MANAGEMENT DYNAMICS
A Peer-reviewed Journal of Management and Economics
Published by
Shanker Dev Campus
Tribhuvan University, Nepal

Systematic Risk and Cross Section of Equity Returns: Evidence from Nepalese Insurance Sector

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Article Info:
Received: 11 Mar 2023
Revised: 23 May 2023
Accepted: 05 June 2023

DOI:
https://doi.org/10.3126/md.v26i1.59148

Keywords:
Asset pricing, Equity returns, Investment rate, Leverage, Panel data, Systematic risk.

ABSTRACT

This research analyzes the impact of firm-specific characteristics on the cross-section of equity returns of insurance companies in Nepal. For this purpose, the study used 22 insurance companies listed in the Nepal Stock Exchange (NEPSE), comprising seven life and 15 non-life insurance companies. To make a balanced panel, those companies are selected as samples that have completed at least seven years of operation until the end of 2021 and are listed in NEPSE. The secondary data from 2015 to 2021 is analyzed using panel regression models. The Breusch-Pagan and Hausman tests are used to select the best panel model, and the random effect model is the best estimation model. The study reveals that systematic risk associated with the stock can explain the stock's risk premium, proving that the notion of CAPM holds in the context of Nepal as stock beta is positive and significant in all tested models. Similarly, the book-to-market ratio is found to be negatively affecting the stock return. On the other hand, earning yield positively affects the stock return, and firm size negatively impacts equity returns. However, the investment rate and leverage are insignificant to affect equity returns. Therefore, stock investors are recommended to select alternatives based on systematic risk, earnings yield, and BM ratio. The findings also suggest to corporate policymakers that merger and acquisition cannot maximize shareholders' wealth because it only increases paid-up capital, and this leads to decreased equity returns due to an increase in the book-to-market ratio and size of the firm.

1. INTRODUCTION

Asset pricing models explain the cross-sectional volatility in equity returns. However, most research studies examine the cross-sectional asset pricing theory in manufacturing firms (Fama & French, 2000; Fama & French, 2008; Hou et al., 2015). Insurance companies, banks, and other financial institutions are typically considered the areas of research related to equity return due to the high leverage, regulated nature of institutions, and uniqueness of handling accounting items (Semir et al., 2018). The creation of internally consistent theories of choice, production, and exchange whose predictions for quantities and prices are consistent with the evidence has been a key objective of contemporary applied economics research (Clementi & Palazzo, 2019). Asset pricing models have been the subject of extensive research in recent years to create a comprehensive model of the business cycle that can produce output, consumption, investment, employment, return on financial assets, and time series behavior that is appealing from an empirical perspective (Rouwenhorst, 1995; Jaffe et al., 1998).

The neoclassical model of firm optimization, which had been widely anticipated, is now the analytical framework chosen by academics who wish to reason with one another. According to Cooper and Haltiwanger (2006), modeling options for capital adjustment costs are constrained by plant-level investment data. The limitations on the same choices resulting from equity returns are examined by Zhang (2005), Cooper (2006), and sequential studies starting with Carlson et al. (2004). They suggest that, when properly specified, the same theoretical framework has implications for quantities (investment rate) and empirically sound prices (equity returns).

Sharpe (1964) first presented the capital asset pricing model (CAPM). The expected return on a stock is calculated using a risk-free interest rate and a risk premium, a function of the stock's beta coefficient. By Black et al. (1972) and Fama and MacBeth (1973), the beta was the only explanatory factor for the cross-sectional variation in stock portfolios. The explanation for cross-sectional variation in stock returns and the market risk variable is complicated, but numerous explanations have been found through extensive empirical research on asset pricing. The firm size effect (Banz 1981; Keim 1983), the leverage effect (Bhandari 1988), and the P/E ratio (Basu 1983; Ball 1978) have all been taken into account. Book-to-market equity and past sales growth are two factors that have been discovered to have significant explanatory power in asset pricing tests under a cross-section of equity returns, similar to the ratio of cash flow to stock price effect (Rosenberg et al. 1985; Fama & French 1992; Lakonishok & Shapiro, 1994). Fama and French (1992) also concluded that the variations in stock returns could be significantly predicted by the firm's size and book-to-market equity, as measured by the book value of equity to the market value of equity ratio. According to Clementi and Palazzo (2019), value firms have higher expected returns than growth firms because they are smaller businesses with lower idiosyncratic productivity. Value firms are riskier because of their leverage and irrational decision-making Carlson et al. (2004).

