

ID007 – Financials and Macroeconomics Impact on Capital Adequacy Ratio: Evidence from Malaysian Commercial Banks

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Abstract

This study investigates the impact of financial and macroeconomic variables on capital adequacy ratio (CAR) within Malaysian commercial banks, with specific attention on return on assets (ROA), banks size (SIZE), deposits (DEPO), inflation (INF) and economic condition (GDP). 21 banks are used with the time period commence from 2010 to 2016 which consist in total of 147 annual data observations. All data was analyzed using STATA10 package through Static Panel Data analysis. Besides, random effect model regression unleashed that deposits (DEPO), banks size (SIZE) and economic condition (GDP) have a significant relationship with capital adequacy ratio (CAR). However, only INF signifies a positive relationship with CAR while ROA, DEPO, SIZE and GDP are concluded to have negative associations with CAR. The result provides fruitful insights on the effects of financial and macroeconomic factors on capital adequacy ratio. Moreover, it promotes withstanding of Malaysian commercial banks as consistence to Central Bank of Malaysia main focus; monetary stability and financial stability to sustain Malaysian economic growth.

Keywords: capital adequacy ratio; financial variables; macroeconomic variables; panel data; Malaysian commercial banks.

1. INTRODUCTION

Commercial banks are the key player where notably larger people engage on their banking activities, synthesize the banks as the gigantic and most significant fund provider in Malaysian banking system. In spite of recent global financial crisis, commercial banks remain competent to execute its primary intermediation function efficiently without hindrance. This reflects the resilient character of the Malaysian financial system during periods of volatility and turmoil. Banks invariably exposed to various sort of risks in running the business, hence, it is necessary to preserve a sufficient extent of capital to embolden banks' business expansion and absorb unexpected losses. The tendency of banks' default can be minimized through an appropriate enforcement especially on the banks' capital. Along these lines, the enforcement of capital adequacy to recognize for minimum capital requirement needs within banks is introduced in year 1988 by the BASLE Committees.

In Malaysia, commercial banks' capital is being addressed to two types of capital; Tier 1 capital and Tier 2 capital. Common stock and retained earnings are pooled to Tier 1 capital representing the core capital. It is the dominant measure of bank's financial effectiveness and strength. Besides, most of the accumulated funds in the banks are belong to Tier 1, the

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leading capital. The funds can be addressed as the emergency purposes fund whereas it is raised purposely to brace banks and evade unnecessary shut down of regular business functions. Yet, Basel III regulates the minimum capital ratio of 6%. Furthermore, supplementary to Tier 1 capital, Tier 2 capital's function is to make up banks required reserves. Tier 2 capital is crafted as supplementary capital to Tier 1 capital, it embodies of items like subordinated term debt, revaluation reserves, hybrid instruments, and undisclosed reserves. Focus to the aspect of banks reserve requirement, Tier 1 capital is more favorable than Tier 2 capital in term of the security part that it provides to banks.

Banks capital adequacy ratio is derived by combining Tier 1 and Tier 2 capital, divided to its total risk weighted assets. In rational, banks might encounter potential losses from risk weighted assets items such as credit risk, market risk and operational risk. Nevertheless, the capital adequacy ratio should depend on banks risk profile, not only limited to risk coming from the group of risk weighted assets as it supposed to anticipate various types of risk coming around the banks that might trigger to potential losses in future.

In banking system, capital adequacy helps banks remains survived and solvent. Atul (1996) stated capital adequacy is regarded as noteworthy international bank regulations latest reform intended to provide cushions towards the banking risks that would possibly render towards bankruptcy. The vitality function of capital adequacy has brought several researches conducted for some countries as such Jordan, Vietnam, Japan, Ethiopia, Nigeria, Indonesia, Pakistan, Turkey, Egypt and European are carefully explored. Furthermore, review of the literature reveals the existence of knowledge gaps in relation for determinants of capital adequacy ratio as some countries' context as such Malaysia is left under explored.

