



Fundamental, Stock Market, and Macroeconomic Factors on Equity Premium – Evidence from Indonesia Stock Exchange

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Abstract

Purpose: The equity premium influences investors' investing decisions, as well as their savings, spending habits, and portfolio allocation between risk-free and risky assets. Researchers have used different economic variables as potential predictors of the equity premium. However, research on determinants of equity risk premiums in emerging markets is less studied. This study aims at investigating the influence of fundamental (debt/equity ratio, dividend pay-out ratio), stock market (beta, stocks price volatility, liquidity), and macroeconomics factors (inflation and exchange rate) on the equity premium in Indonesia.

Methodology: Data was collected from a 213 sample of stocks listed in the Indonesia Stock Market for January 2007 to December 2014. Data panel regression was performed to evaluate the impact of fundamental and stock market factors, measured in 16 semesters. Time-series regression was conducted to assess the impact of macroeconomic factors, measured monthly.

Findings: We find that debt ratio, dividend ratio, beta, stock prices volatility, and exchange rate are positively related to the equity premium while inflation had a negative relationship. Stocks liquidity did not play a significant role in explaining the equity premium.

Originality/Value: This study offers insights for investors to determine reasonable returns based on information about the significant determinants in the Indonesia Stock Market.

Introduction

The equity risk premium has attracted attention in financial market literature because it provides critical information in portfolio management, corporate finance, and valuation. Equity risk premium (henceforth, equity premium) refers to the difference between excess return that investing in the stock market provides and risk-free return. According to the prospect theory (Kahneman & Tversky, 1979), people with loss aversion tend to prefer avoiding losses to acquiring equivalent gains. In financial markets, loss aversion explains why financial investors choose to sell higher-performing equities over lower-performing. Existing research suggests that investors behave asymmetrically: bad news has a larger impact than good news on conditional returns and volatilities for stocks (Conrad et al., 2002), bonds (Hautsch & Hess, 2002), and exchange rates (Anderson et al., 2003). Mondria et al., (2021) also observed that US investors are more likely to process more bad news rather than good news in foreign markets located in Europe and Asia. Since stocks frequently perform poorly, a high premium is required to persuade investors to hold stocks (Yang, 2019).

Mehra & Prescott, (1985) introduced the equity premium puzzle when studying USA market stock from 1889-1978 and found that the historical equity premium was about 18%, much larger than the average risk-free return of 0.87. This finding was too large to be explained by a traditional theoretical framework of the Capital Asset Pricing Model (CAPM) by Sharpe, (1964). In the years since scholars have studied its phenomenon in the same market stock using different ranges of time (e.g., Fama & French, (1988); Graham & Harvey, (2005); Weigand & Irons, (2012)), and have also observed a similar phenomenon in other developed countries (UK, Japan, Germany, and French) (Cheng, 1995; Dimson et al., 2008; Harbula, 2011). Furthermore, several studies have found that developing or emerging markets have higher equity premiums than developed markets (Donadelli & Prospero, 2011; Salomons & Grootveld, 2003; Shackman, 2006; van Ewijk et al., 2010). Studies in the Indonesia Stock Market for the period 2007 through 2015 showed that the average historical equity premium was 26.0%, far larger than the average risk-free return of 7.2%. A

study among six major South East Asian countries, Villalobos, (2017) notes that the existence of the premium puzzle is only proven to have in Indonesia using the calibration method. (Damodaran, 2020) points out that investors who invest in emerging markets require an additional risk premium called Country Risk Premium (CPR) because of the higher volatility of those markets.

Many research has been attempted to explain this puzzle, for example, statistical artifacts, myopic loss aversion, taxes, and disaster insurance (Damodaran, 2020), however, the results remain unclear. Furthermore, the use of only one variable beta in the traditional CAPM does not provide a sufficient explanation about the returns of a portfolio or stock with the returns of the market as a whole. Accordingly, (Fama & French, 1993) developed the three-factors model, by including two new factors: the outperformance of small versus big companies and the outperformance of high book/market versus low book/market companies. In 2015, Fama & French, (2015) extended the model, adding profitability and investment, for better accuracy of CAPM in identifying abnormal return.

