THE IMPACT OF PROFITABILITY ON STOCK RETURNS: A COMPARATIVE ANALYSIS BETWEEN COMPANIES WITH HIGH AND LOW LEVERAGE LEVELS

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ABSTRACT

Various research has shown a positive relation between profitability and stock return. Higher profitability increases company value, and thus drives stock prices higher. We found that the relation is much weaker in companies with high leverage compared to companies with low leverage. The reason might be that in highly leveraged companies, the cash flow resulting from profit is mainly used to serve debt obligation, leaving little left for the stockholder. The result is important for stock investors to avoid putting too much emphasis on company profitability in making investing decisions.

Keywords: Profitability, stock return, leverage

INTRODUCTION

There is positive relation between company profitability and stock return (Fama and French, 2006; Novy-Marx, 2013, Berggrun, Cardona, & Lizarzaburu, 2020; among others). The result does not fit Capital Asset Pricing Model (CAPM) where stock return is only the function of market risk represented by beta. It also does not fit Fama-French Three Factors Model where stock return is the function of size, value, and beta. The common explanation of the Fama French Three Factors model is that the three factors are proxies for risk faced by stockholder (Fama & French, 1993). Companies with smaller size, lower valuation, and higher beta face higher risk, and thus stockholders demand higher return to assume that extra risk. Another interpretation for Fama-French three factors model was offered by Lakonishok, Shleifer, & Vishny (1994). Lakonishok, Shleifer, & Vishny (1994) found that companies with smaller size, lower valuation, and higher beta do not necessarily have higher risk compared to other companies. Instead, the higher return of such companies' stocks is due to behavioral bias among investors. For example, overreaction to negative news caused a stock to experience undervaluation and reflected in its low valuation.

The positive relation between profitability and stock return cannot be explained using Fama French three factors model, both as the result of risk or the result of behavioral bias. Novy-Marx (2013) explains it using Discounted Cash Flow valuation. Companies with high profitability in the past are expected to maintain higher profitability in the future. Everything else being equal, higher profitability means higher cash flow. High profitability also suggests lower risk, leading to a lower discount rate. Higher cash flow and lower discount rate result in higher valuation under Discounted Cash Flow Model, thus the positive relation between profitability and stock return. The phenomenon is called profitability premium.

In this research, it is hypothesized that profitability premium is less pronounced in highly leveraged firms. Firms with high leverage will have higher interest expenses due to interest payment obligations. These interest payments reduce the amount of earnings available to shareholders. As a result, the profitability premium associated with highly leveraged firms may

be lower compared to firms with lower leverage. Highly leveraged firms are also inherently riskier than firms with lower leverage. This extra risk will reduce the risk advantage of highly profitable firms compared to firms with lower profitability.

LITERATURE REVIEW

According to CAPM, the only factor that affects stock return is its risk (Sharpe, 1964). As investors are risk averse, they demand higher returns to assume higher risk, and thus there is a positive relation between stock risk and its expected return. For stocks, there are two types of risk, market risk and diversifiable risk. Diversifiable risk can be easily removed by forming a fully diversified portfolio; thus, investors are not compensated by higher return in assuming diversifiable risk. In fact, it is assumed that all investors hold fully diversified portfolios, and there is no diversifiable risk. Market risk is part of the stock risk that cannot be diversified away. Investors have no choice than to assume that risk and are compensated by assuming market risk. Market risk is represented by stock beta. The expected return of a stock is proportional to the stock beta.

Fama & French (1993) found that other than beta, stock return is also affected by size of the company (represented by market capitalization) and its valuation (represented by Price to Book Value Ratio or Price to Earning Ratio). The model is known as Fama-French Three Factors Model. Companies with smaller sizes and lower valuation show higher stock return. The explanation is that companies with lower size and lower valuation experienced higher risk. Lower size companies may have less diversified income streams, less types of products, less access to financing, less robust to economic downturn or market change, less economy of scale, higher chance of bankruptcy, etc. Companies with lower valuations are also riskier as the market is punishing them with a lower price compared to their book equity or earnings. Same as CAPM, Fama-French Three Factors Model also assume that investors are being compensated by return in assuming risk. The difference between them is that in CAPM there is only one type of risk namely market risk, while in Fama-French Three Factors Model there are three types of risk: market risk, value risk, and size risk.

