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THE IMPACT OF AGES CHANGING FIRM CHARACTERISTICS TOWARD STOCK RETURN IN INDONESIA

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A R T I C L E   I N F O

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Abstract. This research was conducted to analyze whether the pricing of the stocks in Indonesia had changed the characteristics of the stocks as the firm ages changed. Through previous research and literatures had showed the relevance of those characteristics changes and how it had affected the stock returns. Multivariate panel regression approach was utilized to reveal the findings. The result of the research had revealed that corporate aging did change the characteristics and results of regressions when adding interacting variables of age. However, only young aged firms with the year of five or below had significant impact that change the characteristics of the stock that affect the stock return. Mid-aged and old-aged companies were not the contributors of the stock returns during the five years of research from the year of 2015 to 2019.

Abstrak. Penelitian ini dilakukan untuk menganalisis apakah harga saham di Indonesia telah mengubah karakteristik saham seiring dengan perubahan umur perusahaan. Melalui penelitian dan literatur sebelumnya telah menunjukkan relevansi perubahan karakteristik tersebut dan bagaimana pengaruhnya terhadap return saham. Pendekatan regresi panel multivariat digunakan untuk mengungkap temuan. Hasil penelitian telah mengungkapkan bahwa penuaan perusahaan memang mengubah karakteristik dan hasil regresi ketika menambahkan variabel umur yang berinteraksi. Namun, hanya perusahaan berusia muda dengan tahun ke bawah lima tahun yang memiliki dampak signifikan yang mengubah karakteristik saham yang mempengaruhi return saham. Perusahaan paruh baya dan tua tidak menjadi kontributor return saham selama lima tahun penelitian dari tahun 2015 hingga 2019.

INTRODUCTION

Prior research had revealed that the characteristics of firms would change as they were aging. These changes in characteristics affected the stock return for shareholders in the US that seek to maximize their wealth as stated in research conducted by Bank & Insam (2021). The decision making regarding corporate aging matters, for instance, decision to take over old-aged companies that were believed to not having opportunities to growth or whether to take over young-aged companies that were too risky as their level of sustainability were lower (Loderer & Waelchli, 2015). Matured companies were usually less flexible that were believed to be the problems for growth.

On the other hand, Elsayed & Paton (2009), in their research regarding firms' life cycle, the positive external responses that affect the financial performance positively was triggered in the growth stage of life cycle that was related with young-aged firms. However, during the maturity stage, the good financial performance was formed and affecting the environmental policy that affect the overall performance.

Moreover, in the research conducted by Kieschnick & Moussawi (2018), stated that there was an argument that believed corporate aging would change the characteristics of the firms' capital structure. Matured companies were having more assets that would consider to have more debt, contrary to the young-aged companies. Therefore, age might affect the characteristics of firm to change.

However, this research would focus on several characteristics of the firm, such as firm size, value or growth, momentum, trading liquidity, volatility, market beta, financial distress, profitability, as well as investments whether those characteristics would change as firms getting matured. Therefore, we would discuss about how corporate aging would affect the characteristics that would affect stock returns in Indonesia.

LITERATURE REVIEWS AND HYPOTHESIS DEVELOPMENT

Corporate Aging and Change of Corporate Characteristics

It is stated that corporate ages play an important role in determining the performance level of firms. Different ages of companies would lead to different stages in the firm life cycle as well as the risks associated with them. Older companies tend to be stable and mature, while younger companies are still fragile and have a higher possibility of default. Therefore, corporate aging is believed to affect the firm characteristics that might lead to stock return puzzle. In this research, the writers emphasize on several characteristics that might be affected by corporate aging, such as firm size, value/growth, momentum, trading liquidity, volatility, market beta, financial distress, profitability, as well as investment. Those details would be as follows:

Firm Size and Stock Return

In the research conducted by Gorganlidavaji & Vakilifard (2014) said that the firm size is highly related with the controlling functions of management. The firm size would trigger growth opportunity which is relatively importance for the management to make decisions to boost the company's performance, which in turns affect stock returns. In their research, the stock return is tested utilizing distinctive characteristic of firm size, growth opportunity, as well as accounting discretion. The result has shown that there is insignificant relationship among them toward the stock returns. However, in this research, the writer would like to analyze the effect of corporate aging, whether it would change the firm size that affect stock return or not. Therefore, in this research, the writer would develop the hypothesis as follows:

H1: Corporate aging changes firm size that has an impact towards stock return

Value/Growth and Stock Returns

Loderer & Waelchli (2015) in their research stated that the matured firms have lower level of growth opportunities and less likely to be acquired compared to the young-age firms. Fama and French (2004) explain the rationality that the survival rate for the company that has conducted IPO within 10 years are around 50% that is highly related with the takeover risk. As a company getting older, the takeover risk is also getting higher. Therefore, there is less opportunity for growth, that lead to lower profitability level. In this case, it might affect the stock return although still additional research needed.

