded during the period of 2008 to 2018. Data were obtained by using secondary source. As per propose of the study firm has been categorized financial constrained and financial unconstrained using the basis of book value of assets. Obtained data were analyzed by using multivariate econometric model. Study found that market value of equity, book to market ratio, and debt capacity are major explanatory variables of stock returns for financially constrained firms. Study further found that debt capacity has positive significant impact on stock returns for financial constrained firms. However, with regard to financial unconstrained firm's debt capacity impact on stock return is insignificant. Study concluded that debt capacity hold differential impact in the cross section of stock returns in Nepalese nonfinancial firms.

Keywords: *Financial Constraints, Debt Capacity, Stock Returns.*

I. Introduction

Factors affecting stocks return has been continuously explored and subject of research in finance for long period of time. The Assets- Pricing Model of Sharpe (1964), Linter (1965), and Black (1972) (SLB) have framed the way of thinking of academicians and practitioners about average return and risk. SLB model emphasized that expected return on securities are a positive linear function of their market betas (the slope in the regression of security's return on the market's return). However, Banz (1981) found firm size have significant impact on stock return. Bhandari (1988) documented the positive relation between leverage and average stock return. Stattman (1980), Rosenberg, Reid, and Lansten (1985) found that average return on U.S. stocks are positively related to the ratio of firm's book value of common equity to market value of equity. Chan, Hamao, and Lakonishok (1991) found book to market equity have a strong role in explaining the cross –section of average stock returns. Fama and Franch (1992) found that size, leverage, earning yield, and book to market equity are strong explanatory variables of stock returns.

Macroeconomic variables have also found to be significant influence on stock returns. Kandir (2008) empirical findings revealed that exchange rate, interest rate and world market return seem to affect all of the portfolio returns, while inflation rate is significant for only three of the twelve portfolios. On the other hand, industrial production, money supply and oil prices do not appear to have any significant affect on stock returns. Boyer, Boyer and Filion (2007) examined the financial determinants of Canadian oil and gas company stock returns. Study found that return of energy stock was positively associated with the Canadian stock market return. Study surprisingly found that production volume and a weakening of the Canadian dollar against the US dollar have negative impact. Study further found that exchange rate,

[1]*Nabraj Bhandari, Lecturer in Lumbini Banijya Campus and can be reached at nabaraj. bhandari999@gmail.com*

market return, and prices of natural gas and gas stock change significantly influence the stock returns. Pradhan (2015) examined the ability of beta and other company specific factors in determining the cross section of stock returns in the Nepalese financial firms listed in Nepal Stock Exchange (NSE). The study found that the relation of beta with stock return is very weak and not significant. The study also reveals that size, dividend yield and book-to-market ratio are significant factors affecting stock returns in Nepal in the financial sector. Bhattrai (2014) revealed that earning per share and price- earnings ratios have significant positive association with share price while dividend yield showed the significant inverse association with share price. Study further concluded that that dividend yield, earning per share and price-earnings ratio are the most influencing factors in determining share price in Nepalese commercial banks.

Majority of studies in literature of finance regarding cross-section of stock returns attempts to explore and identify the factors affecting stock returns. Numbers of factors that have consistent influence and impact on stock return have been explored. Those some are related with firm characteristics (i.e. Size, book- to-market equity, leverage, earning yield, beta etc.) and other variables are macroeconomic (i.e. production, economic growth, inflation, interest rate, etc.). Hahn and Lee (2009) emphasized that cross-sectional difference in debt capacity (measured in terms of assets tangibility) for financially constant firm have positive impact on stock return. However, for financially unconstrained firm whose level of investment is independent of debt capacity, the cross-sectional differences in debt capacity will have no systematic relation with cross section of stock returns.

II. Theoretical Framework

This section presents the theoretical and empirical evidences regarding stock returns. This section is divided into three sub-sections. The first parts focused on the theoretical aspects, second part presents the review of empirical evidences and in the third section research variables and prior hypothesis formulated in the study were stated.

Theoretical Review

Markowitz (1952) changed the way of thinking regarding the risk and return concerned with the investment. Markowitz (1952) mathematically explained that the return on the portfolio is the sum of the weighted average of returns on securities in the portfolio. Weight refers to the proportion of total wealth invested in corresponding assets. However, risk is not the weighted average of the risk on securities in the portfolio. It is influenced by the correlation of assets in the portfolio. Markowitz (1952) explained that portfolio is said to be efficient if it gives the investor a higher expected return for a given level of risk and lower level of risk for a given level of return.

Copeland, Weston, Shastri and Katz (2005) explained that the capital assets pricing model (CAPM) shows the equilibrium rate of return on all risky assets are the function of their covariance with the market portfolio. Based on the foundation of the portfolio theory developed by Markowitz (1952) capital assets pricing model attempts to explain the equilibrium rate of the return of the assets included in the diversified portfolio.

CAPM is cornerstone theory in financial economics. According to this theory the expected return of capital assets should be the risk free rate plus risk premium [i.e. $E(Ri) = Rf + (E(RM) – Rf) \beta i$]. Risk premium should be the price for risk, which is computed by multiplying market risk premium and the sensitivity of security return to the market return (β). Market risk premium is the excess of market return over risk free rate. Capital assets pricing model shows the equilibrium rate of return on all risky portfolio are the function of their correlation of

covariances with the market portfolio (Thapa and Rana, 2011).