Another explanation is offered by Lakonishok, Shleifer, & Vishny (1994) in explaining the effect of value and size on stock return. Instead of compensation for assuming risk, the return-value and return-size relations are due to behavioral bias among investors. For example, investor overreaction to positive (negative) news about a company pushes the stock price above (below) its intrinsic value and makes the valuation high (low). In the subsequent period, stock prices will go down (up) to intrinsic value creating a negative relation between valuation and stock return.

Novy-Marx (2013) found that companies with higher profitability tend to have higher future stock return. It cannot be explained using CAPM or Fama-French Three Factors Model, both in risk explanation and behavioral bias explanation. The phenomenon is called profitability premium. The relation between profitability and future stock return is explained as behavioral bias or Discounted Cash Flow (DCF) model. In behavioral bias, investors might underreact to profitability, leading to undervaluation of the stock. In the subsequent period, the undervaluation will be corrected, and thus the higher stock return (Wang & Yu, 2013; Akbas, Jiang, & Koch, 2015; Lam, Wang, and Wei, 2015).

From DCF views, the explanation for the relation between profitability and stock return is as follows. In DCF model, intrinsic value of a company is the present value of all future Free Cash Flow (FCF). The value then depends on future FCF and the discount rate. Companies with

higher profitability will have higher free cash flow compared to companies with lower profitability. They also can sustain a higher growth rate, increasing the future FCF even further. Higher profitability also suggests that the company has less risk. Less risk means lower discount factor, contributing to higher valuation in DCF model (Novy-Marx , 2013).
Highly leveraged firms can experience reduced cash flow in the future (Park and Jang, 2013; Jun, 2006). This is because of the obligation of the firms to serve the debt services in the form of interest payment. Highly leveraged firms also have lower growth, further reducing the future free cash flow (Aivazian, Ge, and Qiu, 2005; Cai and Zhang, 2011). Lower growth is due to limited financing opportunities for highly leveraged firms, thus reducing future investment. High leverage also means that company risk is higher, leading to higher cost of capital that increases discount factor in DCF valuation.

RESEARCH METHOD

The object of this research is LQ45 stocks in Indonesia stock market continuously from 2017 to 2021. Stocks from the banking sector are excluded from the sample. Altogether there are 194 data collected. The data are separated between companies with high leverage and low leverage.
The following is the research model used to test hypothesis.

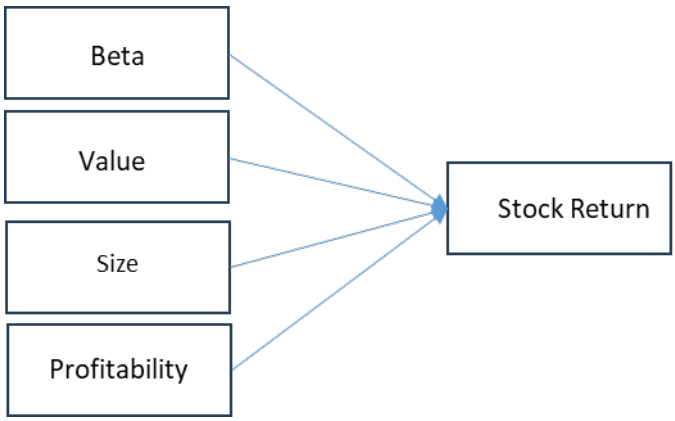

Image 1: Research Model

For each variable, the following proxy is used:

- Proxy for Value is PBV
- Proxy for Size is Ln Market Capitalization
- Proxy for Profitability is Return on Total Asset

Data for beta is acquired from Pefindo. Stock return used in the calculation is the next year stock return, and calucltaed as stock price at the end of the year minus stock price at the beginning of the year divided by stock price in the neginning of the year. PBV is calculated as stock price divided by book equity per share. Size is natural log of share price times number of share outstanding. Return of Total Asset is the Nett Income divided by total asset.
Leverage is proxied by Debt-to-Equity Ratio (DER), calculated as total liability divided by equity. Companies with DER above median are categorized as highly leveraged companies, and vice versa, forming two groups of companies, high and low leveraged companies. Regression analysis is performed to both groups. The results are compared to determine

whether relation between profitability and stock return are the same or different in the two groups.

