

## **Idiosyncratic Risk and Asset Pricing**

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### **Abstract**

*The purpose of research is to investigate the accrual principles in Accounting that contained in the Company's Financial Statements. The accrual principle is reflected in the Balance Sheet and Income Statement. Accrual measurements in the Balance Sheet are measured using Persistence Current Operating Accrual, Persistence Non-Current Operating Accrual. Idiosyncratic risk reflects the specific information about the company and it will fluctuate according to the information itself.*

*To measure the idiosyncratic risk in this study five factors of Fama-French Model were used (Fama and French 2014). Asset Pricing Measurement uses the Dividend Discount Model to predict stock prices.*

*The samples used in this study are listed below. The Manufacturing Company is selected with consideration for accrual measurement of accounts receivable, inventory, investment, and liabilities. The sample was chosen by purposive random sampling method. The number of samples generated by this method is 145 companies with full reports for 2010-2015.*

*Using the SEM AMOS Ver.24 and Sobel Test-Path Analysis, the results show that Current Operating Accrual has a negative and significant relationship to the idiosyncratic risk and stock price. For non-current Operating Accrual, variables have a positive and significant relation. By using Sobel Test, the test result shows that idiosyncratic risk has mediation effect in Persistence Current Operating Accrual, Non-Current Operating Accrual relationship to stock price.*

**Keywords:** *Persistence Current Operating Accrual, Persistence Non-Current Operating, Idiosyncratic Volatility, Asset Pricing*

## A. Introduction

Traditional *CAPM* model, the market *return* measurement refers to the variation of individual stock movements to market *return*, while variations in specific stock *return* volatility refer to the idiosyncratic, the *residual variance* in regression model *CAPM*. The idiosyncratic volatility increases the researcher's attention when the investor cannot fully diversify due to budget constraints and the ability to diversify. In the *CAPM*, the *return* of an asset is determined only by the systematic risk. In theory, the *CAPM* is very useful in explaining and predicting the relationship between risk and *expected a return*, but the empirical facts show that the model is not able to explain the phenomena (Roll, 1977).

Roll and Subrahmanyam (2010); Roll *et al.*, (2014); Prono (2015) states that the *CAPM* cannot be held in a variety of conditions or in other words the *CAPM* is often inappropriately used to predict the value of an asset. Roll (1977) explains that empirical testing provides results that are single stock price index is a proxy that is bad in the *CAPM*.

The risk is one of the main factors that investors consider when making *investments*. The risk of securities consists of two components, which are a diversifiable risk and non-diversified risk. Portfolio securities are performed by investors to reduce diversifiable risk, while non-diversified risks will remain attached to each individual securities. *Capital's stock price Model (CAPM)* developed by Sharpe (1964) and Lintner (1965) have long formed the mindset of academics and practitioners on the relationship between risk and *return*.

Sloan research results (1996) found a negative correlation between the rate of accrual of *subsequent stock return* has given rise to numerous studies. Research at the company level is based on the US market. Durnev *et al.*, (2003); Zhu *et al.*, (2014); Durnev *et al.*, (2016) showed that *idiosyncratic risk* is positively correlated with stock price informativeness. Accrual Anomaly has a positive and significant impact on the idiosyncratic risk. Investors looked reflect accrual accounting policies and the degree of flexibility of the manager. Managers can use judgment in financial reporting to alter the financial statements in order to achieve certain goals and means increased risk for investors (Asri *et al.* 2017)

Indonesian capital market showed a positive effect of idiosyncratic volatility, although not as strong as documented evidence to Malaysia, Singapore, and Thailand (Nartea *et al.*, 2011; Nartea *et al.*, 2013). Based on these considerations, to answer the variation pattern of this relationship researchers used *an idiosyncratic risk* as mediating variables that explain the relationship with the accrual rate in the stock price *perspective prospect theory frame*.