Large number of samples have been taken by Loderer & Waelchli (2015) by using US IPO companies from year 1978 to 2009. The old-age company is likely to be taken over, but the result was rejected. When they took 5-year-old firm, compared with 25-year-old firm, the result is said to be low risk for being taken over as low as 32% for old-age firms. It is also stated that the result of this research do not support the overpricing of stock or related with stock return due to age. Therefore, in this research, similar analysis of age that might change the value/growth of the company that in turns affecting the stock returns would be conducted with the hypothesis as follows:

H2: Corporate aging changes the value/growth that has an impact towards stock return

Momentum and Stock Returns

Fluctuation in the stock price would always occur in every single trading day. However, the speed or velocity of changes differ. Those investors who could capture the right momentum are the winners who could likely achieve the expected returns. According to Cheng (2021), the right momentum is simply the classical concept of buy low, sell high. Momentum is believed to be able to understand the situation in which investors should buy and when to sell. However, aging corporations are likely to be less interesting for investors to invest, which might be less momentum compared to newly, or recently IPOs.

In research conducted by Sakr et al. (2014), there is behavioral bias in explaining the momentum in the emerging market. Egyptian Stock Market was taken as the object o their research by analyzing the disposition effect that drives the momentum in this market. Through analyzing the period of 2004 to 2010, using Fama Macbeth cross-sectional regression, the result has revealed that the momentum was not related with the stock return in the Egyptian Stock Market.

However, in this research, the writer would like to analyze whether it showed the same result or not in Indonesia Stock Market. Considering the age factor whether it plays a role in the stock return or not, the research would reveal whether corporate aging affect momentum that drives the stock return or not. The analysis of momentum would be conducted by looking at 6 months momentum through t-7 to t-2 with the hypothesis developed as follows:

H3: Corporate aging affects momentum that has an impact towards the stock return

Trading Liquidity and Stock Returns

Vo & Bui (2016) conducted liquidity analysis towards stock return in Vietnam Stock Exchange by looking at control variables that support liquidity, such as risk adjusted monthly excess returns that use 5 factors, including Fama-French factors and it calculated the turnover ratio for this measurement. Moreover, natural logarithm of share turnover of the prior three months, natural logarithm of average trading volume over the prior three months, proportion of trading days in the past three months in which the return is zero as well as other more variables that were analyzed. However, result has shown that there was not enough evidence to conclude there is an impact of liquidity towards stock returns.

According to the US Security and Exchange Commissions (2021), the terms liquidity in the stock market means the speed and ease of converting the stocks into cash, by buying and

selling the stocks. Beside those factors above, there are several ways of calculating liquidity, through current ratio, quick ratio as well as cash ratio. However, in this research, the writer would utilize the Amihud (2002) liquidity measures by simply calculating "Logarithm of Illiquidity Measure".

The hypothesis that could be developed as follows:

H4: Corporate aging affects trading liquidity that has an impact towards stock return

Volatility and Stock Returns

Stock price volatility is a measure of uncertainty of future stock price movements. Increasing volatility means the possibility of rising or falling stock prices as well the greater it is. Volatility is the standard deviation of continuously compounded returns on stock. In calculating volatility used historical data from stock prices on certain time intervals such as daily, weekly, or monthly.

According to Aharoni et al. (2013), in their research regarding expected stock returns and volatility, there was a positive relationship between expected market risk premium with the predictable volatility of stock returns. The expected market risk premium could be calculated by deducting the treasury bill yield towards the expected return on a stock portfolio. Moreover, the evidence had shown that the negative relationship arise between the unexpected stock market returns and the unexpected change in the volatility of stock returns with the hypothesis development as follows:

H5: Corporate aging affects volatility that has an impact towards stock return

Market Beta and Stock Returns

In the research conducted by Chincarini et al. (2020) with the title of "Beta and Firm Age", there is a finding that showed robust pattern of decreases in beta due to the age of the firm. The systematic risks due to changes in firm characteristics and life-cycle stages are stated to be not enough to prove this finding. Not only systematic risk, but also the standard proxies for the quantity and quality only partially explain the pattern. Therefore, the research has utilized the degree of familiarity that accounts for the feelings of investors toward individual stocks.

Empirical evidence showed that the stock return behavior could not be captured by the market beta. The regression of the market beta could only be used towards single stock (Blume, 1975). Moreover, stable betas are stated to be highly related with large portfolios, compared to small portfolios (Blume, 1970). Estimated beta are also more accurate for portfolios rather than single stocks as well as more precise predictive power of beta. Fama French (1992) has proven that the market beta is not able to explain the excess return of small-cap stocks and value stocks. The solution to this was proposed by Bollerslev and Zhang (2003) by utilizing high frequency data, however, complicated result could occur due to non-synchronous trading.