In addition to the previous models, the same authors (Fama & French, 1988) also forecasted the expected stock return from the dividend yield. Other researchers have also studied other potential variables such as debt (Allayannis et al., 2003; Bhandari, 1988), stock price volatility (Brennan & Xia, 2001; Zhao, 2008), and stock liquidity (Bekaert et al., 2007; Chordia et al., 2001; Jones, 2002; Jun et al., 2003).

Since the perceived aggregate level of risk in an economy is a function of financial and macroeconomic variables, thus macroeconomic variables help to predict the equity premium. Buncic & Tischhauser, (2017) have demonstrated that forecasts of the equity premium can be further improved by incorporating broader macroeconomic data into the information set. Numerous studies have examined to which extent macroeconomic factors explained equity premium, for example, inflation (Bhar & Malliaris, 2011; Gowing, 2009), Growth Domestic Product (Faugère & Van Erlach, 2006), foreign exchange rate (Hajilee & Al Nasser, 2014; Mun, 2004; Yuchen Wang et al., 2013), disasters (Julliard & Ghosh, 2012), global crisis (Graham & Harvey, 2005), and world oil price (Yudong Wang et al., 2019).

In his latest report, Damodaran (2020) updated the main determinants of the equity risk premium, including macroeconomic fluctuation, investor risk aversion, and behavioral components. Overall, these studies highlight the need for exploring more determinants factors that may influence the equity premium. However, so far, most aforementioned studies have been conducted in developed markets. Little attention has been paid to investigating the determinants of equity premium in emerging markets, particularly in Indonesia, the largest economy in Southeast Asia and within the top five emerging markets of the Asia Pacific region. Among very few studies in Indonesia, for example (Manurung, 1997), examined only one factor, stock price volatility in a sample of 160 companies from January 1989 to July 1993. He found a positive impact but insignificant of stocks volatility on equity. A recent study comparing Indonesia and Sri Lanka markets also did not find a significant influence of the conditional volatility on risk premium in both countries (Morawakage et al., 2019). Because investors could not rely on one factor, in this study, we propose a broader list of predictors that include fundamental factors: debt to asset ratio, dividend payout ratio; stock market variables: beta stock price volatility, liquidity; and macroeconomic factors: inflation, exchange rate.

Black (1976) has argued that a stock price drop increases the debt/equity ratio (DER), which makes the stock riskier and raises the equity risk premium. The dividend was considered as the main fundamental variable that explains the equity premium best (Fama & French, 2002). Beta is a statistical measure of a stock's relative volatility to that of the overall market in which can be interpreted as a measure of riskiness. The classical intertemporal CAPM model of (Merton, 1973, 1980) indicates that risk premiums are positively related to market volatility. Moreover, Jones, (2002) provided evidence that spread and turnover as measures of liquidity could predict stock returns one year ahead.

In addition to fundamental and stock market factors, macroeconomic variables such as inflation have also significant determinants to stock market returns (Bhar & Malliaris, 2011; Damodaran, 2020; Yuchen Wang et al., 2013). Meanwhile, as a critic of the CAPM which uses a single index risk model proxy to capture the true

magnitude of risk in the market, Ross, (1976) introduced arbitrage pricing theory (APT). Through a linear combination of several macroeconomic variables, APT anticipates the relationship between portfolio returns and single asset returns. Groenewold & Fraser, (1997) explored the viability of the APT in the Australian Stock Exchange and found that the inflation rate seems to be the most prevalent, compared to interest rates and employment, in explaining market risk premium. Furthermore, Yuchen Wang et al., (2013) suggested that the foreign exchange market indicates a variety of economic fundamentals that can be used to predict equity premium although these fundamentals may not be fully reflected by available macroeconomic factors.

Regardless of the market type as advanced, emerging, or frontier, the empirical evidence about the equity premium predictability is still is not persuasive and conclusive (Morawakage et al., 2019). Therefore, this study aims to expand research from developed markets about independent variables that may explain the equity premium in an emerging market. We proposed a wider list of factors including stock market (DER, dividend, beta, stock price volatility, liquidity) and macroeconomic variables (inflation and foreign exchange rate). This study offers some important insights from both theoretical and practical standpoints. Developing a new model for equity risk premium prediction using stock market and macroeconomic factors will extend the CAPM model. Knowledge about Indonesia-specific market return predictability may help investors to determine reasonable returns based on information about the predictors. Our current study can narrow down the uncertainty about the equity premium and provide benchmark values that are useful for economists, policymakers, and investors.