In Malaysia, commercial banks are the main players and largest fund providers in the Malaysian banking system. It is the most active sector for Malaysian economy as well playing vital roles for the country economic development. The total amount of loans and total amount of deposits as at the middle of 2014/2015 amounted to RM285.1 billion and RM287.6 billion respectively, representing around 76% and 71% of banking system's total amount of loans and deposits. Oduor, Ngoka and Odongo (2017) mentioned about banks' independence and survival in case of unexpected losses, in which minimum capital requirement in the banking sector able to strengthen global capital and liquidity situation to create more resilient banking sector and ensuring overall financial stability. This study is initiates to identify the most significant determinants that will give impacts on banks' capital adequacy. Insufficient researches on determinants of bank's capital adequacy ratio in the context of Malaysia and the presence of knowledge gap in the area urge this study.

Previous research by Shingjergji and Hyseni (2015) and Thoa and Anh (2016) have suggested conducting research by considering more banking variables as well as macroeconomic ones other than equity ratio, loan ratio, leverage and net interest margin. Thus, this study is lead to further investigate the presence of any significant relationship between capital adequacy ratio and bank specific variables such as return on assets (ROA), bank's size (SIZE), deposits (DEPO) and macroeconomic variables which comprised of economic condition (GDP) and inflation (INF).

1.2 Literature review

1.2.1 Capital adequacy ratio and financial variables

Capital adequacy has always been seen as a vital element in financial institutions. Posner (2014) defines capital adequacy as a situation when a bank's assets overreach its possessed liabilities; which the sufficient percentage of assets over its liabilities that enable the bank to absorb the unambiguous occurrence of financial losses has referred to subject of interest, capital adequacy.

With liquidity risk, ROA, rate of return on equity, interest rate risk, capital risk, credit risk and revenue power as the independent variables, their relationship towards bank's CAR (measured by total capital over risk weighted assets) in Jordan was studied by Al-Tamimi and Obeidat (2013). From the year 2000 to 2008, the data with relation to the variables used were collected. Multiple linear regression analysis was conducted by means of method used to further data analysis. An analyzed data has revealed that CAR shares a parallel and statistically significant relationship to liquidity risk and ROA. In contrast, return on equity and interest rate risk affect CAR with an inverse direction but maintain statistically significant putting impact on CAR as according to the study findings. However, several variables as such capital risk, credit risk and revenue power give an inverse and relatively insignificant relationship to CAR.

In addition, Mili, Sahut, Trimeche and Teulon (2014) investigate the relationship between CAR with bank-specific financial variables and the countries' macroeconomic variables. SIZE, DEPO, loan loss provision, ROA and net interest margin are featured as bank specific financial variables. Meanwhile, GDP, real interest rate and real effective exchange rate are referred to macroeconomics variables. Multiple linear regression analysis was used by means of data analysis to satisfy the study's objective, to examine the determinants of the subsidiary's CAR. Using data from 2000 to 2010 to be analyzed and observed, the regression results portrayed a negative and positive direction with statistically insignificant relationship which has occurred for ROA with CAR and net interest margin, DEPO and real effective exchange rate with CAR, respectively. Meanwhile, with positive and significant impact on CAR, loan loss provision and GDP shared similarity in the study's findings. All the same, real interest rate and SIZE are noticed to have an inverse relationship and are statistically affecting CAR.

Furthermore, Yahaya, Mansor and Okazaki (2016) has carried out a study to estimate the relationship between capital adequacy and some other independent variables in Japan by using economic and financial variables. Correspondently, panel data regression and correlation analysis were chosen to test data from 64 regional banks over a decade period from year 2005 to 2014. The study has revealed some of the variables as such unemployment rate, money supply, deposit to asset ratio, ROA, return on equity, SIZE, DEPO and total loans affect capital adequacy with a positive direction. Meanwhile, adverse related relationships take place for variables such as INF, real exchange rate and GDP with CAR.