In this research, the writers would use more frequency data by utilizing the rolling 60-day market beta with the monthly frequency for the five years period. Therefore, it could be said that the total months would be 60 months, by rolling 60 days, which means 30 rolling would occur. Through this research, the writer would like to know whether market beta, utilizing more frequency matter or not. Therefore, the hypothesis that could be developed as follows:

H6: Corporate aging affects market beta that has an impact towards stock return

Financial Distress and Stock Returns

According to Platt HD and Platt MB (2002), financial distress occurs when the company is facing the state of declining in its financial performance. Liquidity problems happen and the company is not able to pay any obligations as well as satisfying its shareholders.

Pressures from the shareholders and any related parties might create financial distress for the company.

Fachrudin & Ihsan (2021) conducted research towards Energy User Companies listed in the Indonesia Stock Exchange by taking 134 companies of this sector. The period of research was 2016 to 2018 by utilizing the multiple linear regression model and some independent variables that regressed toward stock return. One of the independent variables is the financial distress. Result has shown that the financial distress in the energy user companies in Indonesia significantly affect the stock return at 5% significance level.

In this research, the measurement of financial distress would be by calculating the probability of failure towards quarter, monthly, and daily data. However, the writers would conduct the financial distress measures by considering the corporate aging factor whether age affect distress that would in turns affect the stock returns. Moreover, the samples would be all sectors in the Indonesia Stock Exchange, except financial sector.

H7: Corporate aging affects financial distress that has an impact towards stock return

Profitability and Stock Returns

Nadyayani & Suarjaya (2021) conducted analysis on the effect of profitability on stock return. There were three measurements of profitability utilized, such as the Return on Assets (ROA), Return on Equity (ROE), as well as Net Profit Margin (NPM) toward the stock returns. Moreover, the samples taken were the manufacturing companies listed in the Indonesia Stock Exchange from the year of 2017 – 2019 with total of 105 companies. The result shown that the three independent variables simultaneously affect the stock return. However, out of those three, when conducting the one-on-one test toward stock return, the insignificant result was from the Return on Equity (ROE).

In this research, the writer would conduct similar analysis of profitability towards stock return, however, considering the age of the companies that affecting profitability towards stock return with the hypothesis developed as follows:

H8: Corporate aging affects profitability that has an impact towards stock return

Investment and Stock Returns

Investment is said to be the additional assets for the company, whether it is in the form of physical assets, as well as cash, investing in the stocks. These investments are usually utilized by the company to fund its operations for the purpose of generating and maximizing profits. As profits boosted up, the fundamental of companies are better that might affect stock returns. Therefore, in this research, the writer would calculate the amount of investment by simply using the Fama Macbeth calculations of the Changes in Total Assets.

H9: Corporate aging affects the level of investment that has an impact towards stock return

DATA DAN EMPIRICAL MODEL

Data

The data of this research would be the secondary data with the sources taken from Capital IQ from S&P for the period of 2015 - 2019. The selected companies are the public listed companies from all sectors in Indonesia Stock Exchange, excluding the financial sectors. The evaluation would be conducted on the monthly and annual basis depending on the variables.

Empirical Model

The empirical model that would be utilized in this research is the Multiple Linear Regression as stated below:

$$
\begin{aligned}
R_{it} = \beta_0 &+ \beta_1 Size_{it} + \beta_2 Size_{it} * D_1 + \beta_3 Size_{it} * D_2 + \beta_4\, Value/Growth_{it} \\
&+ \beta_5 Value/Growth_{it} * D_1 + \beta_6 Value/Growth_{it} * D_2 + \beta_7\, Momentum_{it} \\
&+ \beta_8 Momentum_{it} * D_1 + \beta_9 Momentum_{it} * D_2 + \beta_{10}\, Trading\ Liquidity_{it} \\
&+ \beta_{11} Trading\ Liquidity_{it} * D_1 + \beta_{12} Trading\ Liquidity_{it} * D_2 \\
&+ \beta_{13}\, Volatility_{it} + \beta_{14} Volatility_{it} * D_1 + \beta_{15} Volatility_{it} * D_2 \\
&+ \beta_{16}\, Market\ Beta_{it} + \beta_{17} Market\ Beta_{it} * D_1 + \beta_{18} Market\ Beta_{it} * D_2 \\
&+ \beta_{19}\, Financial\ Distress_{it} + \beta_{20} Financial\ Distress_{it} * D_1 \\
&+ \beta_{21} Financial\ Distress_{it} * D_2 + \beta_{22}\, Profitability_{it} + \beta_{23} Profitability_{it} \\
&* D_1 + \beta_{24} Profitability_{it} * D_2 + \beta_{25}\, Investment_{it} + \beta_{26} Investment * D_1 \\
&+ \beta_{27} Investment_{it} * D_2 + u_{it}
\end{aligned}
$$

where:

R_{it} = Stock Return, as the dependent variable

β_0 = intercept, when other variables equal 0 then the stock return would be equal to the intercept

β_i = beta of each variable, i = 1,2,3,4,5,6,7,8,9,…,27

X_{1t} = firm size at period t, calculated using the market capitalization using monthly data

X_{2t} = value/growth at period t, calculated using the monthly market ratio

X_{3t} = momentum at period t, calculated through calculations of return of the period compared with the previous period return of the monthly data

X_{4t} = trading liquidity at period t, calculated using the monthly trading liquidity data

X_{5t} = volatility at period t, calculated using the standard deviation of monthly data

X_{6t} = market beta at period t, calculated using monthly data

X_{7t} = financial distress at period t, using Altman z-score (2005) that would be calculated using monthly and daily market data

X_{8t} = profitability at period t, calculated using the return on total assets of annual data

X_{9t} = investment at period t, calculated using annual total assets

D_1 = corporate aging with 1 = middle age, otherwise = 0

D_2 = corporate aging with 1 = old age, otherwise = 0

The multiple linear regression model above would be utilized to understand whether those independent variables, accounted with the age of the firms would affect the stock return or not.

Operationalization of the Variables
Corporate Aging

In this research, the corporate aging would be the factor that affect the firm characteristics that would be measured in terms of dummy variable. In this case, the aging factors would be distinguished into three categories of young-age (YOUNG), mid-age (MID) and old age (OLD). The calculation of dummy variables for these are as follows:

Young-Age   : Dummy Variable = 1 if age since IPO <= 5 years
Mid-Age   : Dummy Variable = 1 if age since IPO > 5 years, but < 25 years
Old Age   : Dummy Variable = 1 if age since the IPO >= 25 years

Due to the existence of Indonesia Stock Exchange for the last 3 decades, therefore, the young-age company is categorized as the youngest 20% of the total years, which is rounded to 5 years boundaries. On the other hand, the mid-aged companies are the companies with the ages of more than 5 years until less than 25 years, while the oldest companies would be categorized as the companies with the age of more than or equal to 25 years existence.

The aging variables would be evaluated on the monthly frequency and analyzed whether it would trigger the changes in the firm characteristics or not. Discussion of the characteristics would be in the next sections.

Firm Size

The first characteristics that would be evaluated by the effect of ages is the firm size. It would be calculated by using the market capitalization of the companies in the monthly frequency. The market capitalization can be calculated by the number of shares outstanding multiply by the current market price per share. Therefore, the formula would be stated as follows.

$$Firm\ Size\ =\ market\ capitalization$$

Value/Growth

Stocks are categorized into value stock and growth stock depending on the book to market ratio. Small book to market ratio is usually classified as the growth stock and vice versa for value stock. Therefore, in this research, the writer would calculate using the logarithm of book to market ratio with the formula as follows:

$$B/M = \frac{Book\ value\ per\ share}{Market\ value\ per\ share}$$

Momentum

One of the factors that is believed to affect stock return is momentum, however, there is still little evidence that the corporate aging would affect momentum that would trigger the stock return to increase or decrease. However, capturing the right momentum would matter. Therefore, through this research, the writer would analyze the momentum factors through looking at the 6 months momentum of the return of the young-age, mid-age and old-age companies for the monthly frequency. The calculation of stock return would be utilizing the stock return formula that use the current month return deducted by the previous month return and the denominator would be the previous month return.

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}}$$

where:

R_{it} = stock return of i within the period of t
P_{it} = stock price of i within the period of t
P_{it-1} = stock price of i within the period of t-1

Trading Liquidity

According to Danyliv, et al (2015) from CFA Institute, stated that the trading liquidity is measured as the purpose of understanding whether how much money we need to have to create a daily single unit price fluctuation of the stock. However, in this research, the writer would utilize the formula from Amihud (2002) research by measuring the illiquidity, as follows:

$$ILLIQ_{iy} = 1/D_{iy} \sum_{t=1}^{Diy} |R_{iyd}|/VOLD_{ivyd}$$

Where:

D_{iy} = number of days that the data are available for stock i in year y
$|R_{iyd}|$ = absolute return to the trading volume
$VOLD_{ivyd}$ = respective daily volume in dollars

Volatility

In this research, the calculation of volatility would be conducted on the rolling 60-day return with the formula of volatility as follows:

$$S = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(u_i - \bar{u})^2}$$

where:

n	= number of observations
S	= standard deviation
ui	= stock return i
u	= average return.