Recent research has shown a strong statistical relationship between investments in physical capital and stock returns in American publicly traded companies (Clementi & Palazzo, 2019). By building portfolios based on investment growth rates, Anderson and Garcia-Feijoo (2006) discover that recently accelerated investment firms' subsequent monthly returns are significantly lower. The evidence favoring an independent value effect is weakened within portfolios sorted on past investment growth. The study found that firm-specific growth in corporate investment contributes to the explanation of cross-sectional monthly stock returns, including the book-to-market ratio. According to numerous studies, portfolios of companies with low investment rates consistently have significantly higher average returns than those with high. The investment rate has a negative effect on the equity returns Clementi and Palazzo (2015). High-investment companies increase their capital to keep up with recently rising idiosyncratic productivity. Additionally, they found that increasing the loading on current assets helps lower risk if the firm improves efficiency. As a result, investment and risk are positively autocorrelated when future investment patterns are anticipated.

Leverage may play a significant role in determining the cross-sectional variation of equity returns (Marfe, 2017; Donangelo et al., 2018; Favilukis & Lin, 2015). Studies of the investment process, like those by Doms and Timothy (1998) and Cooper and Haltiwanger (2006), provide the empirical data necessary to control quantitative research on the effects of cross-sectional heterogeneity in macroeconomic models. As a result, stock returns and macroeconomic factors have a strong correlation. Such variables are industrial production, risk premium changes, and yield curve twists that explain the variation in stock returns (Chen et al., 1986).

As a result, the single-factor beta coefficient and the additional factors introduced by the Arbitrage Pricing Theory have an impact on stock returns (APT). In order to address these problems, Chen et al. (1986) used specific macroeconomic variables as stand-ins for the APT's undefined variables and examined how these variables affected stock returns. However, empirical evidence in the context of Nepal confirmed that few attempts have investigated the impacts of firm-specific variables on equity returns. This study investigates the multi-factor asset-pricing model to explain the returns on insurance stocks based on the evidence above. In order to better understand how firm-specific variables can explain the equity returns of insurance in the context of Nepal, this study tries to look at their explanatory power.

2. LITERATURE REVIEW

Extensive cross-sectional stock return analysis research has shown that firm-specific characteristics can explain variation in pooled equity return (Keim, 1983; Hou et al., 2015). According to Keim (1983), who examined the size effect of stock return, smaller firms had higher returns than larger firms. Book-to-market equity and beta can be used to explain stock returns, according to Fama and French (1992). The earnings yield, the ratio of earnings per share to market price per share, can explain stock returns (Reinganum, 1981). Similar results were found by La Porta (1996), which demonstrated that stocks with low earnings growth have significantly lower standard deviations and betas than stocks with higher earnings growth. Recent studies examine the time-series characteristics of insurance stocks and the cost of equity estimation (Cummins & Phillips, 2005; Wen et al., 2008). Cummins and Phillips (2005) use the CAPM and the Fama and French (1992) three-factor model to examine the cost of equity for property-liability insurers. They discovered that the three-factor model developed by Fama and French (1992) has a significantly higher cost of capital estimates than the CAPM.