The remainder of this paper is organized into six sections. Section two reviews the existing literature on the relationship between each proposed determinant and the equity premium, followed by hypothesis formulation. Section three describes the method employed for data collection. Section four presents the findings of the research as analyzed by data panel and time-series analysis. Section five discussed

our findings in light of extant literature. The final section concludes the main findings and provides implications as well as study limitations.

Literature Review

How investors respond to a risk-return trade-off is determined by how they interpret it. When investors are more risk-averse, they demand a higher equity premium. The equity premium is a key issue in corporate finance and financial economics. It helps to determine asset allocations and set portfolio return expectations. Accordingly, the predictability of the equity premium is of great importance to researchers who have been exploring the effect of various factors to estimate the future equity premium for many decades. There are several determinants or factors which could be used by investors and other stakeholders in estimating the equity premium.

In the pecking order theory, Myers, (1984) reveals that firms prefer internal to external financing. If the retained earnings is not feasible, the firms seek external funds by better off issuing debt than equity securities. The issuance of equity is the last alternative source of funding. Adding debt in the capital cost structure increases the risk on the company's profitability (Allayannis et al., 2003; González et al., 2013). Bhandari, (1988) has shown that a natural proxy for the risk of common equity of a firm is that firm's debt/equity ratio (DER) which is an important indicator for risk management, strengthening the prospect theory by (Kahneman & Tversky, 1979). DER is a leverage ratio that indicates the percentage of assets that are being financed with debt. An increase in debt to the asset is associated with an increased equity premium as stock risk and vice versa. The common equity of a higher DER firm always has higher risk since the firm-level risk may vary, DER is expected to be positively correlated to the risk of common equity across firms (Bhandari, 1988).

Debt/Equity Ratio (DER)

Furthermore, in their meta-analysis, Ewijk (2010) summarized that the equity premium depends on the risk profile of the companies, and also on the equity-debt composition in financing the firm. Higher risk and higher leverage imply higher returns on equity. In the French security market (Morel, 2001) observed the important role of debt and capital intensiveness in predicting future excess return.

However, (Lyle, 2017) found that a too low or too high DER corresponded to a smaller risk-adjusted return, suggesting that there is a parabolic relationship between DER and the corresponding alpha. Therefore, we propose to use DER as an additional variable to explain the equity premium which leads us to the following hypothesis

Hypothesis 1 (H1): Debt/Equity Ratio (DER) has a positive influence on the equity premium.

Dividend Payout Ratio

Dividend stocks are associated with retained earnings and are vulnerable to rising interest rates. They become less appealing as interest rates rise, relative to the risk-free rate of return offered by government securities. Both high dividend yield and dividend payout ratio imply that assets have high expected returns. Since Fama & French, (1988) first raised the issue of utilizing dividend yield (ratio) to predict equity premium, the dividend-price ratio and dividend yield have been two of the most prominent predictors (Kellard et al., 2010). Using a graphical approach, Goyal & Welch, (2003) found inconsistent results between dividend payout ratio and dividend yield in predicting equity premium. Although both dividends could be used to predict equity premium, the dividend ratio had only a mild correlation in post-WW2. Applying the same approach, Kellard et al., (2010) demonstrated the more predictive ability of dividend ratio in the UK market in comparison to the US market (Goyal & Welch, 2003). A significant relationship was also observed by Bhar & Malliaris, (2011), but in the negative direction. Following (Fama & French, 2002), they reported that high dividends significantly reduced net returns across all volatility regimes. In this study, we focus on the dividend payout ratio which leads to the following hypothesis:

Hypothesis 2 (H2): Dividend payout ratio has a positive impact on the equity premium

Beta Stocks

According to the CAPM theory, the market risk is measured with a beta (β), a measurement of the volatility of stock returns relative to the overall market, and can

help determine the rate of return to expect relative to perceived risk (Sharpe, 1964). Beta indicates a company's susceptibility to change in systematic factors that cannot be diversified away such as inflation, government monetary policy, and world oil prices. The relationship between beta and equity premium is a reworking of the CAPM formula which can be rewritten as Equity Risk Premium = $\beta (R_m - R_f)$, where R_m is an expected return of the market and R_f is a risk-free rate of return.