1.2.2 Capital adequacy ratio and macroeconomic variables

Economic condition has use Gross Domestic Product (GDP) as the proxy to read economic condition in Malaysia. Economic condition is a vital element for the country's performance over the year. When economy in a country is improved, banks are biased with possession of lower capital ratio because they feel themselves in a safer condition (Yuksel & Ozsari, 2016). Bokhari, Ali and Sultan (2012) stated in the condition where economy is ascending and positive, banks are exposed to lesser risk. Thus, it retains low ratio in term of capital and encouragingly execute more investments in financial sectors to increase profit. However, causal relationship in term of advancement in financial institutions where more financial services are created, has pushed supply in the market to increase, and hence may influence to the economic to ascending as well (Calderón and Liu, 2003). Inflation rate can be expressed as the changes in the price level of goods and services that influence degree of consumer purchasing power. Inflation rate is a crucial indicator to evaluate economic performance in a country. As the government controls the prices of goods and services, it can positively regulate cost of living for each economy's unit.

Yu, Hassan, Mamun and Hassan (2014) further explained regulators major concerns that banks had been exposed to provide standby letters of credit (SLC) and off-balance sheet activities. Upon the request of a client, bank issues SLC for payment guarantee thus, provide confident to the third party whenever the client unable to fulfill the contractual commitment. Bank's clientele uses SLC as proof for their repayment ability and credit quality. Moreover, the

clients' ability to fulfill the contractual agreement depends upon their financial ability. During a stable economic condition, there is less likely potential towards default on the client commitment. Meanwhile, in the situation where the economy is unstable (high inflation rate), bank have potential to face more risks that its client may fail to perform the contractual commitment. As the risks increase, it may increase the required capital adequacy need to remain by banks.

Morgan (2012) believe stability in macroeconomic as an element of financial stability in which need macroeconomic policies has to be antitypical, doused excessive trend in multiple directions, able to maintain stability in prices, ensured minimalism in public sector deficits and a sustainable external debt. Prevention for any undue reliance on foreign borrowing can be made through high level of national saving where it is categorized under a stable macroeconomic framework. Macroeconomic stability is crucial for financial stability as instruments for macroeconomic policy has to be sufficient and parallel by considering regime of exchange rate, thus, avoid erosion of banks capital as result for inflation. If the financial institutions are stable and followed by stability in macroeconomic, it promotes the framework for financial stability and the nature of regulatory and supervisory policies have to be preventive. In contrary, regulatory and supervisory policies should be remedial in a condition where the institutions at the brink or border to achieve stability and in any moment where the institutions plunge into instability. However, resolution policies are introduced for institutions that have become instable.

