

Explaining cross section of stock returns: A comparative analysis of listed financial and non- financial firms in Nepal.

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Abstract- This paper examines the effect of firm specific variables on stock returns of financial and non-financial enterprises in Nepal. Fixed effects regression models are estimated to identify causal relationship of firm size, book-to-market ratio, leverage, earnings yield and assets growth with adjusted stock return. A balanced panel data of 110 observations for 11 non-financial firms and 120 observations for 12 commercial banks listed in NEPSE are taken for the study covering a 10 year period from 2009 till 2018. Comparative analysis is done by estimating sector wise regression models. For non-financial firms, fixed effects model performed better than random effect model and OLS model suggested by Hausman test and Wald test. OLS model showed better by Wald test for financial firms. The findings reveal that size and book-to-market equity ratio have significant negative impact on stock returns in the non-financial firms. However for financial firms only book-to-market ratio shows significant negative impact on stock returns in univariate and bivariate models. Leverage is observed to have positive impact on stock return at 10 percent level of significance in univariate model for financial firms.

Index Terms- Stock returns, Firm specific variables, Fixed effect, OLS model, Random effect

I. INTRODUCTION

Important constituent of a free-market economy, stock market helps to arrange capital for the companies from shareholders in exchange for shares in ownership to the investors. Stock exchange facilitates businesses to raise capital by selling shares to the investor (Black and Gilson, 1998). Studies have proved that the stock market plays an important role in economic prosperity, fostering capital formation and sustaining the economic growth of the economy (Adjasi et al., 2008; Pilinkus, 2015). The motivating factor for investments in stock market is return. Investors consider return as fundamental reason for trading stocks. Adjusted return is normally capital appreciation/depreciation along with dividend received if any. Investors generate return in the stock market by trading shares in the secondary market. Usually, by buying stock at lower price and selling it at higher price in secondary market keeps the investor in earning position (Idris and Bala, 2015). After the seminal work of Banz (1981), it is becoming gradually accepted that stock returns have more predictable components in addition

to market beta that was earlier proposed by Sharpe (1964), Lintner (1965) and Black (1972) through Capital Assets Pricing Model. Banz (1981) revealed that fundamental variables such as size along with earning yield, book-to-market ratio, cash-flow yield and leverage are important determinants of stock return. Other empirical works on asset pricing have identified a lot of variables that have explanatory power to determine stock returns. Earning's yield (Basu, 1983), leverage (Bhandari, 1988), size and book-to-market ratio (Fama and French, 1992) and asset growth (Michael et al., 2008) are observed to have significant explanatory power.

The results and implications drawn from the paper of Fama and French (1992) motivated a whole stream of subsequent studies. These studies extend the findings of Fama and French (1992) by looking at different countries, different samples and different time periods. Interesting to see is that the findings of these studies seem to be very specific to the studied country and time period. For instance in the US studies (Fama and French, 1992; Kim, 1997; Howton and Peterson, 1998) there is an overall tendency to find a size and book-to-market factor risk premium compared to UK studies (Chan and Chui, 1996; Strong and Xu, 1997; Morelli, 2007) that do not find this size effect, but rather find leverage and book-to-market to be significant. Studies on the Asian market (Wong, Tan and Liu, 2006; Lau, Lee and McInish, 2002; Mohanty, 2002) show that apart from size and book-to-market variables sales growth and cash flow-to-price ratio are also important factors in the cross-section of stock returns. When comparing the results of studies on developed and emerging markets (Claessens, Dasgupta and Glen, 1995) show almost all of the signs of the variables change. For example whereas in developed countries the size effect consistently states that small firms tend to outperform large firms, the opposite effect is found for many emerging markets.

Lau, Lee, and McInish (2002) found that there is a conditional relationship between beta and stock returns with positive relation during positive market returns. During negative market excess returns the relation is negative. The study further document a negative relationship stock returns with size and sales growth for Singapore and positive relationship with earnings to price ratio for Malaysia. Cooper et al. (2008) compared the result of asset growth rates with book-to-market ratios, size, lagged returns, accruals and other growth measures and found that firm's annual asset growth rate emerges as an economically and statistically

significant to explain the cross-section of US stock returns. Srinivasan (2012) explored panel data over the period from 2006 to 2011 along different industries in India and revealed that size is significant and positive in all sectors except for manufacturing sector where the relationship is positive but insignificant.