The CAPM only takes into account one factor, "market risk" while the Arbitrage Pricing Theory (APT) considers multiple factors. Arbitrage pricing theory (APT) is a multifactor asset pricing model based on the idea that an asset's returns can be predicted using the linear relationship between the asset's expected return and a number of macroeconomic variables that capture systematic risk. It is a useful tool for analyzing portfolios from a value investing perspectives in order to identify securities that may be temporarily mispriced. The beta coefficients in the APT model are estimated by using linear regression. In general, historical securities returns are regressed on the factor to estimate its beta.

The arbitrage pricing theory was developed by the economist Stephen Ross in 1976, as an alternative to the capital assets pricing model (CAPM). CAPM which assume markets are perfectly efficient, APT assumes markets sometimes misprice securities, before the market eventually corrects and securities move back to fair value.

Arbitrage Pricing Theory (APT) could not specify the macroeconomic variables that best explains the stock returns. Chen, Roll, and Ross (1986) identified several possible macroeconomic variables that can proxy for systematic factors which were undefined in APT. Systematic factors found to be significant in explaining expected stock returns, most notably consists of growth rate in industrial production (IP), change in expected inflation measured by change in short term interest rate (EI), unanticipated inflation defined as the difference between actual and expected inflation (UI), unanticipated change in risk premium measured by the difference between the returns on corporate Baa-rated bonds and long-term government bonds (CG), and unexpected change in the term premium measured by the difference between the returns on long and short term government bonds.

Fama and French three factor model has been developed for pricing of the assets as a substitute model of CAPM. Fama and French (1993) empirically explained that historical average return on stocks of small firms and on stock with high ratios of book equity to market equity are higher than predicted by the security market line of the CAPM

Empirical Evidences

Lamont, Polk and Saa-Requejo (2001) classified total of 1058 firms into nine different categories by using Kaplan and Zingals (1997) criteria study found that financially constrained firm earn lower return and financial constraints affects the firm value. Chan, Chang, Faff, and Wong, (2010) constructed an index of financial constraints for companies in Australia. Study found that financially constrained firms earn lower return than their unconstrained counterparts. Researchers also conducted time-series tests and find that stock returns of constrained firm's show a discrepancy with the return of other no constrained firms. Findings suggested the existence of a financial constraints factor in stock returns. Campello and Chen (2010) conducted the study entitled "Are financial constraints Priced? Evidence from Fundamentals and Stock Returns" study collected information from Center for Research in Security Prices and COMPUSTANT's. Nonfinancial firms with available return data and nonnegative book equity values were considered. Study sample consists of 12170 individual samples covering the fiscal year starting from 1963 through 2006. Study result documented that stock returns of financially constrained firms underperform those of unconstrained firms when financial constraints are more likely to bind (downturns and tight credit conditions) and outperform when constraints are likely to be relaxed. Livdan, Sapriza, and Zhang (2009) analyzed the effect of financial constraints on risk and expected stock returns by extending the neoclassical investment framework to incorporate retained earnings, debt, costly equity, and collateral constraints on debt capacity. Study empirical result concluded that more

financially constrained firms are riskier and earn higher expected stock returns than less financially constrained firms. Hahn and Lee (2009) attempted to explain the impact of financial constraints on stock returns by taking Fama MacBeth (1973) cross section of stock returns as base model. Study incorporates over the period of 1973 to 2001 data. Data were obtained from COMPUSTAT database. Empirical result of the study shows that debt capacity is a significant determinant of stock returns only in the cross-section of financially constrained firms, after controlling for beta, size, book-to-market, leverage, and momentum. Moon, Lee and Waggle (2014) analyzed the effect of debt capacity on long-term stock returns of debt–free firms. Study used three factor models of Fama and French (1993). Debt capacity of the firm has been measured by computing expected assets liquidation value of the firm (tangibility). Study found that regardless of the level of debt capacity, zero-debt firms generate positive abnormal returns in the long run after controlling for key risk factors. Study also support for the notion that preserving debt capacity in the form of higher tangibility reinforces the positive abnormal returns over and above the effect of a zero-leverage policy. Thus, majority of study in the international context supports that liquidation value of assets for financially constrained firm has significant impact on stock return. However, very limited studies are found in the cross section of stock return in Nepal. Therefore, it becomes important to examine the issue.

Variables' Definition and Priory Hypothesis

Stock Return (R_t): Stock return also referred to as dividend adjusted stock return is dependent variable used in the study. It is the sum of capital gain yield and dividend yield. Banz (1981), Bhandari (1988), Fama and French (1992), Chen, Roll and Ross (1986), Amtiran, Indiastuti, Nidar and Masyita (2017) have used stock return as dependent variable in their studies.

Size: The logarithm of market equity usually proxies for the firm size. Literature suggests that Banz (1981) was among the first to provide evidence of the existence of a so-called size effect which implies small firms have on average higher returns than larger ones. This is depicted by a statistically significant negative coefficient for the size variable when used in explaining expected returns. As suggested by the majority of literature in international context, the current study hypothesizes that firm size has a negative association with stock return.

Hypothesis H_1: Firm size has negative impact on stock return.

Book-to-market ratio:The book-to-market ratio is the ratio of a firm's book equity to its market capitalization. Studies confirm the book-to-market ratio as a significant explanatory variable of stock returns with positive association (Fama and French 1992, 1993; Kothari et al. 1995). Inferring from the previous international studies, this study hypothesized the book-to-market ratio variable to be positively related to stock returns.

HypothesisH_2: Book-to-market of firm has positive impact on stock returns.