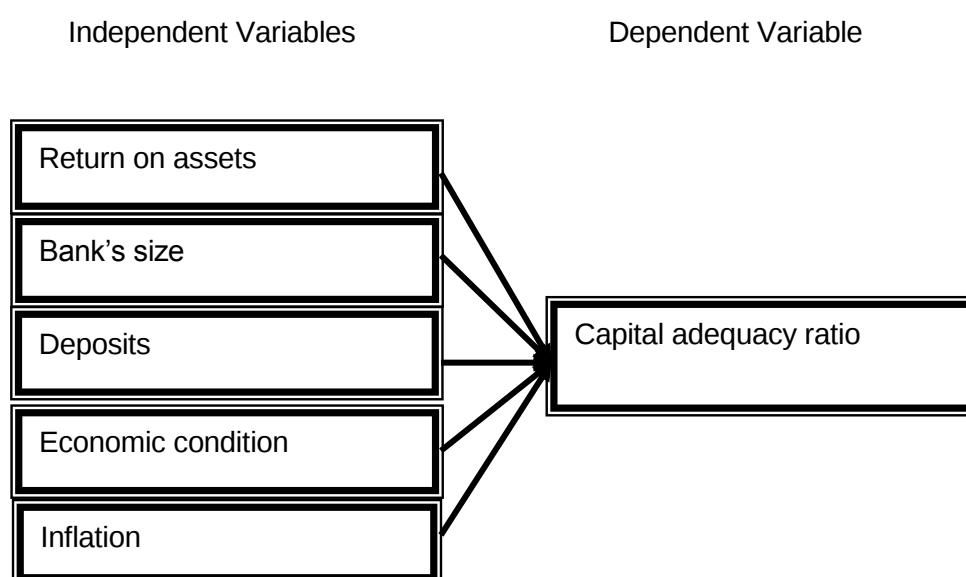


Figure 1: Theoretical framework

2. METHOD AND MATERIAL

2.1 Theoretical model

The elements for this research study are return on assets, bank's size, deposits, economic condition and inflation which are the explanatory variables while the main variable is capital adequacy ratio. Below is the estimation equation for this study.

$$CAR_{i,t} = \alpha + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t} + \beta_4 DEPO_{i,t} + \beta_5 GDP_{i,t} + \beta_6 INF_{i,t} + \varepsilon_{i,t}$$

2.2 Data collection method

Financial data are collected from Fitch Connect and banks' annual report. Macroeconomics data are collected from World Bank's website. 21 commercial banks from the period of 2010 to 2016 (7 years) are gathered and analyzed using Stata 10 package.

2.3 Descriptive statistics

Descriptive statistics are used to describe the basic features of the data in the study. It contains of mean, maximum, minimum, coefficient of variance and standard deviation. It is a set of brief descriptive coefficients which summarizes a given data set. It can either be a representation of a sample or the entire population. In performing empirical and analytical analysis, descriptive statistics provide a handy summary of security returns.

2.4 Correlation

Broad classes of statistical relationships are referred as correlation. There are several correlation coefficients which measure the degree of correlation. In correlation analysis, other than to measure the correlation strength and direction between dependent variable and independent variables; and independent variables to independent variables; it also can genuinely identify the multicollinearity problems between one independent variable and other independent variables when the correlation value exceeds 0.80.

2.5 Panel analysis

The analysis starts with Ordinary Least Square (OLS) regression where the data will be pooled together and assuming that the coefficients are the same for all individuals. Then, the analysis continues by conducting Random Effect Model (REM) test. Breusch and Pagan test is run to test the appropriate of REM. If the result is significant, Fixed Effect Model (FEM) test is conducted. In FEM, it is reported the individual-specific effect is a random variable and it is allowed to be correlated with explanatory (independent) variables. In order to decide which model is being used, the Hausman Fixed Test will be conducted.

3. ANALYSIS AND RESULTS

3.1 Descriptive statistics

The highest CV belongs to ROA while GDP has the lowest CV. Higher CV is more preferable since it can generate higher stability and consistency. This means that ROA has a greater dispersion while GDP possesses lower dispersion in which ROA is better compares to GDP.

Table 3.1: Descriptive statistics

	CAR	ROA	DEPO	INF	SIZE	GDP
MIN	12.12000	-0.612000	0.090000	1.700000	403.0000	255.0200
MAX	337.9300	23.70170	0.920000	3.200000	735956.0	338.0700
MEAN	26.05014	2.725906	0.726735	2.285714	99633.01	303.0571
CV	1.277473	1.683258	0.258982	0.251011	1.424568	0.080995
SD	33.27834	4.588404	0.188211	0.573740	141934.0	24.54604

Notes: There are six variables with the total of 147 observations. The dependent variable is capital adequacy ratio (CAR). Meanwhile, the independent variables are defined as follows: return on assets (ROA), deposits (DEPO), inflation (INF), banks size (SIZE) and economic condition (GDP).

3.2 Correlation

The correlation test is conducted to identify the existence of correlation between variables; dependent variable with independent variables, and independent variable with other independent variables. If the range of correlation between one independent variable with the other one independent is more than 0.8 (>0.8), it indicates that the variable has multicollinearity problems. As display at Table 3.2, the entire variables are recorded less than 0.8 (<0.8) which has expressed that association between independent variables are free from multicollinearity problem.