The ability of idiosyncratic risk in determining the formation of stock price becomes the focus of this research. *Idiosyncratic risk* as an indicator forming stock prices in the capital. Based on the above arguments, the formulation of this research are summarized as follows: in the context of Indonesia's capital market, whether there is an anomalous phenomena accrual, whether the formation of anomalous accrual and persistence of accruals affect *stock prices* and whether investors consider *idiosyncratic risk* in the decisions that shape stock prices. Kahneman and Tversky (1979) introduced the theory of prospects and developed the theory of prospects to explain why a person makes certain decisions from his psychological side. Prospect theory denies *expected utility theory* that explains that their individual decisions are rational and *linear*. Prospect Theory explains the *framing effect, certainty effect, insurance effect, and the endowment effect*.

Prospect theory states that in making decisions, people tend to focus on the prospects, namely the prospect of *gains* and *losses* prospects, rather than on total wealth. As for, which is used as a reference point in calculating profit and loss always change from time to time. Furthermore, the decision-makers perceive a person or prospect (*outcomes*) in the form of the value function. This is consistent with the main conclusions Kahneman and Tversky (1979) explains that the function of the values defined in terms of *gains* and *losses*. Value function explained that in making decisions, people tend to be *risk-averse* when it is in the domain of profit and *risk-seeking* when it is at a loss domain. The loss function is represented by a more concave and steep curve, while the function of the profit value is represented in the form of a convex curve and not so steep. Relationships between variables in this study are based on prospect theory, the theory of *real options, stock prices* and the development of risk models. This study uses *idiosyncratic risk* as a mediating variable linking *persistence current operating accrual, persistence non-current operating,*

on *stock prices*. To build a model of the relationship between *the operating current accrual persistence, persistence operating non-current accrual on the r idiosyncratic risk use of real options theory*. Model of the relationship between *idiosyncratic risk to the stock price* using the *prospect theory*.

Reflecting *idiosyncratic risk* specific information about the company and fluctuate according to the information itself (Goyal and Santa-Clara, 2003). Factors that may affect this risk are announcements about seasonal earnings information, supplies and company requests and the dynamics of corporate competition. Company earnings information can be observed from the accrual quality in the financial statements. It is also possible *idiosyncratic risk* arises because of government regulations that have a direct impact on certain industries.

This study is urgent because of the different characteristics in assessing risk in the CAPM model that is not in accordance with the conditions of the Indonesian capital market. Changes in specific information that often occur affect a particular company or industry to be the main basis of risk assessment by investors. This consideration should be in the idiosyncratic model.

## **B. RESEARCH METHODS**

The population is all registered companies in IDX in the period 2010-2015 recorded 154 companies. The sample in this study determined using *purposive sampling* method, the sampling technique with consideration or certain criteria, namely: the Company was sampled company listed on the Stock Exchange in 2010-2015 without *delisting*. The Company is not late in issuing its audited financial statements as of December 31, 2010-2015.

The type of data used in this study is documentary data in the form of annual financial statements and quarterly companies listed on the Indonesia Stock Exchange (IDX) period 2010-2015. While the source of the data used in this research is secondary data in

### **Stock Price**

Fama and French (2006) using the *dividend discount model* and the *clean surplus equity accounting* defines *market value* as follows.

### **Persistence Current Operating Accrual**

(Richardson et al. 2005) Developed from Sloan Research (1996) by connecting reliability in the measurement of accrual persistence of earnings and stock prices. (Richardson et al. 2005) equation fix Total Accrual used in Sloan (1996) further describes the accrual component.

In this equation,  $\Delta CO$  translated into changes in current assets excluding cash and short-term investments ( $\Delta COA$ ) minus the change in short-term liabilities excluding *short-term debt* ( $\Delta COL$ ).

$[\Delta \text{Current Assets} - \Delta \text{Cash and Short Term Investments}] - [\Delta \text{Current Liabilities} - \Delta \text{Debt in Current Liabilities}]$

### **Persistence Non-Current Operating Accrual**

The persistence of *non-current operating accrual* ( $\Delta NCO$ ) is the change in non-current assets do not include investment in *non-equity* long-term and *advances* ( $\Delta NCOA$ ) reduced by changes in long-term liabilities, excluding *long-term debt* ( $\Delta NCOL$ ).