In a comparative study by Menike et al. (2015) regarding firm-specific variables and stock returns in Sri Lanka and United Kingdom (UK) found assets growth, book to market ratio and leverage have insignificant negative relationships with stock returns. Though insignificant the relationship of size and earning price ratio with stock returns are positive in Sri Lanka using fixed effect models. On the other hand random effect firm factor model in UK shows that earning price ratio, book to market ratio, fixed assets growth rate, size and return on assets are significant variables determining the stock returns. Size, return on assets and earning price ratio are positively related to stock returns whereas assets growth rate and book to market ratio are negatively related in UK stock market. Impact of firm specific variables on stock prices in Ghana Stock Exchange using panel regression analysis conducted by Aveh and Awunyo-Vitor (2017) found a positive and significant relationship of return on equity, earning per share, book value per share and size with market price of shares. The findings also show insignificant and inverse relationship of leverage with market price of stocks. Hu et al. (2018) investigated cross-section of returns for Chinese stock market and revealed significant size effect but no robust value effect.

In the Nepalese context, Pradhan and Balampaki (2004) observed earning yield and cash flow yield to have significant impact on dividend yield. Size was observed to have a negative impact on dividend yield whereas book-to-market is statistically strong in predicting capital gain yield. Dangol (2008) tried to study the linkage between political uncertainty and common stock returns. Joshi (2012) found dividend having significant effect on market stock price. Pradhan (2014) revealed that beta has very weak positive relation with stock returns whereas size, dividend yield and book-to-market ratio have been revealed as significant factors affecting stock returns. Gautam (2017) found a positive relationship between leverage, size, dividend payout and dividend yield with stock return. The study further revealed that there exist a negative relation between book-to-market, growth of assets and earning price ratio with stock return. In the latest study Bhattarai (2018) revealed that earning per share, dividend per share, price earning and size are positive and statistically significant in determining stock prices.

Abundance of studies have been conducted of factors determining stock returns and most of these studies are in developed and big capital markets. Hence, the findings of these studies as well as the theoretical relevance in context with the emerging and small capital markets are worth examining. Also in accordance to the above findings, it is therefore not possible to use the results from one or several studies on a specific country, market and time period to derive the factor risk premia of another market for a specific time period. This means that every particular market and time period should be studied individually in order to determine which factors are important in explaining stock returns.

Regardless of the works carried out in different countries, markets and points of time, our main empirical finding is size and book-to-market ratio are strong predictor of stock returns in non-financial firms.

The remainder of this paper is organized as follows. Section I describes that data and model selection. Section II presents the empirical results. Section III discusses and concludes the study findings.

II. DATA AND MODEL SELECTION

A. Sample selection

All listed commercial banks and non-financial firms in NEPSE constitutes the population of the study for financial and non-financial respectively. The non-financial firms represent 18 firms in manufacturing and processing, 4 in hotels, 19 in hydropower, 4 in trading and 4 in others category that make up 49 non-financial firms as population. 27 commercial banks are listed in NEPSE as of F/Y 2017/2018 constitute the population for financial firms represented in this study by commercial banks. Sample firms have been selected as per the information available required for the study. This is primarily because of unavailability of financial data of the firms and dormant trading in stock exchange. However special care has been taken to assemble data that would assure having of all firms for all intended period of study. For each firm, financial data for 10 fiscal years covering the period of 2009 to 2018 are collected. While doing so, firms to be considered must have 10 years of consecutive data of stock trading. Firms with less than 10 years of consecutive trading are excluded. Few firms are also excluded on basis of unavailability of their annual financial reports. As such, 12 commercial banks and 11 non-financial firms (3 manufacturing and processing firms, 3 hotels, 3 hydropower companies and 1 each from trading and others sectors) are selected for the study. As such balanced panel data of 120 observations for financial firms (commercial banks) and 110 observations for non-financial firms is analyzed.