Numerous studies have shown that fundamental factors specific to a firm, such as firm size, stock beta, earning yield, investment rate, and book-to-market equity, together impact equity returns. The original study that looked at the size effect was conducted by Banz (1981). The total market value of equity and common stock returns were compared in this study. Using the monthly returns, the study found that small NYSE firms typically have significantly higher risk-adjusted returns than large NYSE firms using pooled cross-sectional and time series regression. Similarly, Basu (1983) examined that the size effect is distinct from the E/P effect and concluded that small firms tend to have higher returns, even after controlling for E/P. When the CAPM was applied to non-life insurance, it was found by Cummins and Harrington (1988) to be accurate from 1980 to 1983 but not earlier. They also discovered trends in financial firms' size and B/M ratios. Despite grouping all insurance equity according to firm size and B/M ratio in their study, they did not test asset pricing to examine the cross-sectional relationship. Griffin and Lemmon (2002) also examined the connections between stock returns, distress risk, and book-to-market equity. The sample was created like Fama and French (1992). The study found that among small businesses with the highest risk of financial distress, the return gap between equity securities with high and low book-to-market ratios was more than twice as large as the return gap in other groups. According to the study, companies with a high distress risk tended to exhibit traits that could increase the likelihood that investors would misprice them. Small companies with little analyst coverage showed the biggest return reversal around earnings announcements and the biggest book-to-market premium.

The relationship between expected stock returns and business traits like firm size and book-to-market ratio was examined by Gomes et al. (2003). The firm size appeared to contain useful information about the cross-section of common stock returns using Fama and MacBeth's (1973) regressions of stock returns on size, book-to-market equity, and conditional market betas. It was determined that there was a significantly negative correlation between returns and size. The study also supported the notion that, in addition to size, the book-to-market ratio is crucial for illuminating the cross-sectional characteristics of stock returns. Additionally, Fama and French (2008) evaluated the impact of historical price changes, and book-to-market contained unbiased information about anticipated cash flows that could improve estimates of expected returns. The study found that stocks had a significant positive coefficient of book-to-market equity, suggesting that higher book-to-market stocks might generate higher returns than lower ones. The study reaffirmed the importance of equity's book-to-market value's influence on stock returns. The equal-weighted portfolio betas and size also negatively affected the expected excess returns.

A model that Rubinstein (1976) introduced to the insurance industry was empirically tested by Wen et al. (2008). The research only used size, skewness, degree of normality, and sub-periods to group abnormal returns; however, they could not test the asset-pricing model. They discovered that the absolute difference was influenced by firm size, leverage, and skewness. Semir et al. (2008) used monthly data from 1988 to 2015 to conduct an extensive asset pricing analysis for the US property/liability insurance sector. They found that the five-factor model proposed by Fama and French (2015) could not adequately account for the returns of stocks in the property/liability insurance sector. The five-factor asset-pricing model proposed by Adrian et al. (2015) for financial institutions is described as an insurance-specific model because it can better explain the cross-section of returns on property/liability insurance stock returns than rival models. The price factors are the market return, book-to-market ratio, return on equity, short-term reversal, and the difference between the market return and the property/liability insurance sector return.

Research by Clementi and Palazzo (2019) on investments and the distribution of equity returns among US public companies using quarterly data from 1975 to 2016 discovered that value firms' expected returns are higher than those of growth firms because, like small firms, value firms are responsible for sizable portions of cash flows that will accumulate in the future and which will be riskier. Pradhan (2003) argued that market equity, market-to-book equity ratio, price-earnings ratio, and dividends are all related to liquidity, leverage, profitability, assets turnover, and interest coverage, which are the determinants of the cross-section of stock returns. The study also discovered that larger stocks have lower liquidity, lower profitability, smaller dividends, and higher price-earnings ratios and book-to-market equity ratios. The relationship between dividend yield, capital gain yield, and total yield in relation to earnings yield, size, book-to-market ratio, and cash flow yield was also looked into by Pradhan (2003). According to Gautam (2016), book-to-market equity has a detrimental effect on stock return, while firm size has a significant positive impact. The study also discovered a significant inverse relationship between stock return and sales price ratio. Among the macroeconomic factors, GDP can explain the return on the stock market.

The aforementioned empirical evidence mostly focused on the cross-section of equity returns for developed economies and non-insurance companies. Very few studies related to developing and underdeveloped economies can be found. In addition, there are rarely studies found in the area of insurance companies. Therefore, it is important to identify the factors that determine the cross-section of equity returns of insurance companies. Therefore, this study investigates a multi-factor asset-pricing model to describe the insurance stock returns in Nepal.