Leverage: Leverage refers to the fact how much of the firm's capital is financed with debt. The study uses debt to equity ratio as defined by Bhandari (1988). Debt to equity is the ratio of difference between book value of total assets and common equity to market value of common equity. According to Traditional Trade off Theory, a firm benefits from taking on more debt due to tax benefits, however only until a certain point. Beyond this point expected costs of financial distress are so high that they cannot make up for the added value of the tax benefits and therefore firm value decreases. Thus leverage can be seen as a proxy for firm risk. There is mixed evidence regarding the significance of leverage in explaining expected returns in empirical research. Some studies find positive relation between stock returns and leverage (Bhandari 1988) and some studies find negative relation with stock return (Senyigit 2007, Menike et al. 2015 and Aveh et al. 2017). Gautam (2017) finds positive relation between

leverage and stock returns in Nepal.

Fama and French (1992) have used two leverage variables that are market leverage and book leverage and find that market leverage is positively related to stock returns whereas book leverage negatively. Considering that higher book leverage beyond a certain point is associated with lower expected returns and higher market leverage is associated with higher average returns, the relations are hypothesized as:

Hypothesis H_{3a}: There is a positive relation between stock returns and market leverage. In other words market leverage has positive impact on stock returns.

Hypothesis H_{3b}: There is a negative relation between stock returns and book leverage.

Earnings Yield: Earnings-Price (E/P) ratio is the relationship of earnings per share to current market price of stock.. Review of the literature of previous studies document a positive relationship between earnings yield and stock returns (Basu 1983; Porta 1996; Srinivasan 2012 and Menike et al. 2015). However, Fama and French (1992) study have rejected leverage and earning yield effects to explain stock returns in the US stock markets.

Hypothesis H_4: There is a positive relationship between earning yield and stock returns.

Assets growth: The annual firm asset growth used as independent variable is calculated using the year-on-year percentage change in total assets. More simplified, it is the change in total assets from beginning of the fiscal year to the end of the fiscal year. Cooper et al. (2008) test for firm-level asset investment effects in US stock returns. The result shows that firm's annual asset growth rate emerges as an economically and statistically significant to explain the cross-section of stock returns with negative coefficients. In context of Nepal, Gautam (2017) finds a negative relationship between assets growth and stock returns. With respect to the earlier findings, this study develops negative relationship between asset growth and stock returns.

Hypothesis H_5: Assets growth has negative relationship with stock returns. On other words assets growth has negative impact on stock returns.

Dividend Payout Ratio: The dividend payout ratio is the proportion of firms' earnings that are paid out to stockholders as dividends. Dividend payout ratio is the ratio between total amounts of dividend to net income of the firm. Keim (1985) identify a 'U-shaped' relation between the dividend yield and returns. The higher the dividend yield, the higher the returns, excepting that the zero-dividend portfolio also exhibits high returns.

Hypothesis H_6: Dividend payout ratio has positive impact on stock returns.

Tangibility: As an empirical proxy for debt capacity, this study use the firm-level tangibility measure suggested by Almeida and Campello (2007), this measure has been applied by Hahn and Lee (2009). Tangibility measures expected asset liquidation value of a firm; is computed as ;

Tangibility or Debt Capacity =

　　　　Where, PPE = Plant Property and Equipment

Hypothesis H_8: Debt capacity has positive significant impact on stock return for financial

constrained firms.

III. Research Methodology

Data

Annual reports of Nepal Stock Exchange NEPSE (2018), altogether 49 nonfinancial companies are listed in F/Y 2017/2018. Out of those, 18 are from manufacturing and processing, 4 from hotels, 19 from hydropowers, 4 from trading and 4 from others category. However, as per the annual report of NEPSE (2008), altogether 30 nonfinancial companies were listed in Fiscal year 2007/2008. Out of those, 18 are from manufacturing and processing, 4 from hotels, 3 from hydropower, 4 from trading and 1 from others category. Considering this as the population of the study and ensuring the availability of the trading price data for entire 10 years of study period starting from fiscal year 2008/2009 to 2017/2018, study is limited on 11 nonfinancial firms and 110 firm year observation (3 manufacturing processing, 3 hotels, 3 hydropower's, 1 trading and 1 from others group).

Quantitative natures of data have been used for conducting this study. Quantitative data were used to measure financial constraints, debt capacity and other variables under study. Data were obtained from secondary source; the data required for conducting the study were collected from the annual reports of the concerned firms by undertaking organizations visit, website and other regulatory organizations annual report. To estimate return closing prices of stock were obtained from the official website of NEPSE from the period of 2008/2009 till 2017/2018.

Model Specification

Simple econometric framework has been used as the model for this study. The approach taken by Berennan, Choridia, and Subrahmanyam (1988), who purposed using risk adjusted return as a dependent variable in cross section of stock return that framework has been applied as a research model in this study. By using the factor model of Fama and French (1993); Hahn and Lee (2009) as benchmark model and other established factor models. This study develops one basic econometric model.

Model I

$$R_{it} = \alpha 0 + \gamma 1 \ln ME_{it} + \gamma 2 \ln(BE/ME)_{it} + \gamma 3 (TA/BVE)_{it} + \gamma 4 (TA/MVE)_{it} + \gamma 5 E/P_{it} + \gamma 6 AG_{it} + \gamma 7 DPR_{it} + \gamma 8 T_{it} + Uit$$

Where, R_{it} is dependent variable dividend adjusted stock return for enterprise i in the year t, ME = Size or Market Capitalization, BE/ME = Book to Market ratio, TA/BVE = Book Leverage, TA/MVE = Market Leverage, AG = Assets growth, E/P = Earning yield, DPR= Dividend to Net Income, and T= Tangibility (proxy for debt capacity of the Firm). Based on the above primary model, different models were estimated to determine stock returns.

IV. Results and Conclusion

Descriptive Characteristics of Financially Constrained and Unconstrained Non-financial Firms

Non–financial firm has been categorized into financial constrained and financial unconstrained on the basis of assets size, as the methodology applied by Hahn and Lee (2009). A firm

characteristic of non- financial firms on the basis of various variables has been explained in the Table 1.