B. Model Estimation

The relationship between stock return and explanatory firm specific variables have been estimated using panel data set on regression methodology. Using pooled data, the basic regression estimation model is (Greene, 2000):

$$Y_{i,t} = \alpha_i + \gamma'X_{i,t} + \varepsilon_{it}$$

where, α_i is the individual effect, which is assumed as constant over time and specific to the individual cross-sectional unit in the fixed-effects model. $\varepsilon_{i,t}$ is a stochastic error term assumed to have zero mean and constant variance. In random-effect model, α_i is disturbance specific to cross-sectional unit. The regression techniques in estimating regression model with panel data are pooled OLS, the fixed-effects model and the random-effects. Using Eviews 10, we conducted Hausman test to choose the model from fixed effect model and random effect model. In context of choosing fixed effect model from Hausman test, we further carried out Wald test to choose the appropriate model from fixed effect and OLS model and the final models are tested

for the relationship among the variables. The testable regression model is:

$$Y_{it} = \alpha_0 + \gamma_1 \ln ME_{it} + \gamma_2 \ln(BE/ME)_{it} + \gamma_3 \ln(DA)_{it} + \gamma_4 AG_{it} + \gamma_5 E/P_{it} + \epsilon_{it}$$

where, Y_{it} is dependent variable stock return for enterprise i in the year t . ME = Size or Market Capitalization, BE/ME = Book to Market ratio, DA = Leverage, AG = Assets growth, E/P = Earning yield and ϵ = Error term.

C. Variables and priori expectation

Stock return is the sum of capital gain yield and dividend yield. Banz (1981), Bhandari (1988), Fama and French (1992), Chen, Roll and Ross (1986), Amtiran, Indiatuti, Nidar and Masyita (2017) have used stock return as dependent variable in their studies. The logarithm of market equity proxies for the firm size. Banz (1981) found small firms have on average higher returns than larger ones. It has been well documented in the literature that a firm’s stock return is influenced by its size and the relation is negative (Reinganum 1981, Bhandari 1988, Fama and French 1992, Kothari et al. 1995, Howton and Peterson 1998, Hu et al. 2018). The book-to-market ratio is the ratio of a firm’s book equity to its market capitalization and helps investors and analysts identify if a stock is under or overvalued. Studies confirm the book-to-market ratio as a significant explanatory variable of stock returns (Fama and French 1992, 1993, Kothari et al. 1995) with positive association. Leverage refers to the fact how much of the firm’s capital is financed with debt. Some studies find positive relation between stock returns and leverage (Bhandari 1988) and some studies find negative relation with stock return (Menike et al. 2015 and Aveh et al. 2017). Earnings-Price (E/P) ratio is the relationship of earnings per share to current market price of stock commonly used to compare the relative attractiveness of stocks. 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). The annual firm asset growth used as independent variable is calculated using the year-on-year percentage change in total assets. Cooper et al. (2008) found 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. Profilet and Bacon (2013) found that assets growth has a negative relation with share price volatility in the US capital market. Expected relationships with return are presented in the table below.

Table 2.1
Computation of Variables with Expected Signs

Variable	Abbrev.	Description	Sig n
Return	R_t	$[(P_t - P_{t-1} + D_t)/P_{t-1}]$	
Size	$\ln(ME)$	Natural logarithm of market equity	-

Book-to-Market Ratio	$\ln(BE/ME)$	Natural logarithm of firm’s book equity divided by market capitalization	+
Leverage	$\ln(DA)$	Natural logarithm of firm’s total debt to total assets.	-
Assets Growth	AG	Ratio of the change in total assets at the end of the year to the level of total assets at the beginning of the year. Negative asset growth is taken zero..	-
Earnings Yield	E/P	Earning price per share to market price per share. Negative E/P ratio is taken zero.	+