$[\Delta \text{Total Assets} - \Delta \text{Current Assets} - \Delta \text{Long Term Investments and Advances}] -$   
 $[\Delta \text{Total Liabilities} - \Delta \text{Current Liabilities} - \Delta \text{Long Term Debt}]$

Five-factor model of *Fama French* (Fama & French 2014b) carried out by regressing *excess return* using five factors:

$$R_{it} - R_{Ft} = a_i + b_i (R_{Mt} - R_{Ft}) + t_{he} + h_i HML_t + SMB_t + RMW + r_i + c_i CMA + e_i$$

1. the difference between *the return* of the market portfolio,
2. difference *return* of portfolio of small stocks to the portfolio *return* small stock large stock deductible (*Small Minus Big - SMB*),
3. the difference between *the return* of the portfolio with a ratio *Book To Market (BTM)* high-yielding portfolio with low *BTM* ratio (*High Minus Low-HML*)
4. *RMW* difference between *returns* on portfolio diversification and low profitability
5. *CMA* difference between *returns* lower stock portfolio diversification with a high investment company.

## C. RESEARCH RESULTS

The descriptive statistical analysis used to determine the description of the study variables: the magnitude of *Accrual Operating Current*, *Current Operating Non-Accrual*, *Financial Accrual*, *Accrual Anomaly*, *Idiosyncratic Risk* and *stock price*. The values seen in the descriptive statistics are the maximum, minimum, average, and standard deviation values. The results of the descriptive statistical test in this study can be seen in the table below.

**Table 1**  
**Descriptive Statistics**

Descriptive statistics					
Variable	N	Minimum	Maximum	Mean	Std. Deviation
Stock price	457	1.396394611	5.471841892	3,4134952400	, 798262616000
IdiosyncraticRisk	457	-3,72573075	, 856604160	-1.1268501230	, 757497250000
CurrentOperatingAcc	457	3.403534684	8.622597605	6,22805142500	, 890578603000
NonCurrentOperatingAcc	457	3,972781608	9,325747687	6.5179912040	, 916559883000

Source: Data of Sports (2017)

*Multivariate* testing in this study requires the fulfillment of the normality assumption. This test is performed when Amos's operation runs. There are two tests of normality, namely univariate normality, and multivariate normality. A data distribution can be considered normal if the value of *CR CR Skewness* and *kurtosis* value is smaller than the critical value table  $\hat{A} \pm 1.96$  with a 0.05 significance level (p-value 5%). The following table is the result of *univariate* and *multivariate* normality test with Amos program version 24.

**Table 2**  
**Result Testing normality**

**Assessment of normality (Group number 1)**

Variable	Min	Max	Skew	Cr	Kurtosis	
CurrentOperatingAcc	3,404	8,623	-, 004	-, 037	-, 019	-, 082
NonCurrentOperatingAcc	3.973	9,326	, 182	1.588	-, 204	-, 888
IdiosyncraticRisk	-3,726	, 857	-, 386	-3,364	, 037	, 159
Stock price	1,396	5,472	, 175	1.524	-, 223	-, 971

Multivariate	, 259	, 282
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Source: data preparation (2017)

*Univariate* analysis in Table 4.2 above, it is known that there is a variable that has a value of skewness and kurtosis CR is greater than the critical value table  $\pm 1.96$ . Thus it can be concluded that the univariate and multivariate data distribution is normal at the 0.05 significance level (p-value 5%). Multivariate testing is done, it is known that the *CR kurtosis* of 0,282 is smaller than the critical value table  $\hat{A} \pm 1.96$ . It can be concluded in *multivariate* data distribution is normal.

*Multikolinearitas* testing aims to test whether the regression model found a strong correlation between the exogenous variables. The result of multicollinearity assumption test in this research can be seen in table below.