Table 1 shows average stock return of financial constrained firms is higher than financial unconstrained firm with low variation in stock return measured in terms of standard deviation. Likewise, financial constrained firm has higher excess return over risk free rate and return growth than financial unconstrained firm. Return growth of nonfinancial firm is higher for financial constraints firm than financial unconstrained firms. However, it is seen that there is high variation in stock return growth for financial constrained firms. It can be seen in the table that average market price of stock of financial unconstrained firm is higher than financial constrained firms. Variation in market price is also higher for financial unconstrained firms. Likewise, average market value of equity, book to market ratio, assets growth, market equity multiplier, book equity multiplier, earnings yield, total book value of assets, inventory, receivable, cash balance, net income, property plant and equipment for financially unconstraint firms is found higher with high variation except for asset growth. The average value of tangibility ratio is higher for financially constrained firm with less variation measured in terms of standard deviation. From the table 1 it is found that on an average stock return of financial constraints firm is higher as compared to unconstrained firms. However, financial unconstraint firms has higher market price of stock, market value of equity, book value of equity, leverage, balance of current assets.

Inferential Results

Correlation and multiple regression analysis were performed to measure the relationship and effect of explanatory variables on dependent variable. The result of analysis is presented in this section.

Table 2 Panel A presents the correlations coefficient result obtained by performing Bivariate Pearson's correlation analysis. Result is based on the 33 observations of financial constrained nonfinancial firms based on size (i.e. book value of assets). Table shows that market equity has negative and book equity to market equity has positive significant relationship with dependent variables. Table shows that market leverage, earning yield and payout ratio has negative insignificant relationship with dependent variables. Further table depicts that book leverage and assets growth has insignificant relationship with stock returns. However, assets liquidation value has significant positive relationship with dependent variables.

In the Table 2 Panel B the correlation coefficient results obtained by performing Bivariate Pearson's correlation analysis has been presented. Result is based on the 33 observations of financial unconstrained nonfinancial firms based on size (i.e. book value of assets). Result showed that market value of equity has significant negative relationship with dividend adjusted stock return. Book to market ratio and assets growth, has positive relationship with dependent variable. Tangibility (debt capacity) has positive insignificant relationship with stock return.

Impact of Explanatory Variables on Dependent Variable among Financial Constraints Firms (Financial Constrained Based on Size).

As presented in the methodology part of the study, study divided all non-financial firms into two portfolio group, financial constraints and financial unconstraint group by following the methodology of Hahn and Lee (2009). Study than perform regression analysis to analyze the impact of explanatory variables on dependent variable (dividend adjusted stock return) and outcome of the result is reported in table 3 and in the session follows.

Table 3 presents the outcome of regression analysis. As seen in the table Log of market

value of equity, log of book to market ratio and assets liquidation value (Tangibility) best explains the stock return. The value of the beta coefficient of log of market value of equity is negative and significant in all the models therefore log of market value of equity has negative significant effect on dividend adjusted stock returns under the portfolio of financial constraints firm based on size. Likewise, the positive value of beta coefficient of log of book to market ratio and tangibility implies that there is positive impact of book to market ratio and tangibility (debt capacity) on stock returns. The value of R square explains the explanatory variables explanatory power. It is found that including constant log of market value of equity, log of book to market and tangibility explains 73.7 percent of variation in stock return in the context of financial constrained nonfinancial firms.

Impact of Explanatory Variables on Dependent Variables among Financial Unconstrained Non-financial Firms (Financial Unconstrained Based on Assets Size)

As presented in the methodology part of the study, study divide all nonfinancial firms into two portfolio group, financial constraints and financial unconstraint group by following the methodology of Hahn and Lee (2009). Financial constraints and unconstrained firm is categorized on the basis assets size.

Regression analysis has been performed to analyze the impact of explanatory variables on dependent variable (various forms of stock returns) and outcome of the result is reported in the session follows.

Table 4 shows the outcome of regression analysis. Result shows that log of market value of equity and log of book to market ratio has significant beta coefficient at 5 percent level of significant. However, assets liquidation value (Debt capacity) and all other explanatory variables beta coefficient are insignificant. The result further shows that log of market value of equity has negative impact on dividend adjusted stock return but log of book to market has positive impact on stock return. The value of R square reports the explanatory power of the each model. Result shows that all the explanatory variables except for market leverage explain 58.8 percent variation in dividend adjusted stock returns. Likewise, all explanatory variables except for tangibility explain 56.8 percent variation in dependent variable dividend adjusted stock returns.

Discussion and Conclusion

This study focused on the impact assessment of cross section of stock returns and differential impact of debt capacity of stock returns under the category of financial constrained and unconstrained firms. Size, book-to-market ratio, book leverage, market leverage, earning yield, asset growth, payout ratio are found to be important explanatory variables of stock returns in international context and in Nepalese context.

Size ln(ME) is found to be significant and have negative impact on stock return.This finding is consistent with the findings of Banz (1981), Reinganum (1981), Bhandari (1988), Fama and French (1992), Pradhan and Balampaki (2004). The result contradicts with Srinivasan (2012), Pradhan (2014), Menike et al. (2015), Panta et al. (2016), Gautam (2017).

Book-to-market ratio has consistent positive impact on stock return. The result is consistent with the findings of Chan and Chen (1991), Fama and French (1992), Lakonishok et al. (1994) and Bhattarai (2018). The result contradicts with the findings of Menike et al. (2015), Pradhan (2014) and Gautam (2017). The contradiction is might be due to difference in the sample and area of study.