III. EMPIRICAL RESULTS

Table 3.1 presents descriptive statistics of all the variables under study. Panel A shows that the stock return has a mean of 1.21 with minimum -72.03 and maximum 190.46 in financial firms whereas the mean return is higher for non-financial firms with 26.66. However the standard deviation of 86.45 shows greater volatility in the stock returns and the data is widely dispersed from the mean among the non-financial firms. Another fact revealed through the descriptive statistics is that financial leverage is larger in financial firms with 90% in average indicating that almost 90 percent of the total assets is being financed by the creditors. On the other hand the financial leverage of 42% for non-financial firms reveal very low use of debt financing. The result supports Fama and French (1992) that says that higher leverage beyond a certain point is associated with lower expected return but contradicts Bhandari (1988) that showed positive relationship between leverage and return. The average size of the financial firms is greater (27769.04) as compared with non-financial firms’ average size (14950.61). The standard deviation of around 24499 which is less than the mean shows less variability in the size of the firms among financial institutions. The case in non-financial firms is different where that dispersion seems to be very high among the firms. Assets growth is higher in financial firms and earnings yield is better for non-financial firms. Comparatively financial firms are observed to have higher financial leverage and higher assets growth but lower return and earnings than the non-financial firms. However, the returns and earnings in financial firms are less volatile than the non-financial firms.

The correlation coefficients in Table 3.2 reveal that no independent variables are highly correlated with return. Moreover relationships of the independent variables with return are observed to be opposite to the expected priori. Gujarati et al. (2015) suggests that if the correlation between two variables is more or equal to 80%, then it can be the case of concern regarding multicollinearity. In the present paper although most of the variables show far less correlation, the variables with book value of equity and market value of equity show slightly higher correlations. 66.6% between BE/ME and ME for financial firms and 64.6% between BE/ME and ME for non-financial firms. This could be because both the variables have market value of equity.

Table 3.1
Descriptive Statistics of Variables

The table shows descriptive statistics (mean, standard deviation, minimum and maximum values) of stock return and related exogenous variables for 12 financial firms in panel A and 11 non-financial firms in panel B. The study period covers 10 years through 2009 till 2018. Ri is dividend and capital appreciation adjusted annual stock return, ME is market value of equity representing size in million, BE/ME is ratio of book-to-market equity, DA is the ratio of total debt to total assets representing leverage, AG refers to the assets growth and EP refers to the earnings yield.

Panel A: Financial Firms					
	Observations	Mean	Maximum	Minimum	Std. Dev.
Ri	120	1.21	190.46	-72.03	54.21
ME	120	27769.04	111494.00	2164.00	24499.85
BE/ME	120	0.30	1.21	0.05	0.19
DA	120	0.90	0.94	0.81	0.03
AG	120	20.48	80.50	-16.59	16.03
EP	120	5.02	41.43	-5.29	5.02

Panel B: Non-financial firms					
	Observations	Mean	Maximum	Minimum	Std. Dev.
Ri	110	26.66	564.00	-52.53	86.45
ME	110	14950.61	108150.00	99.00	26247.37
BE/ME	110	1.32	13.72	0.06	2.85
DA	110	0.42	0.85	0.02	0.22
AG	110	10.86	167.20	-26.27	19.62
EP	110	7.78	75.10	-62.42	12.93

Table 3.2
Correlation Matrix of Variables

The table presents Pearson's correlation coefficients among different variables used in the study. The coefficients of variables for financial firms are in lower left triangle whereas for non-financial firms they are in upper right triangle of the matrix. The data are extracted from the annual reports of sample firms trading in NEPSE and the annual report of NEPSE for the period of 2009-2019. Ri is dividend and capital appreciation adjusted annual stock return, ln(ME) is log of market value of equity representing size, ln(BE/ME) is log of ratio of book-to-market equity, ln(TA/BE) is the log of ratio of total asset to book value of equity representing book leverage, ln(TA/ME) is log of ratio of total asset to market value of equity representing market leverage, EP refers to the positive earnings yield and AG refers to the positive assets growth.

Correlation Coefficients of Non-financial Firms' Variables							
		Ri	Ln(BE/ME)	Ln(DA)	AG	EP	
Correlation Coefficients of Financial Firms' Variables	Ri	1	0.143	-0.189	0.099	0.043	-0.057
	Ln(ME)	0.083	1	-0.646	-0.463	0.006	-0.332
	Ln(BE/ME)	-0.191	-0.666	1	0.224	-0.054	0.565
	Ln(DA)	0.156	0.005	-0.499	1	0.080	0.245
	AG	0.135	-0.126	-0.088	0.186	1	-0.031
	EP	-0.090	-0.298	0.332	-0.205	-0.024	1

To further check that the relationships observed are not of serious concern of multicollinearity to our study a Variance Inflation

Factor (VIF) test is conducted that showed a mean VIF of 1.98 for the variables in financial firms and 1.67 for the variables in non-financial firms as presented in Table 3.3. The VIF less than 10 as per the rule of thumb affirms the absence of any serious multicollinearity. The test thus reveals the absence of serious multicollinearity, because VIF are consistently below 10 both the sectors as presented in the table below.