Table 3.2: Correlation analysis

	CAR	ROA	DEPO	INF	SIZE	GDP
CAR	1.0000					
ROA	-0.0632	1.0000				
DEPO	-0.3530	0.0203	1.0000			
INF	-0.0041	0.0044	0.0005	1.0000		
SIZE	-0.4109	-0.3329	0.4139	0.0070	1.0000	
GDP	-0.1736	-0.0176	0.0598	0.4483	0.0667	1.0000

Notes: There are six variables with the total of 147 observations. The dependent variable is capital adequacy ratio (CAR). Meanwhile, the independent variables are defined as follows: return on assets (ROA), deposits (DEPO), inflation (INF), banks size (SIZE) and economic condition (GDP).

3.3 Expected signs

Variables	Expected Sign	Author
ROA	+	Al-Tamimi and Obeidat (2013); Workneh (2014); Abusharba, Triuwono, Ismail and Rahman (2013); Yahaya et al. (2016); Yuksel and Ozsari (2016); and El-Ansary and Hafez (2015).
SIZE	+	Workneh (2014); Shingjergji and Hyseni (2015); and Yahaya et al. (2016).
DEPO	+	Mili et al. (2014); Workneh (2014) and Abusharba et al. (2013).
GDP	+	Mili et al. (2014) and Bokhari et al. (2012).
INF	+	Williams (2011); Yuksel and Ozsari (2016) and Klepczarek (2015).

Notes: return on assets (ROA), deposits (DEPO), inflation (INF), banks size (SIZE) and economic condition (GDP).

3.4 Pooled ordinary least squared (POLS)

Table 3.4: Pooled ordinary least squared (POLS)

CAR	Coef.	Std. Err.	t	P > t	[95% Conf. Interval]	
ROA	-1.400571	0.5648816	-2.48	0.014	-2.517303	-0.283839
DEPO	-31.27997	14.276200	-2.19	0.030	-59.50304	-3.056891
INF	4.5345950	4.6865410	0.97	0.335	-4.730376	13.79957
SIZE	-7.354721	1.6113110	-4.56	0.000	-10.54017	-4.16927
GDP	-69.88816	32.287160	-2.16	0.032	-133.7177	-6.058644
_cons	517.59300	179.39490	2.89	0.005	162.9415	872.2444

Notes: There are six variables with the total of 147 observations. The dependent variable is capital adequacy ratio (CAR). Meanwhile, the independent variables are defined as follows: return on assets (ROA), deposits (DEPO), inflation (INF), banks size (SIZE) and economic condition (GDP).

3.5 Variance inflation factor (VIF) analysis

Table 3.5: Variance inflation factor (VIF) analysis

Variable	VIF	1/VIF
SIZE	1.41	0.710841
GDP	1.26	0.793655
INF	1.25	0.798110
DEPO	1.25	0.799248
ROA	1.16	0.858936
Mean VIF	1.27	

Notes: There are six variables with the total of 147 observations. The dependent variable is capital adequacy ratio (CAR). Meanwhile, the independent variables are defined as follows: return on assets (ROA), deposits (DEPO), inflation (INF), banks size (SIZE) and economic condition (GDP).

3.6 Random effect GLS regression

Table 3.6: Random effect GLS regression

CAR	Coef.	Std. Err.	z	P > z	[95% Conf. Interval]	
ROA	-1.167708	0.978457	-1.19	0.233	-3.085448	0.7500325
DEPO	-91.0266	19.4062	-4.69	0.000	-129.0621	-52.99116
INF	3.724993	3.674525	1.01	0.311	-3.476944	10.92693
SIZE	-8.87843	2.76863	-3.21	0.001	-14.30485	-3.452015
GDP	-56.96931	25.58139	-2.23	0.026	-107.1079	-6.830704
_cons	504.2542	140.8928	3.58	0.000	228.1094	780.3989

Notes: There are six variables with the total of 147 observations. The dependent variable is capital adequacy ratio (CAR). Meanwhile, the independent variables are defined as follows: return on assets (ROA), deposits (DEPO), inflation (INF), banks size (SIZE) and economic condition (GDP).