Market Beta

Market beta would also be conducted on the rolling 60-day market beta with the formula as follows:

$$\beta = \frac{Cov(r_a, r_b)}{Var(r_b)}$$

$$\beta = \rho_{a,b}(\sigma_a / \sigma_b)$$

Where:

$Cov(r_a, r_b)$ = covariance of return a and return b

$Var(r_b)$ = variance of return b

Financial Distress

To calculate the financial distress, the writer would like to use the Altman z-score (2005) measurements of distress. This measurement was stated to consist of several formula that are added together, as follows:

$$Altman\ z\ score = \left(1.2 * \frac{working\ capital}{Total\ Assets}\right) + \left(1.4 * \frac{Retained\ earnings}{Total\ Assets}\right)$$
$$+ \left(3.3 * \frac{Earnings\ before\ interest\ and\ tax}{Total\ Assets}\right) + \left(0.6 * \frac{market\ value\ of\ equity}{total\ liabilities}\right) + \left(1 * \frac{sales}{total\ assets}\right)$$

Profitability

The calculation of profitability in this research would utilize the Return on Assets (ROA) on the annual frequency. The formula would be as follows:

$$Return\ on\ Assets\ (ROA) = \frac{Income\ After\ Tax}{Total\ Assets}$$

Investments

Fama and French calculations of investment is utilized in this research by simply calculating the changes in total assets, as follows:

$$Investments = Changes\ in\ Total\ Assets$$
$$Changes\ in\ Total\ Assets = \frac{Total\ Assets_t - Total\ Assets_{t-1}}{Total\ Assets_{t-1}}$$

Where:

t = the year observed

t – 1 = the previous year from the year observed

EMPIRICAL RESULTS

The result of the research would be discussed starting from the descriptive statistics that describe all of the variables. The variables were the characteristics of the firm and their impact towards the stock return would be analyzed. The descriptive statistics would be as follows:

Table 4.1 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Stock Return	14516	.004	.129	-.313	.56
Firm Size	14516	7.74	1.932	3.626	12.691
Value/Growth	14516	1.13	1.35	-1.718	7.491
Momentum	14516	.003	.128	-.31	.547
Trading Liquidity	14516	0	0	0	.001
Volatility	14516	.099	.097	0	.549
Market Beta	14516	.499	.44	-.387	1.449
Financial Distress	14516	1.467	1.323	-2.808	5.311
Profitability	14516	4.97	6.093	-8.073	33.09
Investments	14516	.008	.047	-.064	.356

Table 4.1 has depicted that throughout the last five years, the overall stock return has achieved as high as 56% return for the overall company in Indonesia Stock Exchange, while the highest loss was as high as -31.25% from year 2015 to year 2019. However, the average daily stock return was 0.4% from overall 14,516 observations towards all companies, except financial sector in Indonesia Stock Exchange. There were several characteristics of companies stated above starting from firm size, value/growth, momentum, trading liquidity, volatility, market beta, financial distress, profitability, as well as investments.

The result of the research was reported by revealing the result of research utilizing the Driscoll-Kraay fixed-effect regression model with the nine characteristics of the firm towards the stock return. The research was utilizing the fixed-effect regression rather than random-effect variable due to the fact that the result of Hausman Test utilized similar in the research conducted by (Hoechle et al., 2017) in their research regarding heterogeneity, which reject the null hypothesis of random effect regression model.

Moreover, the utilization of fixed-effect regression model was also conducted by Baltagi et al. (2012) in their research regarding cross-sectional dependence in a fixed effects panel data. The classical assumption test was also conducted towards this research through heteroskedasticity test, the result had revealed there was a problem with heteroskedasticity through the Modified Wald Test. On the other hand, there was no problem with autocorrelation through the Wooldridge Test. The cross-sectional dependency was also tested as it had problem with it. Therefore, the fixed-effect regression model was conducted through the utilization of xtscc function in Stata application to solve the problems regarding those classical assumption test. The results of the regressions were shown in Table 4.2 below.

Table 4.2 The Effect of Firm Characteristics Toward Stock Return

Stock Return	Coef.	P>t
Firm Size	0.005	0.000
Value/Growth	-0.006	0.000
Momentum	-0.001	0.950
Trading Liquidity	-20.324	0.286
Volatility	0.277	0.000
Market Beta	-0.012	0.000
Financial Distress	0.002	0.032
Profitability	-0.001	0.000
Investments	0.066	0.009
_cons	-0.048	0.000
F-test		86.100
Prob > F		0.000

Above results showed the impact of the firm characteristics toward stock returns, firm size had significant effect towards the stock return with the coefficient of 0.004863 that was positively affecting the stock return. Based on the previous research conducted by (Kumar & Kumara, 2020), the firm size had positive and strong impact towards the shares' performance which matched the research results conducted in this report. It was stated that the large firms were not really had significant changed, contrary to the smaller and medium firms that were having significant impact towards the stock returns.