Table 3.3
Variance Inflation Factor Test

Variables	Financial Firms	Nonfinancial Firms
ME	2.57	2.14
BE/ME	3.30	2.34
DA	1.82	1.35
AG	1.08	1.01
EP	1.15	1.53
Average	1.98	1.67

Panel data has greater chances of leading to error that are clustered and possibly correlated overtime. The primary reason is each company have its own entity specific characteristic that may influence its market price which is referred to as unobserved heterogeneity. This is

the reason both Hausman Test and Wald Test are carried out to choose the appropriate model. The Hausman Test suggests that fixed effect model is more appropriate than random effect in both financial and nonfinancial firms. χ^2 value of 26.81 with probability value of 0.00 in non-financial firms and χ^2 value of 18.81 with probability value of 0.00 suggest no entity specific attributes affect the dependent variable and thus null hypothesis of choosing random effect is rejected to fixed effect in both sectors. However Wald test shows explanatory variables in the model are significant in fixed effects for non-financial and OLS

regression for financial firms. F-statistic of 3.32 with probability 0.00 for non-financial fails to accept the null hypothesis that OLS model is appropriate and thus fixed effect is chosen. Whereas f-statistic of 1.73 with probability of 0.07 for financial firms fails to accept the null hypothesis that OLS model is appropriate.

Table 3.4 exhibits the result of both univariate and multivariate analysis of adjusted return with firm's specific variables estimated as fixed effect models. As far as estimated results are concerned, the significance of models 2, 6, 7, 8 and 9 indicate the appropriate estimation. The table shows positive effect of size of firm as measured by the natural logarithm of market value of equity on adjusted return in univariate analysis. However in bivariate and multivariate models size has negative impact on adjusted return that confirm priori expected sign and size is statistically significant in all models. This result indicates that the adjusted return is highly affected by the company's size in the

Nepalese non-financial enterprises. The result is consistent with the findings of Banz (1981), Reinganum (1981), Bhandari (1988), Srinivasan (2012), Hu et al. (2018).

Book-to-market ratio in both univariate and multivariate models is negative which is not as per the priori expected sign though the coefficients are statistically significant. This result indicates that the return is affected by book-to-market ratio in the Nepalese listed non-financial enterprises. The result is consistent with Fama and French (1992), Pradhan (2014), Gautam (2017). The coefficient of leverage in univariate model is positive but in all other multivariate models the coefficient is negative as expected. The coefficients are however not significant. Assets growth is observed to have opposite sign than expected though insignificant coefficients. Earnings yield have mixed outcome but the coefficients are not significant.

Table 3.4

Estimates of the Relations of Returns with Firm Specific Variables for Non-financial Firms using Fixed Effect model.

The table presents the results of regression model designed to analyze the impact of firm specific variables on adjusted return. The regression model used is,

$$R_{it} = \alpha_0 + \gamma_1 \ln ME_{it} + \gamma_2 \ln(BE/ME)_{it} + \gamma_3 \ln(DA)_{it} + \gamma_4 E/P_{it} + \gamma_5 AG_{it} + U_{it}$$

Data are from 11 non-financial firms listed in Nepal Stock Exchange for the period of 2008/09 to 2017/18. In all models dependent variable is adjusted return calculated by adjusting dividends and capital gains. The firm specific 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, Ln(DA) is the log of ratio of total debt to total assets representing leverage, E/P refers to the earnings yield and AG refers to the assets growth. Negative E/P and AG are taken as zero. Table also shows the value of F-statistic, R-square and Durbin Watson test statistic of each model. The reported values are intercepts and slope coefficients of the independent variables with t-statistic in parenthesis. *, ** and *** show coefficients are significant at 0.10, 0.05 and 0.01 level of significance.