Hence, the model can be generated as follow:

$$CAR_{i,t} = \alpha + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t} + \beta_4 DEPO_{i,t} + \beta_5 GDP_{i,t} + \beta_6 INF_{i,t} + \varepsilon_{i,t}$$

$$CAR = 504.25 - 1.1677 ROA - 91.0266 DEPO + 3.7250 INF - 8.8784 SIZE - 56.9693 GDP$$

3.7 Breusch and Pagan Lagrangian Multiplier

	Var	sd = sqrt(Var)
car	294.4713	17.16017
e	65.15824	8.072066
u	115.1439	10.73051

$$\chi^2(1) = 37.90$$

$$\text{Prob} > \chi^2 = 0.0000$$

Notes: The summary statistics are based on the 147 bank-year observations. Capital adequacy ratio (CAR) is the dependent variable.

P-value is significant at 1 percent level. Hence, random effect model is selected over ordinary least square model.

4. DISCUSSION

Based on the result obtained from fixed effect model, only 24.04 percent of the variation capital adequacy ratio can be explained by all the independent variables (ROA, SIZE, DEPO, INF, GDP). Meanwhile, 75.96% is left unexplained and subjected to be fit in by other relevant variables for example return on equity, net interest margin and loan loss provision. DEPO is found to be at the most favorable significant level of 1% ($0.000 < 0.01$), thus, DEPO is found to be significantly affecting CAR. The result is parallel as per Romdhane (2012) and Ogere et al. (2013) who also found that there is negative relationship between DEPO and CAR. Romdhane (2012) has specify that a high deposit ratio means that the banks have more stable resources, and result to the share of deposits in the liabilities is also high. Nevertheless, when deposit ratios are high, the banks have costly deposits and this cost remains cheaper than the other cost of funds. Therefore, the capital may relatively decrease due to risk reduction. The banks may face lesser risk in raising capital by customers' deposits compare with the other way around cost for raising capital. In addition, Ogere, Peter and Inyang (2013) make inference that capital adequacy ratio for a bank can be slashed when customers tend to deposit larger amount than usual. When placement of deposits within banks has increased, deposit-asset ratio for the bank will synchronize to increase as well. It signifies that by how much the bank's assets are funded by deposits, rather than borrowed funds or equity. The rationale behind the capital adequacy ratio is being cut down as DEPO increase is because only large and stable banks possessed high amount of deposits, that making the bank to be regarded as relatively stable. Thus, the fact that banks face lesser risk, reduce the bank capital adequacy ratio.

Furhermore, there is negatively significant relationship lies between SIZE and CAR. The result has uncovered that probability of SIZE at the most favorable significant level of 1% ($0.001 < 0.01$), thus, SIZE is found to be significantly affecting CAR. The negative relationship suggested as per result is inconsistence with Workneh (2014); Shingjergji and Hyseni (2015); and Yahaya et al. (2016). However, the negative relationship found is consistent with majority of the study conducted by Thoa and Anh (2016); Mili et al. (2014); Raharjo, Hakim, Manurung and Maulana (2014); El-Ansary and Hafez (2015); and Ahmad, Ariff and Skully (2008). Thoa and Anh (2016) have concluded that larger SIZE can potentially contribute to a greater stability for a bank. As the bank's size is determined by bank's asset, it express the economies of scale for a particular bank as well in which may influence the possessed amount of bank's capital. Large banks are often addressed as too large too concrete, it signifies the strength and possibility to face unexpected financial losses are not similar with other small banks. Mili et al. (2014) stated larger banks are more accessible to the capital markets and the government guarantee which potentially lead the banks to maintain lesser capital. For this reason, the size of the bank may negatively relate to their capital adequacy ratio. Raharjo et al. (2014) declared a regular safety net perspective in perceive systematic risk, that is based on the cliché believe that large banks are vigorous, and not easily directed to a dead end. Hence, that shows that large banks tend to maintain less capital because of the strong shares in the market. In addition, Ahmad et al. (2008) supports that the large banks are exposed to lesser pressure to raise for capital than small banks. Small banks truly need for more capital to raise profits and expand the business to the new level. As capital is added and funded externally, the risk and burden within banks soared; hence, this is where CAR controls the risk impact to banks. CAR able to support banks, especially when it nears insolvent. Hence, small banks need to maintain high capital adequacy ratio.