The study has found market leverage is significant and shows negative impact on stock return for financial unconstrained nonfinancial firms. Result consistent with the findings of (Bhandari, 1988). However, this result contradicts the findings of Fama and French (1992). Book leverage impact on stock return is positive but insignificant.In relation to earning yield, the study found that earning yield has no impact on stock return. This findings contradict with the findings of Basu (1977), Lakonishok et al. (1994), Lau et al. (2002), Menike et al. (2015) and Pradhan and Balampaki (2004).

Regression results show asset growth has no impact on stock return. The result contradicts with the findings of Cooper et al. (2008), Menike et al. (2015) and, Gautam (2017).Study result found that payout ratio has insignificant impact on stock returns. The result is contradicts with the findings of Keim (1985). Result shows that tangibility has significant positive impact on stock return in the context of financially constrained firms. Tangibility (debt capacity) has insignificant impact on stock returns in the context of financial unconstrained firms. This result is consistent with the result of the Hahn and Lee (2009).

Based on the empirical results, study conclude that size, book to market ratio and debt capacity (tangibility) are major explanatory factors of stock returns in the context of financial constrained firms. However, debt capacity do not explains stock returns in financial unconstraint nonfinancial firms in Nepal.

References

Almeida, H., & Campello, M. (2007). Financial constraints, asset tangibility, and corporate investment. *Review of Financial Studies,* 20, 1429–1460.

Amtiran, P. Y., Indiastuti R., Nidar, S. R., & Masyita, D. (2017). Macroeconomic factors and stock returns in APT framework. *International Journal of Economics and Management,* 11(1), 197-206.

Aveh, F. K., & Awunyo-Vitor, D. (2017). Firm-specific determinants of stock prices in an emerging capital market: evidence from Ghana Stock Exchange. *Cogent Economics and Finance,* 5(1), 1-11.

Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics,* 9(3), 3-18.

Basu, S. (1977). Investment performance of common stocks in relation to their price-earnings ratio: a test of the efficient market hypothesis. *The Journal of Finance,* 32(3), 663-682.

Basu, S. (1983). The relationship between earnings' yield, market value ad return for NYSE common stocks: Further evidence. *Journal of Financial Economics,* 12(1), 129-156.

Berennan, M. J., Chordia, T., & Subrahmanyam, A. (1998). Alternative factors specifications, security characteristics, and the cross- section of stock returns. *Journal of Financial Economics* 49, 345-373.

Bhandari, L. C. (1988). Debt/equity ratio and expected common stock returns: Empirical evidence. *The Journal of Finance,* 43(2), 507-528.

Bhattarai, Y.R. (2014). Determinants of stock price of Nepalese commercial banks. *Economic Journal of Development Issues,* 17 & 18 (1-2), 187-198.

Black, F., Jensen, M., & Scholes, M. S. (1972). The capital asset pricing model: some empirical tests. *Studies in the Theory of Capital Markets,* Jensen, M., ed. New York: Praeger, 79-124.

Boyer, M. M., & Filion, D. (2007). Common and fundamental factors in stock returns of Canadian oil and gas companies. *Energy Economics,* 29(3), 428-453.

Campello, M., & Chen, L. (2010). Are financial constraints priced? Evidence from firm fundamentals and stock returns. *Journal of Money, Credit and Banking,* 42(6), 1185–1198. doi:10.1111/j.1538-4616.2010.00326.x

Chan, H., Chang, X., Faff, R., & Wong, G. (2010). Financial constraints and stock returns — Evidence from Australia. *Pacific-Basin Finance Journal,* 18(3), 306 318. doi:10.1016/j.pacfin.2010.02.004

Chan, K., & Chen, N. (1991). Structural and return characteristics of small and large firms. *The Journal of Finance,* 46(4), 1467-1484.

Chan, L. K. C., Hamao, Y., & Lakonishok, J. (1991). Fundamentals and stock returns in Japan. *The Journal of Finance,* 46(5), 1739-1764.

Chen, N. F., Roll, R., & Ross, S. A. (1986). Economic forces and the stock market. *The Journal of business,* 59(3), 383-403.

Cooper, M.J., Gulen, H., & Schill, M.J. (2008). Assets growth and cross – section of stock returns. *The Journal of Finance,* 63(4), 1609-1651.

Copeland, T.E., Weston, F.J., Shastri, K., & Katz J.M. (2005). *Financial Theory and Corporate Policy.* New Delhi: Dorling Kindersly (india) Pvt. Ltd.

Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance,* 47(2), 427-465.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns of stocks and bonds. *Journal of Financial Economics,* 33(1), 3-56.

Fama, E. F., & MacBeth, J. D. (1973). Risk return and equilibrium empirical tests. *The Journal of Political Economy,* 81(3), 607-636.

Gautam, R. (2017). Impact of firm specific variables on stock price volatility and stock returns of Nepalese commercial banks. *International Journal of Research in Business Studies and Management,* 4 (6), 33-44.

Hahn, J., & Lee, H. (2009). Financial constraints, debt capacity, and cross section of stock returns. *Journal of Finance,* 64(2), 891-921.

Kandir, S.Y. (2008). Macroeconomic variable, firm characteristics and stock returns: Evidence from Turkey. *International Research Journal of Finance and Economics,* 16(1), 35-45.

Kim, D. (1997). A reexamination of firm size, book-to-market, and earnings price in the cross-section of expected stock returns. *Journal of Financial and Quantitative Analysis,* 32(04), 463-489.

Kothari, S. P., Shanken, J., & Sloan, R. G. (1995). Another look at the cross-section of stock markets. *American Economist,* 43(2), 36-48.