For value/growth companies, which were calculated through the book-to-market ratio, there was a negative significant impact towards the stock return with the coefficient of -0.0057803. Similar to Japan stock market that their return was closely related with its book-to-market ratio as stated in the previous research conducted by Daniel et al., (1996) in which the test was conducted using Fama and French three factor models.

On the other hand, for momentum, it was negative insignificant, it means that the rolling one-month stock return was not correlated with the next month return. Past performance was not the reason that the stock return in the future would move similar to the past, therefore, strategy for purchasing certain stocks through reviewing past doesn't matter. Strengthen by the research conducted in Australia stock market by Pavlov et al., (2003), momentum of the past couldn't explain the future share performance and there were no further explanations for it.

The illiquidity was insignificant, similar to the research results conducted by Drienko et al., (2019), which believed was caused by the transactions costs and increased stock liquidity that reduced the investors sensitivity.

 The volatility of the pricing of stocks had allowed the results to be significant toward the stock returns, it was believed that the investors were taking opportunities to earn profits from the volatility of stocks. The market beta and financial distress were also having significant impact toward the stock return as well as profitability through ROA and investment which was calculated through change in total assets. The market beta represents the established market risks of the individual corporation listed in the exchanges, it was stated in the research conducted by Newlove Asamoah & Quartey-Papafio (2011), that the more traded a stock would create upward beta biased, contrast with less traded stock that had downward beta biased, that affect the stock returns. Financial distress must always be maintained as it was significant and matched with Fachrudin & Ihsan (2021) research that they believed maintaining good financial health of company and invest idle cash must always be conducted. Return on Assets had negative significance impact on the stock return, while change in total assets had positive

significance impact. Overall, through the F-test shown in Table 4.2, the characteristics of the firm had significant impact towards the stock return as the probability result matters.

Those firm characteristics had subjected to change when there was interacting variables of ages, however, the results had depicted that the young age firms mostly had significant impact towards the stock return, as shown in Table 4.3 below.

Table 4.3 The Effect of Corporate Aging towards Firm Characteristics that Affect the Stock Return

Stock Return	Coef.	P>t
Firm Size	0.005	0.000
Firm Size*D1	0.000	0.769
Firm Size*D2	-0.001	0.222
Value/Growth	-0.009	0.000
Value/Growth*D1	0.004	0.100
Value/Growth*D2	0.004	0.158
Momentum	0.044	0.016
Momentum*D1	-0.069	0.000
Momentum*D2	-0.049	0.092
Trading Liquidity	-36.066	0.341
Trading Liquidity*D1	9.742	0.843
Trading Liquidity*D2	25.319	0.565
Volatility	0.251	0.000
Volatility*D1	0.021	0.706
Volatility*D2	0.084	0.321
Market Beta	-0.008	0.254
Market Beta*D1	-0.008	0.301
Market Beta*D2	-0.001	0.940
Financial Distress	-0.002	0.455
Financial Distress*D1	0.005	0.113
Financial Distress*D2	0.005	0.157
Profitability	-0.000	0.855
Profitability*D1	-0.001	0.177
Profitability*D2	-0.001	0.356
Investments	0.104	0.008
Investments*D1	-0.058	0.265
Investments*D2	-0.064	0.226
_cons	-0.047	0.000
F-test		30.347
Prob > F		0.000

Corporate aging, in this case, young, mid-aged, and old-aged firms had been the factors that changed the results of the regressions. Shown in Table 4.3, the firm characteristics without the dummy variables of D1 and D2 would be the young-aged firms, while D1 was mid-aged, while D2 was old-aged. After taking into account the corporate aging toward those characteristics, the firm size for young-age had significant impact towards the stock return, while mid-aged and old-aged firms didn't. These mean that mid-age and old-age corporations didn't affect firm size that affect the stock returns. It means the stock return was affected by the firm size of young-age company in Indonesia. Barry et al. (1984) through their research that examined small and young firms were believed to have less information in the market compared to matured ones. Those could be the reasons for speculative buying for investors that significantly affect the stock return.

On the other hand, the value/growth through the book-to-market ratio had results of significant for young-age firms and old-aged, while the middle-aged not. In the research conducted by Capaul et al. (n.d.), in their researches toward five countries, the switch of value

to growth and vice versa would happen. However, they recommended the investors to sell shortly the growth stocks, while value stocks to be contrary. It would be better for the investors to look for cheap high growth stocks rather than expensive low growth stocks to achieve as high as possible returns. Overall, in their researches, significant results had been shown for the value/growth stocks. In Indonesia, the value/growth stocks were significant, however, when talking about the corporate aging, they were significant for young-aged companies.