Model	Intercept	Ln(ME)	Ln(BE/ME)	Ln(DA)	AG	EP	R ²	F	Sig.	DW
1	-628.59** (-2.48)	29.69** (2.58)					0.12	1.17	0.31	1.79
2	-30.12** (-2.16)		-72.17*** (-4.85)				0.23	2.79	0.00	1.7
3	44.71 1.30			16.22 (0.54)			0.06	0.56	0.86	1.89
4	24.48** (2.37)				0.18 (0.37)		0.06	0.54	0.86	1.89
5	38.57*** (3.02)					-1.36 (-1.24)	0.07	0.67	0.75	1.86
6	1160.08*** (2.72)	-56.33*** (-2.79)	-139.79*** (-4.96)				0.29	3.39	0.00	1.74
7	1197.07** (2.57)	-58.38** (-2.57)	-141.96*** (-4.68)	-5.90 (-0.20)			0.29	3.09	0.00	1.74
8	1173.75** (2.51)	-57.53** (-2.53)	-142.16*** (-4.68)	-6.08 (-0.21)	0.35 (0.79)		0.30	2.91	0.00	1.73
9	1159.94** (2.44)	-57.00** (-2.48)	-142.74*** (-4.66)	-5.58 (-0.18)	0.36 (0.82)	0.22 (0.21)	0.30	2.69	0.00	1.74

OLS model estimation presented in Table 3.5 exhibits both univariate and multivariate analysis outcomes. Models 2, 3 and 6 are observed through their significance to indicate the appropriate estimation. The table shows positive effect of size of firm as measured by the natural logarithm of market value of equity on adjusted return in univariate analysis. However in bivariate and multivariate models size has negative impact on adjusted return. Although this negative sign is as per priori expected sign, it is not statistically significant in all models. This result indicates that the adjusted return is not affected by the company's size in Nepalese financial enterprises. Though sign is consistent with the findings of Banz (1981), Reinganum (1981), Bhandari (1988), Srinivasan (2012), Hu et al. (2018) the result contradicts in terms of size being not significant.

As presented in the table, book-to-market ratio in all the models is negative which is not as per the priori. The univariate and bivariate coefficients are statistically significant that indicates that the return is affected by book-to-market ratio in the Nepalese listed financial enterprises. The result is consistent with Fama and French (1992), Pradhan (2014), Gautam (2017). The coefficient of leverage is positive in all models, an opposing sign than priori. Leverage is significant only in univariate model, hence its impact on stock return is very weak. Asset growth and earnings yield however not significant have inconsistent relationship with stock returns than expected.

Table 3.5

Estimates of the Relations of Returns with Firm Specific Variables for Financial Firms using OLS model.

The table presents the results of regression model designed to analyze the impact of firm specific variables on adjusted return. The regression model used is,

$$R_{it} = \alpha_0 + \gamma_1 \ln ME_{it} + \gamma_2 \ln(BE/ME)_{it} + \gamma_3 \ln(DA)_{it} + \gamma_4 E/P_{it} + \gamma_5 AG_{it} + U_{it}$$

Data are from 11 non-financial firms listed in Nepal Stock Exchange for the period of 2008/09 to 2017/18. In all models dependent variable is adjusted return calculated by adjusting dividends and capital gains. The firm specific 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, Ln(DA) is the log of ratio of total debt to total assets representing leverage, E/P refers to the earnings yield and AG refers to the assets growth. Negative E/P and AG are taken as zero. Table also shows the value of F-statistic, R-square and Durbin Watson test statistic of each model. The reported values are intercepts and slope coefficients of the independent variables with t-statistic in parenthesis. *, ** and *** show coefficients are significant at 0.10, 0.05 and 0.01 level of significance.

Model	Intercept	Ln(ME)	Ln(BE/ME)	Ln(DA)	AG	EP	R ²	F	Sig.	DW
1	-109.26 (-0.89)	4.67 (0.90)					0.01	0.81	0.37	1.85
2	-22.62* (-1.84)		-17.19** (-2.12)				0.04	4.48	0.04	1.73
3	29.25* 1.71			267.09* (1.72)			0.02	2.95	0.08	1.90
4	-8.58 (-1.04)				1.47 (1.48)		0.02	2.19	0.14	1.91
5	6.17 (0.87)					-0.98 (-0.97)	0.01	0.95	0.33	1.87
6	78.12 (0.51)	-4.54 (-0.66)	-21.99** (-2.02)				0.04	2.45	0.09	1.73
7	47.74 (0.29)	-2.50 (-0.31)	-17.09 (-1.17)	105.10 (0.50)			0.04	1.70	0.17	1.76
8	-1.08 (-0.01)	-0.67 (-0.08)	-14.58 (-0.99)	93.91 (0.45)	0.38 (1.16)		0.05	1.62	0.17	1.78
9	9.28 (0.05)	-1.06 (-0.13)	-14.32 (-0.96)	86.33 (0.41)	0.37 (1.15)	-0.32 (-0.29)	0.05	1.30	0.27	1.78