Lakonishok, J., Shleifer, A., & Vishny, R.W. (1994). Contrarians investment, extrapolation and risk. *The Journal*

of Finance, 49(5), 1541-1579.

Lamont, O., Polk, C., & Saaá-Requejo, J. (2001). Financial constraints and stock returns. *Review of Financial Studies,* 14(2), 529–554. doi:10.1093/rfs/14.2.529

Lau, S. T., Lee, C. T., & McInish, T. H. (2002). Stock returns and beta, firms size, E/P, CF/P, book-to-market, and sales growth: evidence from Singapore and Malaysia. *Journal of Multinational Financial Management,* 12(3), 207-222.

Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *The Review of Economics and Statistics,* 471(1), 13-37.

Livdan, D., Sapriza, H., & Zhang, L. (2009). Financially Constrained Stock Returns. *The Journal of Finance,* 64(4), 1827–1862. doi:10.1111/j.1540-6261.2009.01481.x

Markowitz, H. (1952). Portfolio selection. *The Journal of Finance,* 7(1), 77-91.

Menike, L. M. C. S., Dunusinghe, P.M., & Ranasinghe, A. (2015). Macroeconomic and firm specific determinants of stock returns: a comparative analysis of stock markets in Sri Lanka and in the United Kingdom. *Journal of Finance and Accounting.* 3(4), 86-96.

Moon, G., Lee, H., & Waggle, D. (2014). The effect of debt capacity on the long-term stock returns of debt-free firms. *Applied Economics,* 47(4), 333–345. doi:10.1080/00036846.2014.959655

Panta, S. B., Phuyal, N., Sharma, R., & Vora, G. (2016). The cross-section of stock returns: An application of Fama-French approach to Nepal. *Modern Economy,* 7, 223-231. http://dx.doi.org/10.4236/me.2016.72024

Porta, R. L. (1996). Expectations and the cross-section of stock returns. *The Journal of Finance,* 51(5), 1715-1742.

Pradhan, R. S. (2014). The cross-section of expected stock returns in Nepal. *Nepalese Journal of Management,* 1(1), 1-9.

Pradhan, R. S., & Balampaki, S. B. (2004). Fundamentals of stock returns in Nepal. *SEBON Journal,* 1(1), 8-24.

Pradhan, R.S. (2015). The cross- Section of expected stock returns in Nepal. *Journal of Management & Development Economics,* (1)4, 91-99.

Reinganum, M. R. (1981). Misspecification of capital asset pricing-empirical anomalies based on earnings yield and market values. *Journal of Financial Economics,* 9(1), 19-46.

Rosenberg, B., Reid, k., & Lanstein, R. (1985). Persuasive evidence of market inefficiency. *Journal of Portfolio Management* 11, 9- 17.

Senyigit, Y. B., & Ag, Y. (2014). Explaining the cross section of stock returns: a comparative study of the United States and Turkey. *Procedia-Social and Behavioral Sciences,* 109(1), 327-332.

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance,* 19(3), 425-442.

Srinivasan, P. (2012). Determinants of equity share prices in India: a panel data approach. *The Romanian Economic Journal,* 15(46), 205-228.

Stattman, D. (1980). Book values and stock returns. *The Chicago MBA: A Journal of Selected Papers* 4, 25-45.

Thapa, K. & Rana,. S.B (2011). *Investment Management.* Kathmandu: Asmita Books Publishers and Distributers (P) LTD.

Table 1

Firm Characteristics across Financial Constraints and Financial Unconstrained Non –financial Firms on the Basis of Book Value of Assets

The table shows descriptive statistics (mean, median, standard deviation, minimum and maximum values) of stock return, price and related exogenous variables for 11 non-financial firms sample drawn from NEPSE. The study period covers 10 years through 2009 till 2018 composed of 110 firm year observations. Stock return Rt which refers to annual dividend adjusted stock return. Various variables that indicate firm's characteristics are presented in the first column. Panel A of the table represents financially constrained firms on the basis of book value of assets. Firms having least 30 percent book value of assets are grouped under the category of financially constrained firms. Out of total 110 observations 33 observations are grouped as financially constrained category. Panel B of the table represents financially unconstrained firms on the basis of book value of assets. Firms having highest 30 percent book value of assets are grouped under the category of financially unconstrained firms. Out of total 110 observations 33 observations are grouped as financially unconstrained category.

Firm Characteristics	Mean	Median	Std. Deviation	Minimum	Maximum
Panel A: Financial Constrained Firms					
Stock Return (%)	31.49	9.71	74.23	-43.38	311.70
Excess Return Over Risk Free Rate (%)	28.17	3.78	75.20	-43.81	311.27
Return growth (%)	24.39	.00	73.08	-43.38	300.00
Market Price (Rs)	599.45	229.00	983.64	55.00	4250.00
Market Equity (Rs in millions)	4058.52	1908.95	5838.67	367.23	20908.44
Book to Market Ratio (Decimal)	.46	.33	.37	.06	1.21
Assets Growth (%)	8.43	6.59	13.47	-26.27	40.85
Market Equity Multiplier(Times)	.79	.51	.62	.09	1.98