There is negatively significant relationship lies between GDP and CAR. The result has uncovered that probability of GDP at the significant level of 5% ($0.026 < 0.05$), thus, GDP is found to be significantly affecting CAR. The negative relationship suggested as per result is consistence with Yuksel and Ozsari (2016); and Yahaya et al. (2016). Yuksel and Ozsari (2016) justify that in the case of economic downturn, banks prefer to have a secured situation is such an unfavorable circumstances. In the case where economic levels worsening, banks are encourage to attract more reserve as to protect the bank's stability and avoid bankruptcy. An increase in reserve functions are meant for risk mitigation measures from banks in dealing economic decline. Furthermore, Yahaya et al. (2016) also supports in poor economic performance banks are encourage to increase reserve to dodge liquidation. Economic condition is something that economist may have already forecast the trend time by time, and in the phase of its declining trend, the banks can be suffering without proper approaches. Nonetheless, the result somehow inconsistent with the study conducted by Mili et al. (2014); and Bokhari et al. (2012) that shows a positive relationship happening between GDP and CAR.

5. CONCLUSIONS AND RECOMMENDATIONS

It is portrayed that this study has aligned with the preliminary research objectives and fulfilled research questions. The first objective for the study is designed to investigate the relationship between banking capital adequacy ratio with return on assets, bank's size, deposits, economic condition and inflation. The result has unlocked that only inflation has positive relationship with capital adequacy ratio, and in contradict, return on assets, banks size, deposits and economic condition show that it is negatively affecting capital adequacy ratio. In addition, the second objective prescribe in the study is to identify the most significant factor that influence the capital adequacy ratio of commercial banks in Malaysia, the finding has revealed that deposits (DEPO) and banks size (SIZE) are the ultimate significant factors that influence capital adequacy ratio. DEPO and SIZE are statistically significant at 1% with 99% confident level. Conclusively, it postulates that the relationship between capital adequacy ratio with inflation is

positive. While, the relationship between capital adequacy ratio with return on assets, banks size, deposits and economic condition are indicate to be negatively related. Nonetheless, deposits (DEPO), banks size (SIZE) and GDP are shown as statistically significant in affecting capital adequacy ratio for the study.

It is recommended to other researchers in future to adopt additional financial variables such as return on equity, net interest margin, loan loss provision and macroeconomic variables such as exchange rate risk, interest rate risk, money supply and unemployment rate in order to achieve exquisite result with different judgments and analysis on the research.

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ID016 – Behavioural Finance in Property Investment Decision Making

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Abstract

Property is a valuable asset which is often regarded as symbolic of stability and independence. Decisions in property investments have an effect on the productivity, wealth and growth of a society. Property investors need to make better decisions in order to prevent financial crises and bubbles in market. Hence, behavioural finance explains the behaviour of investors to invest particularly in property market. The behavioural factors that affect investor's decisions include (i) representativeness, (ii) anchoring (iii) gambler's fallacy, (iv) overconfidence, (v) herding behaviour, (vi) cognitive dissonance, (vii) regret aversion, (viii) loss aversion, (ix) mental accounting, (x) hindsight bias