The result of the momentum was significant for mid-aged companies, while young-aged and old-aged weren't. According to research regarding momentum strategies by Chan et al., (1996), the market tends to underreact to the changes in stock prices in short term, while overreact in the long-term. This would be the reason for those young-aged and old-aged companies to be insignificant due to the underreact and overreact of every momentum. Therefore, we couldn't simply look at the return from the previous one month to conclude the next movement of the stock prices.

When analyzing about the corporate aging, the trading liquidity were not significant, that could be said that this ratio didn't have impact towards the stock return during the five year of research.

For market beta, the corporate aging didn't matter, as the result was insignificant for both mid-aged and old-aged companies. Financial distress was also not the characteristic of the company that was affected by aging as well as its impact towards the stock return with all probability stated of insignificant. Furthermore, the result of the profitability had shown the insignificant effect toward the stock returns for mid-aged and old-aged, which means that the profits of company didn't affect the pricing of stocks. On the other hand, the investments for young-aged did have significant impact that the changes in assets for the young-aged had become considerations for most of the investors in their buying and selling decisions.

Therefore, after analyzing those nine characteristics of corporations and their effect toward stock return, it could be said that the corporate aging had affected the firm characteristics to be significantly affect the stock returns that were depicted from the F-test result stated above. On the other words, the majority of the result regarding corporate aging did affect the characteristics of the companies that could affect the stock return, except only Value/Growth stocks for old-age company, and momentum for mid-age company. Compared to the previous research conducted by Bank & Insam (2021) with the title of "Corporate aging and changes in the pricing of stock characteristics", the research was conducted towards the common stock in the US. The result has showed that the corporate aging was strongly interacted with the characteristics in the US corporations. For old corporations, the stable and robust business model had allowed the stock return to earn above average. Similar to the research conducted in Indonesia, the result had depicted that the corporate aging had strong interaction with the corporate characteristics, however, mostly towards the companies with young-age, however, for mid-age and old-age, the results were mostly insignificant, except for momentum and book-to-market ratio.

CONCLUSION

Overall, in Indonesia, it could be said that only young-aged firms were more likely to create or contributed to the highest and lowest return in the stock market. Through this paper,

it could be consideration for the investors to invest in firms with young-aged rather than middle and old age in order to earn the highest return on investments. When investing in the young-aged firms, it was recommended to look and analyze more on their market capitalization, whether it is large or small firms, analyzing book-to-market ratio as they were value companies or growth companies. It was recommended to invest shortly in growth stocks, while long in value stocks. Analyzing momentum of their past one-month return whether they were providing positive or negative return was also important to understand the technical analysis of stock pricing. Moreover, volatility of young-aged firms usually was high compared to middle and old aged firms, therefore, the volatility could become the risks for investors to earn high return. It is also recommended for investors to look at the change in total assets from period to period when decides to invest in young-aged firms. In conclusion, during the five years of research, only young-aged firms were significant, while others didn't. Still, careful decision making and analysis must always be made due to the problem that young-aged companies have less information compared to matured ones.

REFERENCES

Aharoni, G., Grundy, B., & Zeng, Q. (2013). Stock returns and the Miller Modigliani valuation formula: Revisiting the Fama French analysis. *Journal of Financial Economics*, *110*(2), 347–357. https://doi.org/10.1016/j.jfineco.2013.08.003

Alamsyah, F., & Madyan, M. (2021). Pengaruh Board Characteristics Proporsi Woman On Board Pada Kinerja Keuangan. *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis Dan Inovasi Universitas Sam Ratulangi).*, *8*(2). https://doi.org/10.35794/jmbi.v8i2.34663

Alamsyah, F., Saerang, I.S., Tulung, J. E. (2019). Analisis Akurasi Model Zmijewski, Springate, Altman, dan Grover Dalam Memprediksi Financial Distress. *Jurnal EMBA : Jurnal Riset Ekonomi, Manajemen, Bisnis dan Akuntansi 7*(2). https://doi.org/10.35794/emba.v7i2.49101

Amihud, Y. (2002). Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets*, *5*(1), 31–56. https://doi.org/10.1016/S1386-4181(01)00024-6

Baltagi, B., Feng, Q., & Kao, C. (2012). *A Lagrange Multiplier Test for Cross-Sectional Dependence in a Fixed Effects Panel Data Model.* https://surface.syr.edu/cprhttps://surface.syr.edu/cpr/193