Amenc et al., (2019) have argued that beta has several main hidden risks that can be important drivers of short-term risk performance, containing certain dangers such as market risk bias, macroeconomic risks, and sector/geographical risks. A high-beta stock is considered a more volatile stock and sensitive to price fluctuation which then possesses high risk and yields a high expected rate of return (Mehra, 2006). Accordingly, we propose the following hypothesis

Hypothesis 3 (H3): Beta has a positive impact on the equity premium.

Stock Price Volatility

Stock price volatility refers to the rate at which their prices fluctuate over a particular time period. Higher volatility corresponds to a greater tendency of market decline and higher risk. Information on stock market volatility helps investors in predicting future variations to align their portfolios with the associated expected returns. Using a CAPM theory Sharpe, (1964) and Black, (1976) suggest a positive linear relationship between the risk or the volatility and expected returns of securities. Moreover, Shiller, (1989) is the first scholar who explored the sources of volatility and argued that they cover both economic fundamentals and changes in social psychology or behavioral variables. Furthermore, Shiller, (2000) suggested that the volatility of stock prices could be explained from a behavioral aspect as excessive enthusiasm in the 1996-2000 period in the American capital market. In more recent work, Bhar & Malliaris, (2011) explained the US equity premium across three volatility regimes by investigating fundamental, behavioral (i.e., momentum), and macroeconomic (i.e., unemployment and inflation) factors. Higher momentum contributes to higher returns across all volatility regimes.

Studies in developed markets have identified the higher stock prices volatility related to increased equity risk premium (Brennan & Xia, 2001; L. Chen et al., 2009; Zhao, 2008). However, higher equity premiums in those markets, where volatility is lower than in emerging and frontier markets, are difficult to justify (Michelfelder & Pandya, 2005). In emerging countries, investors who invest in emerging markets must pay an additional risk premium known as the Country Risk Premium (CPR) since those markets are more volatile (Damodaran, 2020). A prior study in Indonesia found a positive relationship between stock volatility and equity premium in Indonesia (Manurung, 1997), however, it did not appear to be significantly from zero. To confirm this finding, we propose the following hypothesis:

Hypothesis 4 (H4): Stock price volatility has a positive effect on the equity premium.

Stocks Liquidity

The liquidity of stock refers to the degree to which shares of a stock can be quickly traded without having a significant impact on the stock price. Liquidity can be seen through the activity of trading volume which describes the supply and demand in the stock market and manifests investor behavior. Portfolios with high trading volume indicate greater investor's interest and tend to be followed by high returns, and vice versa (Chordia et al., 2001; Pathirawasam, 2011). Jones, (2002) presented evidence in the US market that liquidity plays a more significant role in explaining equity premium than traditional variables such as the dividend yield. Similarly, Jun et al., (2003) reported the positive correlation between stock returns and market liquidity in 27 emerging equity markets which is consistent with the findings in developed markets. Because individual stocks whose trading volume is usually large (small) over a day or a week, are likely to experience large (small) returns over the subsequent month, then the following hypothesis is proposed:

Hypothesis 5 (H5): Liquidity has a positive impact on the equity premium

Inflation Rate

According to the structural theory, the inflation rate in developing countries is contributed by internal factors because their economic structures generally depend on agriculture. This theory explains that aggregate output in emerging countries, particularly in the food-grains sector, has not been expanding fast enough to keep up with the increase in demand caused by increased investment spending and money supply. In addition to food price, from an aggregate demand perspective, (Setiartiti & Hapsari, 2019) showed that other factors such as high dependency on goods imports, price control, output gap, and interest rate, contributed to Indonesia's inflation rate. Meanwhile, the relationship between the level of inflation and equity risk premiums showed mixed results (Damodaran, 2020). Some scholars (e.g., (Gowing, 2009; Groenewold & Fraser, 1997; Kyriacou et al., 2006; Yuchen Wang et al., 2013) argued that inflation news is a crucial factor to determine risk aversion and risk premiums. They provided evidence that equity risk premiums tend to increase if inflation is higher than anticipated and decrease when it is lower than expected. Furthermore, in an economy with predictable inflation, interest rates, and economic growth, the equity premium should be lower than in one where these variables are unstable (Damodaran, 2020). Therefore, a hypothesis is formulated.