**Table 3**  
**Result of Multicollinearity Testing**

**Testing Substructure 1 Dependent Variable: Idiosyncratic Risk**

Model	Unstandardized Coefficients	Standardized Coefficients		T	Sig.	Collinearity Statistics	
		B	Std. Error			Beta	Tolerance
1 (Constant)	-, 468	, 265		-1,767	, 078		
CurrentOperatingAcc	-, 109	, 029	-, 128	-3,743	, 000	, 543	1.840
NonCurrentOperating Acc	, 115	, 029	, 140	3,993	, 000	, 521	1.919

Source: Processed data (2017)

**Table 4**  
**Testing Substructure 2 Dependent Variable: The stock price**

model	Unstandardized Coefficients	Standardized Coefficients		T	Sig.	Collinearity Statistics	
		B	Std. Error			Beta	Tolerance
2 (Constant)	2,158	, 165		13,109	, 000		

CurrentOperatingAcc	-, 002	, 018	-, 002	-, 086	, 932	, 527	1.897
NonCurrentOperatingAcc	, 332	, 018	, 381	18,222	, 000	, 503	1.987
IdiosyncraticRisk	, 440	, 029	417	15,106	, 000	, 288	3,473

Source: Processed data (2017)

Based on table 4.3 above, it can be seen that all exogenous variables for both substructure equation 1 and substructure equation 2 have tolerance values > 0.10 and VIF < 10, it can be concluded that there are no symptoms of multicollinearity. Thus, the assumption of multicollinearity in this study has been fulfilled.

### **Conformity Testing Model (goodness of fit Model)**

The model fitness test (goodness of fit model) was conducted to test the suitability of the model submitted through various testing criteria.

**Table 5**

<b>Model suitability Level Measurement (<i>Goodness of Fit Model</i>)</b>			
Measurement	Cut of value	Value Results	Acceptance Rate
Chi-square	<i>Chi-square</i> expected < 9, 488 with DF = 4	<b>6,078</b>	<b>Good</b>
P-value	0.05	<b>0.193</b>	<b>Good</b>
NFI	0.05	<b>0.997</b>	<b>Good</b>
CFI	0.95	<b>.999</b>	<b>Good</b>
RMSEA	< 0.05	<b>0.034</b>	<b>Good</b>
Pratio	0-1	<b>0.267</b>	<b>Good</b>
PNFI	0-1	<b>0.266</b>	<b>Good</b>
PCFI	0-1	<b>0.266</b>	<b>Good</b>
Hoelter	Â %o ¥ 200	<b>712</b>	<b>Good</b>

Source: processed data (2017)

After testing the suitability of the model (*Goodness of Fit Model*), it can be tested against the hypothesis by using a regression model in path

analysis (path analysis) to predict the relationship between exogenous and endogenous variables.

Based on the above path analysis, presented below are the path coefficients standardized structural equation this study.

**Table 6**  
**Coefficient of standardized Line Value**

The combination of variables		Estimate	E	R	P
IdiosyncraticRisk	NonCurrentOperatingAcc	, 115	029	,037	***
IdiosyncraticRisk	CurrentOperatingAcc	-, 109	029	3.784	***
AssetPricing	IdiosyncraticRisk	, 440	029	5.189	***
AssetPricing	CurrentOperatingAcc	-, 002	018	, 087	931
AssetPricing	NonCurrentOperatingAcc	, 332	018	8.438	***

The magnitude of the path coefficients obtained shows the direct influence of standardized beta coefficient based on the t-statistic of each variable, while the magnitude of the indirect effect is obtained by multiplying the path coefficients indicate a direct effect of exogenous variables on mediating variables on endogenous variables. The magnitude of the effect is the sum total of the effect of direct and indirect influence.