IV. SUMMARY AND CONCLUSION

The study uses panel regression models to examine the impact of firm specific variables on stock returns of financial and non-financial firms. The data comprise stock return, size, book-to-market ratio, leverage, asset growth and earnings yield of 11 non-financial firms and 12 commercial banks listed in NEPSE for the period 2009 till 2018. The results show higher but highly volatile return, lower leverage and higher book-to-market ratio in non-financial firms. Positive correlation is observed in size, leverage and asset growth with stock returns and negative correlation in book-to-market ratio and earnings yield. Hausman and Wald tests statistics suggest that fixed effect model reflect an appropriate regression model for non-financial firms and OLS model for financial firms. Regression results suggest size and book-to-market have significant negative impact on stock returns among the non-financial firms. Book-to-market ratio is observed to be negative and significant in univariate and bivariate OLS models for financial firms.

Fama and French (1992) found that size and book-to-market equity ratio provide a powerful characterization of the cross-section of stock returns that challenged the central prediction of CAPM model of Sharpe(1964), Lintner (1965) and Black (1972) which says market beta is sufficient to describe the cross-section of stock returns. Earlier Banz (1981) documented a strong and negative impact of firm size on average return. Bhandari (1988) observed leverage to impact positively and Basu (1983) found earning yield to have positive relation with stock return. Menike et al. (2015) documented assets growth, book to market ratio and leverage to have insignificant negative relationships with stock returns. Pradhan (2014) revealed size and book-to-market ratio as significant factors whereas Gautam (2017) found size and leverage to have positive relationship with stock returns in Nepal.

These results suggest that the documentation of significant firms-specific variables affecting the stock returns is both time and model sensitive. Thus, this study reaches a conclusion close to Fama and French (1992) and confirms that size and book-to-market ratio are significant factors affecting stock returns in Nepal. More specifically, size and book-to-market ratio have significant negative impact on stock returns for non-financial firms whereas book-to-market have negative significant impact for financial firms. The larger the size of the firm the lower is the return. It may be however too early to rule out the possibilities of other variables as there are many other variables studied at different period of time and geography.