Hypothesis 6 (H6): Inflation rate has a positive impact on the equity premium

Exchange Rate

Not as any other macroeconomic factors, a foreign exchange rate has been paid less attention in equity premium studies. A foreign exchange rate reflects economic fundamentals and has a connection with the stock market (Yuchen Wang et al., 2013) which may provide useful information on predicting equity risk premium of the stock market through this connection. A prior study (Hollstein et al., 2020) indicated that exchange rate changes have an adverse effect on the return predictability. Depreciated exchange rates increased the operating cost of issuers, leading to higher business risk and equity premium (Yuchen Wang et al., 2013). Furthermore, Mun, (2004) presented evidence that exchange rate fluctuations are more strongly

correlated with the local equity market returns than the US market returns. A later study by Hajilee & Al Nasser, (2014) reports that there is a significant linkage between exchange rates and stock returns in ten of twelve emerging countries. However, no previous study has investigated whether foreign exchange rate Indonesia Rupiahs (IDR) to US Dollars (USD) can provide additional information for predicting equity risk premium. This leads us to the following hypothesis

Hypothesis 7 (H7): IDR Exchange rate depreciated has a positive impact on the equity premium

Research Methodology

Fundamental and stock market data were retrieved per semester (6-months) for the period 2007-2014 (total 16 semesters) from the Indonesian Stock Exchange (IDX) website. Purposive or judgmental sampling with specific sample selection criteria was employed: (1) listed in Indonesia Stock Exchange from January 2007 to December 2014; (2) neither insurance nor finance stocks; (3) the complete financial statement data were available for the study period. A total of 346 stocks, we excluded 133 samples (26 banks, 11 insurances, and 96 due to incomplete financial statement reports), resulting in the final 213 stocks ($N=3,408$). Time-series data for monthly inflation and exchange rates for Indonesian Rupiah (IDR) to USD were collected from Bank Indonesia over 2007-2015 ($N=108$).

Descriptive analysis was performed to present average, standard deviation, minimum, and maximum. Data panel regression was conducted to evaluate the influence of debt, beta, dividend, volatility, and liquidity on equity premium (EP) with the general equation is presented in equation (1). Table 1 summarizes the formula of each variable. Each variable was then computed as an aggregate value for the period t . Data panel regression was performed using EViews 9, and Time-series was analyzed by SPSS 20.0. The significance level was set at 0.05.

$$ERP_{it} = \alpha + \beta_1 DEBT_{i,t} + \beta_2 BETA_{it} + \beta_3 DIV_{it} + \beta_4 VOT_{it} + \beta_5 LIQ_{it} + \varepsilon \quad (1)$$

where:

ERP = Equity Risk Premium for the stock i at the period (semester) t

α = constant

$\beta_{1, 2, \dots, 5}$ = coefficient of independent variable

DEBT = debt/equity ratio (DER)

BETA = beta of stock

VOT = stock prices volatility

LIQ = stock liquidity

ε = residual

In data panel regression, there are three approaches for estimating the model: common effect or pooled least square, fixed effect, and random effort (Hsiao & Yan, 2003). To select the most appropriate model, we employed the Chow test, Hausmann test, and Lagrange Multiplier Test. Afterward, a selected data panel regression model is evaluated using several classical tests to yield the best linear unbiased estimator (BLUE). The F test was used to examine the goodness of fit, whether the independent variables jointly influenced the dependent variable. R^2 was used to indicate the magnitude of the independent variable ability simultaneously explains all the variability of the dependent variable around its mean. To determine the independent variables that have an individually significant effect on the dependent, we performed the t -test.

Empirical modeling of time series data was performed to examine the influence of inflation and exchange rate of Indonesian Rupiah (IDR) to USD on equity premium using 6-monthly (semester) data from January 2007-December 2014, $N = 108$. A general formula for the time-series model is shown in equation 2.