3. RESEARCH METHODS

Since this study analyzes the cause-and-effect relationship between firm-specific variables and the cross-section of equity return, the research philosophy followed is positivism, a school of thought consistent with the deductive approach. This study has adopted an explanatory research design to analyze the predictive power of the investment rate and other firm-specific fundamental variables to explain the common stock returns.

Data and Variables

Out of 41 (19 life, 20 non-life, and two reinsurance) insurance companies licensed by the Nepal Insurance Authority (Insurance Regulatory Authority of Nepal), only 22 (7 life and 15 non-life) companies are taken as a sample because only 22 companies were listed in stock exchange whose market price can be obtained, which is one of the major variables of the study. Therefore, the sampling is purposive. The study set 2015 as a base year to make a balanced panel data. Therefore, this research has selected all insurance companies that traded in the Nepal Stock Exchange, covering 7-year data from 2015 to 2021. The study has used secondary data from the concerned insurance companies' annual reports, the Nepal Stock Exchange (NEPSE) publications, and the Securities Board of Nepal (SEBON). A total of 154 observations consisting of 7-year time series data from 22 cross-sections,

This study uses equity return as the dependent variable. The equity return is calculated as the rate of change in the market price of common stock (as a capital gain) plus the Dividend Yield (D_{it}/P_{it-1}) of insurance companies during the period "t" over the period "t-1". The systematic risk used as an independent variable is proxied by the stock beta, the ratio of excess stock return to excess market return (Sharpe, 1964), where the market return is calculated as the rate of change in the NEPSE index during the year "t" over the year "t-1". Another predictor of equity return used in this study is net investment rate. Net investment refers to the net value of property, plant, and equipment after depreciation for each year (Clementi & Palazzo, 2019; Obreja, 2015; Zhang, 2017). The firm size used as another predictor of the equity return is proxied by the natural logarithm of the total market capitalization of the respective sample companies following Banz (1981). As in many other studies, the market-to-book ratio used as an independent variable is calculated as the ratio of the market value of equity to the book value of equity (Graham & Dodd, 1962). As Chen et al. (1986) suggested, the earning yield calculated as the ratio of earnings per share to market price per share is also used as a predictor of equity return. Following Carlson et al. (2004), the ratio of net premium to policyholders' surplus (as insurance leverage) is used as a variable predicting equity return. Table 1 shows the expected sign of each of the predictors.

Table 1
Variables and their expected signs

Variables	Expected Sign	Backing literature
Investment rate	-	High-investment firms have low expected returns (Carlson et al., 2004; Cooper, 2006; Gala, 2006; Clementi & Palazzo, 2019; Obreja, 2015; Zhang, 2017).
Beta	+	Increased systematic risk also increased equity returns (Fama & French, 1992; Cummins and Harrington, 1988).
Firm size	-/+	The larger size of insurers earns lower returns due to larger diversified portfolios exposed to lower risk (Fama & French, 1992; Gandhi & Lustig, 2015; Cummins and Weiss, 2014). However, Gomes et al. (2003), Pradhan (2003), and Gautam (2016) show a positive relationship.
Book-to-market equity	-	A negative relation exists between stock return and the B/M ratio (Graham & Dodd, 1940; Fama & French, 19922; Gautam, 2016).
Earnings yield	+	Hou et al. (2015) and Adrian et al. (2015) used to measure future returns by using ROE and claim that financial sectors are more able to adjust risk than non-financial sectors.
leverage	-	Adrian et al. (2015) documented the risk-taking capacity indicated by leverage.

The Baseline Model

The following baseline model was developed to explain the extent of influence of firm-specific fundamental variables as independent variables on the cross-section of equity returns as the dependent variable. Simple and multiple regression analyses were performed by regressing equity returns on stock beta and each of the firm characteristics, namely investment rate, size of the firm, book-to-market equity, leverage, and earnings yield.

$$\mathbf{Rit = \beta_0 + \beta_1 B_{it} + \beta_2 INVR_{it} + \beta_3 SIZE_{it} + \beta_4 BM_{it} + \beta_5 EY_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \ldots\ldots(1)}$$

where Rit = Returns on equity of firm 'i' for 't' time period.