RESULT AND DISCUSSION

Regression results from both set of data is as follows.

	Low Leverage	High Leverage
Adjusted R square	0.05	0.076
F sig	0.083	0.024

Table 1: F test results for Low TIE and high TIE data

	Low Leverage		High Leverage	
	Standardize Coef	**t Sig**	**Standardize Coef**	**t Sig**
Beta	.211	.081	.280	.008
Size	.062	.556	.050	.644
Value	-.116	.363	.259	.169
Profitability	.221	.055	.009	.962

Table 2: t test results for low TIE and high TIE data

From table 1 it can be seen adjusted R square for both low and high TIE are quite high. The F sig also shows all independent variables are significant to dependent variable at 10% confidence level.

Using 10% confidence level, for low leveraged firms, beta and profitability is positively related to future stock return. The result supports CAPM and profitability premium but does not support Fama-French Three Factors Model. The reason can be related to the choice of sample, which is LQ45 stocks. LQ45 stocks are highly liquid, thus less likely to experience mispricing. Without mispricing, behavioral bias explanation on how size and value affect stock return does not work. LQ45 is also dominated by large size and high valued companies, mooting the difference between small sized companies compared to large sized companies, and between companies with high and low valuation.

For highly leveraged companies, only beta affects the future stock return. The result confirms the hypothesis that profitability premium is more pronounced in firms with lower leverage levels. High leverage dampens the factors that according to DCF model cause the profitability premium, namely higher free cash flow, higher growth, and lower risk.

CONCLUSION

The result supports the existence of profitability premium, whereby companies with higher profitability tend to have higher future stock return. However, there is difference between company with high and low leverage. The profitability premium phenomenon is pronounced in lower leveraged firms. However, it is much less pronounced in highly leveraged firms. The difference can be explained using DCF model.

APPENDIX

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	PR(t), B(t), FZ(t), VL(t)[b]		Enter

a. Dependent Variable: SR(t+1)

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.339[a]	.115	.076	.414488628246121

a. Predictors: (Constant), PR(t), B(t), FZ(t), VL(t)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.032	4	.508	2.957	.024[b]
	Residual	15.634	91	.172		
	Total	17.666	95			

a. Dependent Variable: SR(t+1)

b. Predictors: (Constant), PR(t), B(t), FZ(t), VL(t)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.524	.392		-1.336	.185
	B(t)	.182	.067	.280	2.706	.008
	FZ(t)	.007	.014	.050	.464	.644
	VL(t)	.038	.028	.259	1.386	.169
	PR(t)	.048	.993	.009	.048	.962

a. Dependent Variable: SR(t+1)

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	PR(t), FZ(t), B(t), VL(t)[b]		Enter

a. Dependent Variable: SR(t+1)

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.308[a]	.095	.050	.35596

a. Predictors: (Constant), PR(t), FZ(t), B(t), VL(t)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.086	4	.272	2.143	.083[b]
	Residual	10.390	82	.127		
	Total	11.476	86			

a. Dependent Variable: SR(t+1)

b. Predictors: (Constant), PR(t), FZ(t), B(t), VL(t)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.408	.402		-1.015	.313
	B(t)	.153	.086	.211	1.767	.081
	FZ(t)	.008	.013	.062	.591	.556
	VL(t)	-.023	.025	-.116	-.915	.363
	PR(t)	1.525	.785	.221	1.944	.055

a. Dependent Variable: SR(t+1)

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