**Table 7**  
**Calculation of direct influence can be seen in table 6 below exposure.**

The combination of variables		Direct Impact
IdiosyncraticRisk	NonCurrentOperatingAcc	, 115
IdiosyncraticRisk	CurrentOperatingAcc	-, 109
Stock price	IdiosyncraticRisk	, 440
AssetPricing	CurrentOperatingAcc	-, 002
AssetPricing	AccrualAnomaly	, 303
AssetPricing	NonCurrentOperatingAcc	, 332

Source: Data processing (2017)

Based on the above path analysis, presented below are the path coefficients standardized structural equation this study.

### Calculation of Indirect Influence

The total effect on the calculation, the value of each variable summed, as can be seen in the table below:

**Table 8**  
**Effect of Indirect Variables**

The combination of variables	Calculation	Results
<i>Current Operatng Accrual -&gt; The stock price via Idiosyncratic Risk</i>	$(-0.109) \times (0.440)$	-0.04796
<i>Accrual Non-Current Operatng -&gt; The stock price via Idiosyncratic Risk</i>	$(0.115) \times (0.440)$	0.005060

The total effect on the calculation, the value of each variable summed, as can be seen in table below

**Table 9**  
**Effect of Total Variables**

The combination of variables	Calculation	Results
<i>Current Operatng Accrual -&gt; The stock price via Idiosyncratic Risk</i>	$(-0.002) + (-0.04796)$	0.04996
<i>Accrual Non-Current Operatng -&gt; The stock price via Idiosyncratic Risk</i>	$(0.332) + (0.005060)$	0.33706

### Calculation of Value significance Effect of Mediation (Sobel Test)

The significant value of the role of variable intermediation is obtained by calculating the estimated value (estimate) and standard error (SE) of a track (Ng et. Al., 2015) (Sobel, 1982) with the following formula:  $z\text{-value} = a * b / \text{SQRT} (b^2 * Se_a^2 + a^2 * SE_b^2)$

**Table 10**
**Calculation Results in significance Value Testing Not directly (Sobel Test)**

variable combination	the estimated value	Standard Error	Sobel test statistic	One-tailed probability	Two-tailed probability
Current Operating Accrual -> stock price via Idiosyncratic Risk	-0.109; 0.440	0,029; 0,029	-3.64834031	0.00013197	0.00026394
Accrual Non-Current Operating -> The stock price via Idiosyncratic	0,115; .440	0,029; 0,029	3.83663958	0.00006236	0.00012473

Source: Calculations with the aid of statistics programs calculators BETA Version 3 (2015), *HTTP; // www.danielsoper.com/statcalc3/calc.aspx?id=31*  
Based on the calculation results in Table 4.9 Sobel test can be explained as follows:

1. The indirect effect of the Accrual Operating Current stock price has a p-value (two-tailed probability) Sobel test of 0.00026394 < alpha 0.05
2. The indirect effect of Non-Current Operating Accrual to the stock price had p-value (two-tailed probability) Sobel test of 0.00012473 < alpha 0.05

Results of testing the hypothesis in this study are summarized in the following table.

**Table 11  
Testing Results Hypothesis**

Variable	P-value	Hypothesis testing results
<i>H1. Operating Current accrual □ □ Idiosyncratic Risk</i>	***	accepted
<i>H2. Operating Current accrual □ □ stock price</i>	, 931	rejected
<i>H3. Operating Current accrual □ □ stock price via Idiosyncratic Risk</i>	0.04996	accepted
<i>Operating Current H4.Non- accrual □ □ Idiosyncratic Risk</i>	***	accepted

<b>Operating Current H5.Non- accrual</b> □□ <b>stock price</b>	***	accepted
<b>H6. Non-accrual Current Operating</b> □□ <b>stock price via Idiosyncratic Risk</b>	0.00012473	accepted
<b>Idiosyncratic Risk H7</b> □□ <b>stock price</b>	***	be accepted

Data processing (2017)

## D. DISCUSSION AND RESEARCH FINDINGS

Results show that the *persistence of current operating accrual* has a negative and significant impact on the *idiosyncratic risk*. The results of this study are not consistent with research Lin and Wang (2011) found that the *value relevance* of financial statements will improve the *idiosyncratic risk*. These results are consistent with studies that examine the relationship of the quality of financial statements with information such as the study of risk Easley and O'Hara (2004); Francis *et al.* (2005); Lambert *et al.*, (2007); Gray *et al.*, (2009).The study is based on theoretical models suggested that the risk information is a risk factor that can not be diversified.