B_{it} = systematic risk measured by the beta coefficient of firm' i' for 't' time.

$INVR_{it}$ = Investment rate of firm' i' for 't' time.
$SIZE_{it}$ = size of the firm 'i' for 't' time.
BM_{it} = Book-to-market equity ratio of firm' i' for 't' time.
EY_{it} = Earnings yield of firm' i' for 't' time.
LEV_{it} = Insurance leverage of firm' i' for 't' time.
ε_{it} = Random shock of the firm 'i' for 't' time period.

4. RESULTS

Descriptive Analysis of Variables

Table 2 presents the descriptive statistics of each firm-specific variable from pooled data during seven years of the study period. These descriptive statistics consist of mean, standard deviation, skewness, minimum, and maximum values of each variable of 22 insurance companies with 154 observations. During the study period, the sample firms' average rate of return on equity was 0.69 percent. Data showed high fluctuation in equity return ranging from – 0.79% to 7.19% with a 1.40 standard deviation. The average beta, a proxy of systematic risk, is 2.24, which fluctuated between -6.98 and 7.33, indicating that insurance companies have a higher risk than the average firm listed in NEPSE. A beta of more than 1 indicates risky stocks. Another important firm-specific variable is the investment rate. The average investment rate of insurance companies is 28 percent, varying from negative 21 percent to 288 percent with a 55 percent standard deviation. Skewness 3.22 shows that almost all data are normally distributed. Moreover, the size of insurance companies significantly differs among industries because it varies from 5.75 to 11.15 with a 0.85 standard deviation. Furthermore, data on firm size is negatively skewed. Negative skewness reveals that most companies' size is below average.

Table 2
Descriptive statistics of variables (N= 154)

Variables	Mean	Max	Min	Std. Dev.	Skewness
Equity return (R)	0.69	7.19	-0.79	1.40	1.76
Systematic risk (B)	2.24	7.33	-6.98	1.79	-0.81
Investment rate (INVR)	0.28	2.88	-0.21	0.55	2.70
Firm size (SIZE)	9.27	11.15	5.75	0.85	-0.59
Earning yield (EY)	0.23	3.43	-0.03	0.49	3.65
Book to market ratio (BM)	0.79	6.93	0.01	1.44	2.91
leverage (LEV)	1.59	9.29	0.13	1.66	2.80

Note. The stock return consists of dividend yield and capital gain yield measured in percentage. Systematic risk is measured by the beta coefficient calculated using CAPM theory, and the investment rate is a percentage change in net fixed assets. The size of the firm is the natural logarithm of market capitalization, BM ratio is the ratio of the book value of equity to the market value of equity, earning yield is the ratio of net income after tax and total market capitalization, and leverage is the ratio of net premium to surplus of each insurance company.

Similarly, the average earning yield of the companies during the study period accounted for 23 percent, with a standard deviation of 49 percent. Wider variation in earnings yield of the firms attributed to wider negative to positive earnings yield. On average, leverage is 1.59 times with a 1.66 times standard deviation, and it highly fluctuates from 0.13 to 9.29. The lower ratio of the company indicates the greater the company's financial strength. On average, there is average financial strength of insurance companies because insurance regulation rules in the USA provide that it should be 1 to 3 times. The average B/M ratio is 0.79 with 1.44 times standard deviation and high fluctuation ranging from 0.01 to 6.93 with 2.91 positive skewness, showing high financial leverage.

Correlation Analysis

This section adopted Pearson correlation analysis to examine the relationship between stock return and stock beta, investment rate, size of the firm, B/M ratio, earning yield, and leverage. Table 3 reveals the correlation among firm-specific variables of insurance companies during 2015-2021.