REFERENCES

- [1] Amtiran, P. Y., Indiatuti R., Nidar, S. R., and Masyita, D. (2017). Macroeconomic factors and stock returns in APT framework. *International Journal of Economics and Management*, 11(1), 197-206.
- [2] Adjasi, C., Harvey, S. K., and Agyapong, D. (2008) Effects of exchange rate volatility on the Ghana Stock Exchange. *African Journal of Accounting, Economics, Finance and Banking Research*, 3(3), 28-47.
- [3] Aveh, F. K., and 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.
- [4] Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics*, 9(1), 3-18.
- [5] Basu, S. (1983). The relationship between earnings' yield, market value and return for NYSE common stocks: Further evidence. *Journal of Financial Economics*, 12(1), 129-156.
- [6] Bhandari, L. C. (1988). Debt/equity ratio and expected common stock returns: Empirical evidence. *The Journal of Finance*, 43(2), 507-528.
- [7] Bhattarai, B. P. (2018). The firm specific and macroeconomic variables effects on share prices of Nepalese commercial banks and insurance companies. *Review of Integrative Business and Economics Research*, 7(3), 1-11.
- [8] Black, B. S., and Gilson, R. J. (1998). Venture capital and the structure of capital markets: banks versus stock markets. *Journal of Financial Economics*, 47(3), 243-277.
- [9] Black, F. (1972). Capital market equilibrium with restricted borrowing. *The Journal of Business*, 45(3), 444-455.
- [10] Chan, K., and Chui A. P. (1996). An empirical re-examination of the cross-section of expected returns: UK evidence. *Journal of Business Finance and Accounting*, 23(9), 1435-1452.
- [11] Chen, N. F., Roll, R., and Ross, S. A. (1986). Economic forces and the stock market. *The Journal of business*, 59(3), 383-403.
- [12] Claessens, S., Dasgupta, S., and Glen, J. (1995). The cross-section of stock returns: evidence from the emerging markets, Policy Research Working Paper Series, 1505, The World Bank.
- [13] Cooper, M. J., Gulen, H., and Schill, M. J. (2008). Asset growth and the cross-section of stock returns. *The Journal of Finance*, 63(4), 1609-1651.
- [14] Dangol, J. (2008). Unanticipated political events and stock returns: an event study. *NRB Economic Review*, 20, 86-110.
- [15] Fama, E. F., and French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance*, 47(2), 427-465.
- [16] 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.
- [17] Greene, William H. (2000). *Econometric Analysis*. New Jersey: Prentice Hall International Inc., pp. 559-560.
- [18] Gujarati, D. N., Porter, D. C., and Gunasekar, S. (2015). Basic econometrics (5th ed.). New Delhi: McGraw Hill Education (India) Private Limited.
- [19] Howton, S. W., and Peterson, D. R. (1998). An examination of cross-sectional realized stock returns using a varying-risk beta model. *Financial Review*, 33(3), 199-212.
- [20] Hu, G. X., Chen, C., Shao, Y., and Wang, J. (2018). Fama-French in China: size and value factors in Chinese stock returns. *International Review of Finance*, 19(1), 1-42.
- [21] Idris, I., and Bala, H. (2015). Firms' specific characteristics and stock market returns: evidence from listed food and beverage firms in Nigeria. *Research Journal of Finance and Accounting*, 6(16), 188-200.
- [22] Joshi, R. (2012). Effects of dividends on stock prices in Nepal. *NRB Economic Review*, 24(2), 62-75.
- [23] 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.
- [24] Kothari, S. P., Shanken, J., and Sloan, R. G. (1995). Another look at the cross-section of stock markets. *American Economist*, 43(2), 36-48.
- [25] Lau, S. T., Lee, C. T., and 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.
- [26] 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*, 47(1), 13-37.
- [27] Menike, L. M. C. S., Dunusinghe, P.M., and 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.
- [28] Michael, J. C., Huseyin, G., and Schill, M. J. (2008). Asset growth and the cross-section of stock returns. *Journal of Finance*, 63(4), 1609-16051.
- [29] Mohanty, P. (2002). Evidence of size effect on stock returns in India. *Vikalpa*, 27(3), 27-38.

- [30] Morelli, D. (2007). Beta, size, book-to-market equity and returns: A study based on UK data. *Journal of Multinational Financial Management*, 17(3), 257-272.
- [31] Pilinkus, D. (2015). Stock market and macroeconomic variables: evidences from Lithuania. *Economics and Management*, 14(1), 884-891.
- [32] Porta, R. L. (1996). Expectations and the cross-section of stock returns. *The Journal of Finance*, 51(5), 1715-1742.
- [33] Pradhan, R. S., and Balampaki, S. B. (2004). Fundamentals of stock returns in Nepal. *SEBON Journal*, 1(1), 8-24.
- [34] Pradhan, R. S. (2014). The cross-section of expected stock returns in Nepal. *Nepalese Journal of Management*, 1(1), 1-9.
- [35] Proffitt, K. A., and Bacon, F. W. (2013). Dividend policy and stock price volatility in the US equity capital market. *Behavioral Sciences*. 20(1), 219-231.
- [36] 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.
- [37] Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance*, 19(3), 425-442.
- [38] Srinivasan, P. (2012). Determinants of equity share prices in India: a panel data approach. *The Romanian Economic Journal*, 15(46), 205-228.
- [39] Strong, N., and Xu, X. G. (1997). Explaining the cross-section of UK expected stock returns. *The British Accounting Review*, 29(1), 1-23.
- [40] Wong, K. A., Tan, R. S. K., and Liu, W. (2006). The cross-section of stock returns on the Shanghai Stock Exchange. *Review of Quantitative Finance and Accounting*, 26(1), 23-39.

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