Accruals quality as a measure of risk associated with financial statement information, using the accrual quality can be seen how much the accuracy of *working capital accruals* into the realization of operating cash flow in order to see the quality of *the current operating* company reported. The behavior of investors to the proportion of *private information* and *public information*. The asymmetry of information that occurs when high levels of *private information* will increase the risks faced by the *less informed investors*.This risk is a risk that can not be diversified and will encourage *less informed investors* to ask for *return* larger so that cost of capital increases. If the company wants to lower the cost of capital, can be done to mitigate risks faced by information *less informed investors*.

These result in terms of *real options* is a right given to the manager to take the best action of the alternative changes in accounts receivable, inventories and current liabilities. The decision is conditional is an inherent part in a *real option*. *Real options* used in connection persistence of accruals and *Idiosyncratic risk* to understand the behavior of the company's investment in industry dynamics and government policies. The content of the information *accrual* against *idiosyncratic risk*. *Idiosyncratic risk* is influenced by

monetary policy, characteristic factors of the company, funding policy and the company's operating activities of companies that *short-term accruals affect the risk*.

The accounting treatment and *disclosure* could affect the company's information environment and the impact on information risk, volatility *and idiosyncratic*, and cost of capital, so that the relationship of financial information and *Idiosyncratic risk* is based on the dimensions of this company quality operation accruals as a measure of risk information. Research operation in this dimension is measured using a *persistence operating current accrual* which measures the change in current assets accounts receivable, inventory and change of current debts. Changes in accounts receivable and inventories and liabilities are the options granted to management. Management decisions related to changes in accounts receivable, inventories and current liabilities is inherent in this part of the theory of *real options*.

## **E. Conclusion**

This study aimed to examine the effect of *persistence accrual operating current, operating noncurrent accrual persistence*, idiosyncratic risk stock prices. By using a sample of 94 companies listed in Indonesia Stock Exchange 2010-2015 period resulted in some conclusions as follows.

1. *persistence of current operating accrual* has a negative and significant impact on the idiosyncratic risk. The results of this study correlate negatively indicates that investors view the current operating persistence accrual as changes in current assets and current liabilities are not unidirectional company-specific risk premises. The increase in operating current accrual changes being considered a specific risk reduction company. This is because the Indonesian capital market investors more trading within a short time.
2. *persistence of current operating accrual* has no influence stock prices. Indonesian capital market investors do not consider the change in operating current accrual as forming part of the stock price.
3. *Current operating accruals* have an influence on *the stock price* through the idiosyncratic risk is accepted. Presentation of the statement of changes in current assets and current liabilities of the issuer company is

seen by investors and capital market analysts as the company's specific risk to the impact on stock prices. This condition is caused due to the company's operational needs and the needs of the dividend payment are considered important by investors.

4. *Persistence non- current operating accruals* have a positive and significant impact on the idiosyncratic risk. Investors looking at the change in operating non-current accrual as a change on account of fixed assets is a specific risk to the company. The increase in this account tells us the increase in risk.
5. *Persistence non- current operating accruals* have a positive and significant impact on stock prices. It tells us the change of operating current accounts accrual seen by investors is very important with regard to the continued operation of a manufacturing company that deals with stock prices.
6. *Persistence Current non-operating accrual* has an influence on the stock price through the idiosyncratic risk is acceptable. The presentation of changes in assets and liabilities of the company's long-term issuer is seen by investors and capital market analysts as the company's specific risk to the impact on stock prices. This condition is caused due to the operational needs of the company with regard to the use of fixed assets in the machinery and equipment manufacturing companies considered important by investors
7. *Idiosyncratic Risk* has a positive and significant impact on stock prices

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