Table 3

Correlation analysis

	R	β	*INVR*	SIZE	BM	EY	LEV
R	1.000						
Β	0.278*	1.000					
INVR	-0.117	-0.036	1.000				
SIZE	-0.115	-0.202**	0.058	1.000			
BM	-0.061	0.285*	-0.120	-0.619*	1.000		
EY	0.100	0.316*	-0.087	-0.518*	0.751*	1.000	
LEV	-0.077	-0.232*	-0.055	0.235*	0.030	-0.103	1.000

Note: * * means the correlation is significant at 5%
* means the correlation is significant at 1%

Table 3 indicates that equity returns positively and significantly correlated to systematic risk measured by stock beta. It means the return on equity increases with increased beta. However, stock return is negatively related to investment rate, size, B/M ratio, and leverage, but it is a very weak relationship and not statistically significant. As expected, stock return is positively related to earning yield, but the correlation is not statistically significant. Stock return and size of the firm negatively correlated, which is the opposite of the expected relation. The negative correlation between stock return and B/M ratio & leverage also negatively correlated with the equity return.

Regression Analysis

The panel regression model has been used to analyze the impact of firm-specific variables, stock beta, investment rate, size of the firm, B/M ratio, earning yield, and insurance leverage on equity return.

The appropriate regression model among POLS (pooled ordinary least square), FEM (fixed-effect model), and REM (random-effect model) is selected by using the Breusch-Pagan test. The null hypothesis of this test is *'POLS is more appropriate than FEM/REM.'* Table 4 (*Panel 1*) indicates that the Breusch-Pagan test statics are significant ($p<0.05$) and reject the null hypothesis, meaning POLS is inappropriate. Therefore, the Fixed Effect or Random Effect model is more suitable for this data. Moreover, the Breusch- Pagan period is also significant ($p < 0.05$), indicating the two-way random effect or fixed effect model is more appropriate in this data because there is also a time effect on intercept.

Table 4

Test for a Better Model

Panel 1: Lagrange Multiplier Test			
Null: No Random effect	Cross-section (One-sided)	Period (One-sided)	Both
Breusch-Pagan	5.482769	473.2645	478.7473
	(0.0192)	(0.0000)	(0.0000)
Panel 2: Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.669615	6	0.8490

Furthermore, the study used the Hausman Test to confirm which panel regression model is more appropriate for data between fixed and random effect models. The null hypothesis of the Hausman Test is that the *'Random-Effect Model is most appropriate for panel regression'* (Chmelarova, 2007). Table 4 (*Panel 2*) reveals the Hausman test for endogeneity. The cross-section Chi-square statistic of the Hausman test is insignificant ($p > 0.05$), which means the Random-Effect Model is the most appropriate method for this data. After selecting the Random-Effect two-way cross-sectional regression model, the following section deals with regression results using the baseline model and six other model specifications to estimate the relationship of equity returns with firm-specific variables.

Table 5 reveals the coefficient of independent variable(s) with t-statistics in parenthesis. Moreover, it also presents the F-value to measure the goodness of fit of the used model, the coefficient of determination (R^2) that explains the explanatory power of regressor(s), and the Durbin-Wastson (DW) test to detect serial autocorrelation. In this study, cross-sectional data have been ordered over time, so there is a need to detect the problem of autocorrelation.

The baseline model (7) reveals the model is statistically significant at a 1 percent level of significance (F-statistics = 5.37, $p < 0.001$). The overall regression model fits the data well, meaning that firm-specific variables can predict the stock return. The coefficient of determination is 18 percent, which measures the proportion of variance in the stock return that can be explained by the stock beta, investment rate, B/M ratio, size of the firm, earning yield, and leverage.

Equity returns have a significant positive relationship with systematic risk measured by beta ($\beta = 2.69$, $p < 0.01$). It means an increase in systematic risk leads to a rise in equity return. This result is consistent with the research of Fama and French (1992) and supported by previous findings of Cummins and Harrington (1988), who studied in the insurance area. Investment rates negatively but insignificantly influence equity returns ($\beta = -0.32$, $p > 0.05$). The result is consistent with the research of Carlson et al. (2004), Zhang (2017), and Clementi and Palazzo (2019).