Bank, M., & Insam, F. (2021). Corporate aging and changes in the pricing of stock characteristics. *Finance Research Letters*, *July 2020*, 101908. https://doi.org/10.1016/j.frl.2020.101908

Capaul, C., Rowley, I., & Sharpe, W. F. (n.d.). *International Value and Growth Stock Returns.*

Chincarini, L. B., Kim, D., & Moneta, F. (2020). Beta and firm age. *Journal of Empirical Finance*, *58*, 50–74. https://doi.org/10.1016/j.jempfin.2020.05.003

Daniel, K., Titman, S., John Wei, K. C., & Lun Fellowship, W. (1996). Explaining the Cross-Section of Stock Returns in Japan: Factors or Characteristics? In *the Journal of Finance •: Vol. LVI* (Issue 2).

Drienko, J., Smith, T., & von Reibnitz, A. (2019). A review of the return–illiquidity relationship. In *Critical Finance Review* (Vol. 8, Issues 1–2, pp. 127–171). Now Publishers Inc. https://doi.org/10.1561/104.00000052_supp

Elsayed, K., & Paton, D. (2009). The impact of financial performance on environmental policy: Does firm life cycle matter? *Business Strategy and the Environment*, *18*(6), 397–413. https://doi.org/10.1002/bse.608

Fachrudin, K. A., & Ihsan, M. F. (2021a). The effect of financial distress probability, firm size and liquidity on stock return of energy users companies in Indonesia. *International*

Journal of Energy Economics and Policy, *11*(3), 296–300. https://doi.org/10.32479/ijeep.10677

Fachrudin, K. A., & Ihsan, M. F. (2021b). The effect of financial distress probability, firm size and liquidity on stock return of energy users companies in Indonesia. *International Journal of Energy Economics and Policy*, *11*(3), 296–300. https://doi.org/10.32479/ijeep.10677

Gorganlidavaji, J., & Vakilifard, H. (2014). The effect of firm size and growth opportunity on accounting discretion and its relationship with future stock return (management opportunism test). *European Online Journal of Natural and Social Sciences*, *3*(3), 511–521.

Hoechle, D., Schmid, M., & Zimmermann, H. (2017). *Does Unobservable Heterogenuity Matter For Portfolio-Based Aasset Pricing Tests?*. https://ssrn.com/abstract=3190310

Kieschnick, R., & Moussawi, R. (2018). Firm age, corporate governance, and capital structure choices. *Journal of Corporate Finance*, *48*, 597–614. https://doi.org/10.1016/j.jcorpfin.2017.12.011

Kumar, M. P., & Kumara, N. V. M. (2020). Market capitalization: Pre and post COVID-19 analysis. *Materials Today: Proceedings*, *37*(Part 2), 2553–2557. https://doi.org/10.1016/j.matpr.2020.08.493

Loderer, C., & Waelchli, U. (2015). Corporate Aging and Takeover Risk. *Review of Finance*, *19*(6), 2277–2315. https://doi.org/10.1093/rof/rfu048

Chan, Jagadeesh & Lokanishok. (1996). Momentum Strategies. *The Journal of Finance, 1681-1713*

Nadyayani, D. A. D., & Suarjaya, A. A. G. (2021). The Effect of Profitability on Stock Return. *American Journal of Humanities and Social Sciences Research (AJHSSR)*, *5*(1), 695–703.

Newlove Asamoah, G., & Quartey-Papafio, A. (2011). Beta risk estimation of companies listed on the Ghana stock exchange. *Journal of Risk Finance*, *12*(3), 195–207. https://doi.org/10.1108/15265941111136941

Pavlov, V., Gasbarro, D., Monroe, G., & Hurn, S. (2003). Invest or Sent iment and Moment um and Cont rarian Trading St rat egies: Mut ual Fund Evidence Momentum in Australian Stock Returns. In *Australian Journal of Management* (Vol. 28, Issue 2).

Sakr, A. M., Ragheb, M. A., Ragab, A. A., & Abdou, R. K. (2014). Return Anomalies "Disposition Effect and Momentum": Evidence from the Egyptian Stock Market. *International Journal of Economics and Finance*, *6*(2), 181–196. https://doi.org/10.5539/ijef.v6n2p181

Soeparto, W. H. (2021). Analisis Faktor Kapabilitas Dinamis Terhadap Firm Survive. *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis Dan Inovasi Universitas Sam Ratulangi).*, *8*(3). https://doi.org/10.35794/jmbi.v8i3.36183

Vo, X. V., & Bui, H. T. (2016). Liquidity, liquidity risk and stock returns: Evidence from Vietnam. *International Journal of Monetary Economics and Finance*, *9*(1), 67–89. https://doi.org/10.1504/IJMEF.2016.074586