Table 1. Summary of Measured Variables

Variable	Measure	Note
Equity Risk Premium (ERP)	$ERP_{it} = R_{it} - Rf_t$ <p>and</p> $R_{it} = \frac{P_t - P_{t-1}}{P_t} + \frac{D_t}{P_{t-1}}$	<p>R_{it} = Return stock i for the period t</p> <p>Rf_t = Return risk-free rate for the period t, proxied by monthly Indonesia Government bond rate</p> <p>ERP_{it} = Equity Risk Premium of company i for the period t</p> <p>P_t = Stock price of the company i at the end of period t</p> <p>P_{t-1} = Stock price of the company i at the end of period $t-1$</p> <p>D_t = Dividend paid of stock i for the period t</p>
Debt to Equity Ratio (DER)	$DER_{it} = \frac{Debt_{it}}{TA_{it}}$	<p>$Debt_{it}$ = Debt of stock i for the period t</p> <p>TA_{it} = Total assets of stock i for the period t</p>
Dividend Pay-Out Ratio (DIV)	$DIV_{it} = \frac{D_{it}}{EAT_{it}}$	<p>D_{it} = Dividend paid by company i for the period t</p> <p>EAT_{it} = Earning after tax of stock i for the period t</p> <p>DIV_{it} = Dividend payout ratio company i for the period t</p>
Beta (BETA)	<p>For each stock,</p> $R_{it} = a + bRm_t$	<p>R_{it} = expected return of the stock i for the period t</p> <p>Rm_t = return of the market for the period t</p> <p>b = regression coefficient of stock i = beta of stock i</p>
Volatility (VOT)	$VOT_{it} = \sqrt{S_{it}^2} = \sqrt{\frac{n \sum(X_i^2) - (\sum X_i)^2}{n(n-1)}}$	<p>VOT_{it} = Stock price volatility of company i for the period t</p> <p>S_{it}^2 = Variance of stock price of company i for the period t</p> <p>X_i = Stock price of company i</p>
Liquidity (LIQ)	$LIQ_{it} = \frac{Vol_{it}}{TT_t}$	<p>Vol_{it} = Trading volume of company i for the period t</p> <p>TT_t = Total shares of transactions (trading volume for all companies) for the period t</p> <p>LIQ_{it} = Liquidity of stock i for the period t</p>
Inflation	INF_t	<p>INF = Inflation rate for the period t (monthly)</p>
Exchange Rate	$\Delta EXC_t = \frac{EXC_t - EXC_{t-1}}{EXC_{t-1}}$	<p>EXC_t = Change in foreign exchange rate for the period t (monthly)</p>

$$EP_t = \alpha + \beta_1 INFL_t + \beta_2 EXCH_t + \varepsilon \quad (2)$$

Where INFL and EXC are the inflation and exchange rates at month t, respectively, and ε is the residual. Assumption tests were evaluated using heteroscedasticity, autocorrelation, normality for residuals, and multicollinearity tests. Model fit was evaluated using *F*-test, *t*-test for an individual parameter, and coefficient of determination R^2 .

Findings and Discussion

Findings

Table 2 presents descriptive statistics of all variables for both panel and time-series data. In general, debt, dividend, and beta variables have large standard deviations which indicate more variability in the data. Concerning the debt/equity ratio, we found a company's liabilities that exceeded its assets (547.68%), indicating overleveraged, a sign of financial distress. We also found a stock with a negative and very low beta (-44.45) which shows an inverse relation with the market. Negative beta is theoretically possible but is an anomaly that might be caused by abnormal trading activity, poor business performance during a rising market, or a counter-cyclical stock that moves against the market. Moreover, stock price volatility and liquidity trading volume across companies did not show large variabilities. For time-series analysis, despite data fluctuation, no extreme data was found on inflation and exchange rate IDR to USD.