Similarly, leverage positively but insignificantly influences equity returns ($\beta = 0.075$, $p > 0.05$). This positive relationship between leverage and equity returns result is also supported by the research of Adrian et al. (2015) and Marfe (2017). According to them, leverage plays a prominent and significant positive role in shaping the cross-sectional volatility of returns on equity. The size of the insurance company has a negative and significant influence on equity returns ($\beta = -0.41$, $p < 0.05$). It means that the higher the size of the insurance company, the lower the equity returns, showing a diseconomies of scale. The finding of this study is consistent with the research of Fama and French (1992), Gandhi and Lustig (2015), and Cummins and Weiss (2014). However, this result is inconsistent with the research of Gomes et al. (2003), Pradhan (2003), and Gautam (2016) because they found firm size has a positive influence on equity returns.

Table 5

Panel EGLS (Two-way random effects)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
C	0.35	0.58	0.30	0.67	0.41	-0.10	4.17*
	(0.76)	(1.15)	(1.12)	(1.25)	(1.46)	(-0.09)	(2.69)
B	0.15*	---	0.14*	---	0.13*	0.13*	0.24*
	(3.90)		(3.34)		(3.35)	(3.31)	(3.81)
INVR	---	---	---	---	---	-0.11	-0.32
						(-0.79)	(- 1.66)
SIZE	---	---	---	---	---	0.06	-0.41**
						(0.47)	(-2.50)
BM.	---	---	---	-0.21**	-0.21**	-0.19**	-0.51*
				(-2.16)	(-2.24)	(-1.99)	(-3.95)
EY	---	0.48*	0.35**	0.78*	0.67*	0.67*	0.71**
		(3.03)	(2.15)	(3.72)	(3.12)	(3.14)	(2.21)
LEV	---	---	---		---	---	0.075
							(1.08)
R-squared	0.09	0.06	0.12	0.09	0.14	0.15	0.18
F-statistic	15.23	9.19	9.87	7.01	8.46	5.31	5.37
Prob (F-statistic)	0.000	0.002	0.000	0.001	0.000	0.000	0.000
Durbin-Watson	2.13	2.06	2.32	2.02	2.24	2.19	2.42

Note: The dependent variable is Equity returns. The values in parentheses are the t-values.

* means the coefficient is significant at 1%.

* * means the coefficient is significant at 5%.

Similarly, the book-to-market value ratio negatively influences equity returns ($\beta = -0.51$, $p < 0.01$). It means the companies have a higher BM ratio, producing lower equity returns. The finding of this study is consistent with the research of Fama and French (1992) and Gautam (2016). Earning yield has a positive and statistically significant influence on equity returns ($\beta = 0.71$, $p < 0.05$). It means an increase in earning yield that also leads to an increase in equity returns. The finding of this study is consistent with the research of Both Hou et al. (2015) and Adrian et al. (2015).

5. DISCUSSIONS

A beta coefficient of systematic risk (beta) of 0.24 indicates a change in beta coefficient by 1 unit that leads to a change in equity returns by 0.24 units when all other independent variables are held constant. These results are also supported by model (1), which shows a statistically significant positive relationship between equity return and the beta coefficient. Generally, there is a positive relationship between stock return and stock beta. Therefore, this is consistent with the CAPM theory. The study of Black et al. (1972) and Fama and MacBeth (1973) also supported the CAPM theory. The study of Fama and French (1992) documented an inconsistent or flat relationship between systematic risk and equity return. Several empirical evidence, such as Hawawini et al. (1983) in the USA and Chen et al. (1986), reveals that the stock return is positively related to beta. Similarly, Calvet and Lefoll's (1989) study in Canada and Ostermark's (1991) study in Finland and Sweden revealed either no or inconsistent relationship between stock return and beta. Fabozzi and Francis's (1977) study concluded that downside risk, measured by the beta reflecting the bear market, is a more valid measure of portfolio risk than the single beta of the standard version of the model. Moreover, Theriou et al. (2010) found the evidence tends to support the significant positive relationship increased market and a significant negative relationship decreased market.