Book Equity Multiplier (times)	1.79	1.75	.45	1.10	2.91
Earning Yield (%)	4.57	4.41	13.80	-62.42	19.82
Market Value of Equity (Rs)	4058519478.15	1908945225.00	5838667911.30	367234000.00	20908444930.00
Assets (Rs)	1005421902.88	1017923667.00	274016552.91	398159000.00	1390951815.00
Inventory (Rs)	114109603.00	80623340.00	109050747.34	.00	443178202.00
Receivables (Rs)	107617667.27	112164586.00	88435770.37	1775364.00	425245321.00
Cash Balance (Rs)	70867684.72	41408000.00	90318972.33	928516.90	382049195.00
Net Income (Rs)	217082104.99	131254125.00	281336833.03	-475824581.00	812542760.00
Property Plant Equipment (RS)	654593006.45	559084776.00	301370295.97	121636742.00	1274862422.00
Tangibility (Decimal)	.60	.54	.22	.14	1.22
Panel B: Finan-cial Uncon-strained Firms					
Stock Return (%)	25.25	5.95	101.80	-42.85	564.00
Excess Return Over Risk Free rate (%)	23.05	5.17	101.37	-44.30	558.17
Return Growth (%)	2.11	-1.00	31.20	-44.58	129.72
Market Price (Rs)	1036.21	656.00	1368.14	204.00	6085.00
Market Equity (Rs in millions)	37412.49	14958.61	38662.50	122.70	108150.00
Book to Market Ratio (%)	2.19	.60	3.57	.11	11.98
Assets Growth (%)	11.16	8.37	12.40	-16.35	43.14
Market Equity Multiplier (Times)	8.97	.76	16.59	.11	52.66
Book Equity Multiplier (times)	2.18	1.41	1.61	1.02	6.45
Earning Yield (%)	10.90	10.79	15.35	-33.82	75.10

Market Value of Equity (Rs)	37412492604.55	14958610938.00	38662501384.66	122695749.00	108150000000.00
Assets (Rs)	35154497926.61	7685591570.00	45690393679.80	4203845357.00	131892000000.00
Inventory (Rs)	856261026.09	400423766.00	1128559873.77	35956105.00	3707331643.00
Receivables (Rs)	1020641708.30	276274595.00	1447048783.80	69389872.00	4339424927.00
Cash Balance (Rs)	8587742453.64	309554222.00	13679668085.96	24596265.00	43520904779.00
Net Income (Rs)	4320436256.18	882086844.00	5869499187.39	17002675.00	17483801827.00
Property Plant Equipment (RS)	8294981753.61	1896446886.00	11823854865.81	288897469.00	38733730193.00
Tangibility (Decimal)	.44	.39	.26	.10	1.13

Note: Number of observations of nonfinancial firms under financial constraints panel is 33 and number of observation of nonfinancial firms under financial unconstrained panel is 33.

Table 2

Bivariate Pearson's Correlation Coefficient among the Variables

Panel A: Financial Constrained Nonfinancial Firms (Based on Size)

	Ri	LnME	Ln (BE/ME)	(TA/MVE)	(TA/BVE)	(E/P)	AG	DPR	T
Ri	1								
Ln ME	-.598**	1							
Ln (BE/ME)	.618**	-.568**	1						
(TA/MVE)	-.082	.180	.006	1					
(TA/BVE)	.257	.007	.042	-.085	1				
(E/P)	-.055	.060	-.100	-.763**	.346*	1			
AG	.169	-.057	.081	-.460**	.620**	.549**	1		
DPR	-.055	.051	-.161	-.199	.468**	.357*	.537**	1	
T	.677**	-.225	.240	-.116	.561**	-.001	.271	.137	1

Panel: B Financial Unconstrained Nonfinancial firms Based on Size.

	Ri	Ln ME	Ln (BE/ME)	(TA/MVE)	(TA/BVE)	(E/P)	AG	DPR	T

Ri	1								
Ln ME	-.566**	1							
Ln (BE/ME)	.229	-.342	1						
(TA/MVE)	-.074	-.348*	.676**	1					
(TA/BVE)	-.050	-.416*	.619**	.724**	1				
(E/P)	-.018	-.155	.279	.165	.167	1			
AG	.092	-.090	.054	-.042	.007	-.379*	1		
DPR	-.062	.259	-.273	-.277	-.437*	-.306	.263	1	
T	.375	-.364*	-.017	.028	-.071	.092	-.212	.178	1

Note: ** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Number of observation in each panel is 33.

Table 3

Explanatory Variables Impact on Dividend Adjusted Stock Return within the Category of Financial Constrained Non-financial Firms based on Based on Size.

The table presents the results of regression model designed to analyze the impact of explanatory variables on dependent variable. The regression model used is, $R_{it} = \alpha_0 + \gamma_1 lnME_{it} + \gamma_2 ln(BE/ME)it + \gamma_3 (TA/BVE)it + \gamma_4 (TA/MVE)it + \gamma_5 E/P_{it} + \gamma_6 AGit + \gamma_7 DPR_{it} + \gamma_8 T_{it} + Uit$. Data of 11 non-financial firms listed in Nepal Stock Exchange for the period of 2008/09 to 2017/18 has been analyzed. Dependent variable is dividend adjusted stock return. Return is calculated by adjusting dividends and capital gains. Independent variables Ln(ME) is log of market value of equity representing size, Ln(BE/ME) is log of ratio of book to market equity, (TA/BE) is the ratio of total asset to book value of equity representing book leverage, (TA/ME) is ratio of total asset to market value of equity representing market leverage, E/P refers to the earnings yield, AG refers to the assets growth, DPR represents dividend payout ratio and T represents tangibility is the liquidation value of assets measures debt capacity and U_{it} is error term. Table also shows the value of F-statistic, R-square of each model. The reported values are intercepts and slope coefficients of the independent variables with P-value and Variance Inflation Factor (VIF) in parenthesis respectively.