Table 2. Summary of Descriptive Statistics

Panel Data				
Variable	Mean	S.D.	Min	Max
ERP (%)	5.365	62.726	-109.25	786.65
Debt/Equity Ratio (%)	53.487	33.330	0.00	547.68
Dividend Pay-Out Ratio	0.079	0.163	0.00	0.91
Beta	0.332	4.434	-44.45	162.56
Volatility (%)	2.868	3.893	0.00	40.82
Liquidity (%)	0.265	1.128	0.00	20.43
Time Series Data				
ERP (%)	0.937	6.419	-16.17	32.21
Inflation	0.505	0.592	-0.36	3.29
Exchange Rate	0.378	3.284	-8.09	10.57

After performing Chow, Hausman, and Multiplier Lagrange tests to select which best model data by common effect, fixed Effect, and random Effect, a random effect model was selected. The final formula with each respective coefficient is shown in equation 3. The data panel model is significant ($F=13.23, p<0.001$) with adjusted $R^2 = 0.016$.

$$ERP = -7.386 + 0.152DER + 14.292DIV + 1.278Beta + 1.375VOT + 1.182LIQ(3)$$

For time-series analysis, we initially performed assumption tests (normality, multicollinearity, autocorrelation, and heteroscedasticity). Our final time-series regression model is shown in equation 4.

$$ERP = 1.321 - 2.081INF + 0.564 EXC (4)$$

The model is significant ($F=7.415, p=0.001$), $R^2 = 0.124$. The evaluation of each parameter of the panel and time-series data is summarized in Table 3.

Table 3. Individual Parameter test

Variable	Coefficient	t-statistics	Prob.
Panel Data			
Debt /Equity Ratio	0.152	2.330	0.020
Dividend Pay-Out Ratio	14.292	2.060	0.039
Beta	1.278	2.196	0.028
Volatility	1.375	6.194	<0.001
Liquidity	1.182	0.135	0.893
Time Series			
Inflation	-2.081	-2.081	0.04
Exchange Rate	0.564	3.129	0.02

Discussion

This study aims to evaluate the influence of stock market factors (DER, dividend ratio, beta, volatility, and liquidity) and macroeconomic (inflation, exchange rate) on equity premium in Indonesia Market Stock.

We found that DER positively and significantly explained equity premium which supported H1. This finding is in line with Bhandari, (1988) who argued that a higher DER firm increases the risk of its common equity that positively correlated to a higher premium. This also accords with APT theory (Ross, 1976) that considers the firm's financial structure (i.e., debt) while introducing microeconomic variables as later proved by Morel, (2001) in the French stock market. Adding debt affects the cost of capital by increasing the default of risk and thus the interest rate paid on this fund. A company with a debt-heavy capital structure pays more in interest, thereby reducing net profit. (Myers, 1984). Moreover, González et al., (2013) highlight that the higher the degree of financial leverage, the more volatile net profits will be. Therefore, according to the pecking order theory (Myers, 1984), debt is less prioritized over internal funds as financing sources.

Furthermore, it is interesting to note that companies listed in the Indonesian capital market had relatively large debt as shown by their DERs that account for 52.49% with a standard deviation of 33.33%, indicating high variability of debts among firms. We found the highest DER was 547% which greatly exceeded its asset and may indicate a financial distress. Further studies are needed to confirm this finding.

As expected, the dividend payout ratio significantly affected equity premium in the positive direction which supports H2. This finding confirms previous studies in developed and emerging markets (Blanchard et al., 1993; Campbell & Shiller, 1988; Fama & French, 1988; Hashemijoo et al., 2012; Heaton & Lucas, 1999). A dividend is an indicator for an investor when buying stocks to seek the return from capital and dividend. In Indonesia stock market, on average companies pay dividends within the last eight years 28.23%, the highest in 2007 while the lowest in 2014 (15.53%). Our data shows a relatively low dividend payout ratio (mean 7.88%, standard deviation 3.89%, range: 0–91%). Nevertheless, investors still purchased the stocks, implying

their interests are not necessarily to gain a return on their investment rather to the potential for growth (capital appreciation) in the long run. A low dividend payout ratio indicates that companies reinvest their earnings back into the business.

In this study, we found the significant influence of beta on equity premium. Increased beta is parallel with greater equity premium. A high beta index exhibits greater sensitivity to the stock price fluctuation in the overall market; hence the respective stock poses more risk but provides higher return potential. In Indonesia Stock Market, the average beta was 0.332 or less than one, indicating stock's price is less volatile than the market and has large variability (S.D.=4.434). Our finding is contrary to that of Saiful & Erliana, (2010) who found that beta negatively, not positively, influenced equity premium. This result may partly be explained by their smaller sample and shorter period of their observation.