As expected, there is a negative relationship between stock return and investment rate, but statistically, it is insignificant. The result is also supported by Clementi and Palazzo (2015). The study found that the investment rate is negatively associated with subsequent equity returns because the firms with high investments increased their capital to achieve a recently grown idiosyncratic productivity. In addition, the firm size has a negative and statistically significant influence on stock return. The result is consistent with the research of Banz (1981), Keim (1983), and Donangelo et al. (2018). The study shows a negative relationship between size and average return, with a huge cross-sectional fluctuation in risk. However, the result does not support the theory, which says that the large firm can achieve the goal of the firm to maximize shareholders' wealth. This result is also supported by research by Gomes et al. (2003), Pradhan (2003), and Gautam (2016).

There is a negative relationship between stock return and the B/M ratio of the firm, and statistically significant (in the models 4, 5, 6, and 7). As expected, there is a negative relationship between the stock return and the B/M ratio of the firm. This result was also supported by Graham and Dodd (1940), Fama and French (1992), and Gautam (2016). However, this finding is not consistent with the research of Fama and French (2008) that there is a significant positive coefficient of book-to-market equity, implying that higher book-to-market stocks have higher returns than lower book-to-market stocks. There is a positive relationship between stock return and the earning yield of the insurance companies, and the relationship is statistically significant at a 1 percent level of significance. The result was also supported by research by Hou et al. (2015) and Adrian et al. (2015). However, the result contradicts Akedeniz et al. (2000). The study shows earnings yield measured by EPS to MPS ratio does not retain significant explanatory power.

6. CONCLUSIONS

Based on the findings of the study, it concluded that the individual effects of the insurance companies are randomly distributed, and equity returns of insurance companies that are listed in NEPSE are positively affected by systematic risk, earning yield, and negatively affected by investment rate, size, and B/M ratio. Moreover, the Capital Assets Pricing Model explains the equity return of insurance companies in Nepal. CAPM holds in the capital market in the insurance sector. In addition, it concluded that the insurance companies with small size in terms of market capitalization have higher equity returns, and the cheaper company has a low level of equity returns. Moreover, insurance companies' earning yield or earnings after tax leads to an increased return on equity. However, leverage does influence the equity returns of insurance companies in Nepal.

7. POLICY IMPLICATIONS

The results from this study have direct implications for investors of insurance companies, policymaker companies, regulators, and further researchers. The study shows that the cross-sectional equity returns are explained by beta, size, BM ratio, and earning yield. Therefore, the finding from this study is necessary for investors who want to invest in the common stock of insurance companies. Before making an investment decision, investors can examine the firm's B/M ratio and size because these factors negatively affect stock returns. Similarly, investors can make better investment decisions knowing the effect of other firm-specific variables, book-to-market ratio and stock beta, used in this study. Therefore, analysts should consider stock investment alternatives based on other risk factors besides the market risk. The finding from this study is also essential to concerned insurance companies. If they want to emphasize maximizing shareholders' wealth in the market, merger, and acquisition is not a solution that only increases paid-up capital, and this leads to decreased equity returns due to an increase in the B/M ratio and size of the firm.

8. LIMITATIONS AND FURTHER RESEARCH

This study uses annual data to calculate stock and market returns. However, yearly stock price data suffer from high deviations and thus inflate the annual return. Therefore, future researchers can consider daily, weekly, or monthly data to compute equity returns. The model used in this study only considers the linear relationship between stock returns and explanatory variables. In emerging markets, it is expected that there exists non-linearity. Therefore, future research is recommended to apply non-linear models to test the predictive power of explanatory variables. This research uses only firm-specific variables. Future researchers could also use the macroeconomic variables as well. This study considers only the insurance sector; future research can be extended to other sectors of the economy.

Acknowledgments

We are thankful to the anonymous peer reviewers for their valuable comments. We are also grateful to the editorial board for copy editing.

Funding

There was no funding or sponsorship for the research.

Declaration of Conflict of Interest

We declare no conflict of interest in the paper's publication.

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