Model	Constant	Ln ME	Ln (BE/ME)	(TA/MVE)	(TA/BVE)	(E/P)	AG	DPR	T	R²	F	Sig
1	52.568 (0.000)	-6..305 (0.000) (1)								0.357	17.221	0.000

2	30.043 (0.007)		30.190 (0.00) (1)							0.382	19.157	0.000
3	34.794 (0.027)			-3.040 (0.649) (1)						0.007	0.211	0.649
4	-44.193 (0.408)				42.231 (0.149) (1)					0.066	2.190	0.149
5	32.841 (0.024)					-0.297 (0.760) (1)				0.003	0.095	0.760
6	23.616 (0.134)						0.933 (0.346) (1)			0.29	0.916	0.346
7	34.700 (0.047)							-0.161 (-0.307) (1)		0.003	0.094	0.761
8	40.012 (0.040)	-3.797 (0.059) (1.705)	18.679 (0.042) (1.627)	-0.455 (0.959) (2.863)		-0.488 (0.716) (3.103)	1.026 (0.346) (1.924)	-0.132 (0.796) (1.554)		0.491	4.187	0.004
9	-38.252 (0.418)	-4.046 (0.025) (1.487)	17.559 (0.041) (1.594)		49.78 (0.091) (1.706)	-0.432 (0.622) (1.478)	0.182 (0.872) (2.332)	-0.316 (0.518) (1.572)		0.545	5.193	0.001
10	-41.117 (0.340)	-4.053 (0.022) (1.486)	17.768 (0.033) (1.555)		51.805 (0.049) (1.381)	-0.372 (0.63) (1.210)	-0.291 (0.52) (1.41)			0.545	6.459	0.000
11	2.004 (0.953)	-3.032 (0.027) (1.533)	15.308 (0.077) (1.567)		-11.541 (0.632) (2.128)	0.193 (0.751) (1.265)		-0.146 (0.676) (1.423)	95.663 (0.000) (1.714)	0.743	12.545	0.000

12	-17.896	-3.416	14.338	3.641		0.478	0.130	-0.268	90.419	0.744	10.401	0.000
	(0.322)	(0.022)	(0.33)	(0.573)		(0.629)	(0.871)	(0.474)	(0.000)			
		(1.710)	(1.658)	(2.912)		(3.231)	(2.028)	(1.563)	1..202			
13	-12.459	-3.136	14.907				0.124	-0.225	88.786	0.741	15.445	0.000
	(0.400)	(0.020)	(0.020)				(0.854)	(0.525)	(0.000)			
		(1.497)	(1.591)				(1.524)	(1.501)	(1.154)			
14	-15.217	-3.103	15.785						87.449	0.737	27.034	0.000
	(0.271)	(0.017)	(0.010)						(0.000)			
		(1.494)	(1.505)						(1.074)			

Note: Number of observation N is 33.

Table 4

Impact of Explanatory Variables on Dependent Variables among Financial Unconstrained Nonfinancial Firms (Financial Unconstrained Based on Assets Size)

The table presents the results of regression model designed to analyze the impact of explanatory variables on dependent variables. The regression model used is, $R_{it} = \alpha_0 + \gamma_1 lnMEit + \gamma_2 ln(BE/ME)it + \gamma_3 (TA/BVE)it + \gamma_4 (TA/MVE)it + \gamma_5 E/P_{it} + \gamma_6 AGit + \gamma_7 DPR_{it} + \gamma_8 T_{it} + Uit$. Data of 11 non-financial firms listed in Nepal Stock Exchange for the period of 2008/09 to 2017/18 has been analyzed. Dependent variable is dividend adjusted stock return. Return is calculated by adjusting dividends and capital gains. Independent variables Ln(ME) is log of market value of equity representing size, Ln(BE/ME) is log of ratio of book to market equity, (TA/BE) is the ratio of total asset to book value of equity representing book leverage, (TA/ME) is ratio of total asset to market value of equity representing market leverage, E/P refers to the earnings yield, AG refers to the assets growth, DPR represents dividend payout ratio and T represents tangibility is the liquidation value of assets measures debt capacity and U_{it} is error term. Table also shows the value of F-statistic, R-square of each model. The reported values are intercepts and slope coefficients of the independent variables with P-value and Variance Inflation Factor (VIF) in parenthesis respectively.

Panel A: Explanatory Variables Impact on Dividend Adjusted Stock Returns

Model	Constant	Ln ME	Ln (BE/ME)	(TA/MVE)	(TA/BVE)	(E/P)	AG	DPR	T	R²	F	Sig
1	89.497	-10.597							76.717	0.353	8.188	0.001
	(0.085)	(0.004)							(0.226)			
		(1.153)							(1.153)			
2	265.214	-14.985	38.452	-2.176	-23.778)	-1.259	-0.599	-0.251		0.565	4.633	0.002
	(0.000)	(0.000)	(0.012)	(0.082)	(0.093)	(0.230)	(0.636)	(0.765)				
		(1.273)	(2.168)	(2.635)	(2.670)	(1.365)	(1.327)	(1.427)				

		-12.781	38.842		-2.243	-21.718	-1.271	-0.065	-0.598			
3	215.760	(0.002)	(0.011)		(0.073)	(0.125)	(0.223)	(0.961)	(0.502)	0.588	4.286	0.003
	(0.008)	(1.723)	(2.170)		(2.641)	(2.715)	(1.365)	(1.507)	(1.610)			
		-12.603	27.564	-34.726		-1.127	0.258	-0.730	69.071			
4	220.520	(0.003)	(0.049)	(0.009)		(0.299)	(0.853)	(0.437)	(3.12)	0.528	0.3991	0.005
	(0.009)	(1.722)	(1.772))	(2.016)		(1.358)	(1.482)	(1.600)	(1.528)			

Note: Number of observation N is 33.