We also found that stock price volatility corresponds to the equity premium in a positive direction which supports H4. This finding reflects the CAPM theory (Black, 1976; Sharpe, 1964) which suggested a positive linear relationship between the risk or the volatility and expected returns of stocks. This also supports those of other studies in developed markets (Brennan & Xia, 2001; Zhao, 2008). On the other hand, this study differs from Manurung, (1997) who did not find a significant impact of stocks price volatility on the equity premium.

Not as expected, stock liquidity did not have a significant influence on equity premium. This finding is inconsistent with the results for developed markets (Z. Chen et al., 2012; Donadelli & Prosperi, 2011; Jones, 2002) and who have suggested that stocks liquidity plays an important role in explaining equity premium. Our finding implied that investors were less interested in buying more liquid stocks or stocks with high trading volume. This rather contradictory result might be that investors are less likely to gain short-term returns rather than capital growth in the long term. Another possible explanation is the differences in market efficiency and characteristics between emerging markets (i.e., Indonesia) and developed markets. Many emerging markets have semi-strong efficiencies and are still very concentrated, with high trading costs and low trading volume (Jun et al., 2003). Moreover, the

concept of liquidity is a complex one that could be constructed in several proxies (e.g., bid-ask spread, trading volume, price impact per dollar, market depth). Thus, future studies may use other proxies to measure the liquidity or illiquidity effects.

One interesting finding is the inflation rate had a significant effect on the equity premium but in the opposite direction which did not support H6. This result is contrary to a prior study in a developed market (Gowing, 2009) which has suggested a high inflation rate correlated to a high equity premium, and vice versa. A plausible explanation might be due to the differences in the inflation rates between developed and emerging markets during the same period. The average inflation rate in Indonesia is generally higher and more unstable than in the US or other mature economics. Higher inflation may lead to higher costs for firms as well, whereas they may not be able to raise prices soon because of price stickiness, hence decreases consumption and reduce the profits. Furthermore, higher inflation also increases the risk-free interest rate and reduces the ERP. Moreover, Bhar & Malliaris, (2011) found the opposite finding that high equity premia occurred during periods of low inflation after observing the US historical record. Accordingly, the inflation rate could be used to predict the equity premium in Indonesia market but in a negative direction.

We found that an exchange rate IDR to USD is a significant and positive predictor of the equity premium. A depreciation of IDR currency increases the equity premium and vice versa, supporting H7. This finding confirms a prior study in advanced markets (Hajilee & Al Nasser, 2014; Yuchen Wang et al., 2013). Depreciation of currency may affect companies by increasing the cost of imported supplies which can lead to lower profit. Consequently, the lower dividend will be paid to the shareholder, increasing the risks and the equity premium.

Conclusion

The current study aimed to determine whether fundamental (debt/equity ratio, dividend payout ratio), stock market (beta, volatility, liquidity), and macroeconomics factors (inflation and exchange rate) have significant impacts on equity premium. The results show that debt /equity ratio, dividend payout ratio, beta, stock volatility, and exchange rate positively influenced equity premium while stocks liquidity was

not a significant explanatory factor. The inflation rate has a significant impact on equity premium but in the opposite direction.

Research Limitations

This study has several limitations. First, we employed separate regression analysis because both inflation and exchange rate data did not have cross-section properties. Secondly, our study resulted in a relatively small R^2 which suggests other potential determinants of the equity premium need to be included, such as irrationality and cultural traits. Notwithstanding these limitations, this study offers valuable insights into emerging stock markets.

Implication

Taken together, the evidence from this study suggests that the influence of DER, beta, dividend ratio, stocks price volatility, inflation, and exchange rate contribute to the CAPM and APT theories in explaining the equity premium, particularly in an emerging market. This work extends the CAPM theory that only considered beta for equity risk premium prediction. Furthermore, a positive and significant effect of DER on the equity premium is in agreement with the pecking order theory (Myers, 1984) that debt should be less considered as the main source of financing. Higher DER makes the stock riskier and raises the equity premium. From a practical perspective, these findings could help investors to gain expected return by better-predicting equity premium with the six variables and promote further interest in the Indonesia market.

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