Keywords: *property investment, investor's behavior, decision making*

1. INTRODUCTION

Behavioural finance is basically the extension of behavioural economics. In 1980s, behavioural finance evolved as a new concept combining behavioural and psychological aspect in economic and financial decision making (Kumar Nisha Goyal et al., 2015). This is because, investor's decision making mostly influenced by factors such as economical and psychological (Sarwar & Afaf, 2016). Behavioural finance refers to the challenges of an efficient market perspective and helps to understand the behaviour of investors to invest particularly in real estate market. It is a norm for investor to be aware of all economic factors such as expected earnings, condition of real estate market, recent price movements, risks, return and others before investing. Nonetheless, psychological factors are also crucial to be considered due to the strong effects of such factors have on investor's decision making (Sarwar & Afaf, 2016). Psychological factors are referring to emotions and feelings of an investor to make judgment and decisions. According to Bakar & Yi (2016), behavioural finance explains why and how investors can act beyond the boundary rationality in ways that oppose to what they are supposed to. This paper aims to explain few psychological factors that affect the investor's decision making in property investments. Basically, this paper is focusing in two main concepts which are the behavioural finance and property market. It is an attempt to investigate how and why investors make decisions to invest in property market (such as sales and purchasing of houses). Emotion and attitudes of investors in decision making are not to be neglected because behavioural finance acknowledged that psychology of investor and their emotions have great influence to motivate or demotivate their decisions in property investments (Kishore, 2006a). Besides, behavioural finance also can explain how and why investors often deviate their investment decisions from rationality to irrationality. In other words, "behavioural finance considers as a part of behavioural economics, a branch of finance, with the help of theories from other behavioural sciences, particularly psychology and sociology, seeks to

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discover and explain phenomena inconsistent with the paradigm of the expected utility of wealth and narrowly defined rational behaviour” (Frankfurter & McGoun, 2002). There are three strands of psychology which an investor dealt with including cognitive behavioural psychology, emotional responses and social psychology. These three strands influence investor behaviour during investment process (Kishore, 2006a). The cognitive behavioural psychology refers to the mental state thinking and learning of investor, it calculates the investor's value of investment. Whilst, emotional responses refer to as how wisely an investor apply his emotions in making decisions. Finally, social psychology is when investor consider the society's welfare and seeking for the encouragement from society. Often, investors make decision based on his own benefit but behavioural finance focusing the benefit and welfare of society (Kahneman, 1979). In short, behavioural finance is based on the cognitive psychology in regards to how people think and the limit to arbitrage (when market will be inefficient) (Grover & Singh, 2015). Investors often to absorb some of the important information rather than all the available information. This situation explains the psychological factors that affect the property investment decisions which considered to be irrational decision. In other words, behavioural finance is a tool to provide an understanding of how investors make psychological decisions

1.1 Problem statement

Often, people rely on “market knows best” whereby they believe that if crises come to the market, it would resolve itself by the market because market always know what should do in the situation (Amin & Pirzada, 2006). Unfortunately, this belief is a wrong concept and has become the cause to financial crises. Therefore, behavioural finance can be an outset to break the concept and lead to more rational investment decisions. According to Kumar Nisha Goyal et al. (2015), investor's behavior tends to deviates from making rational or logical decisions and leans towards being influenced by various behavioural biases. Traditional finance assumes that investors act in a rational manner where all the information are available because a successful investor must have rational behavior patterns. This is due to traditional finance teaches investors to act based on mathematical models and theories (Sukanya & Thimmarayappa, 2015). However, in reality it reflects differently. On the contrary, investing in property is considered to be complex and unique due its diversification in characteristics. The property information also not always made available to the market players, forces the investors to rely on psychological factors to make investment decisions. Baker & Ricciardi (2014) concluded that investors tend to adopt overconfidence, optimism, and representativeness and self-attribution bias during bull markets which drive prices far above their fundamental values. In contrast, during bear markets, loss aversion, false reference points and anchoring, and familiarity bias has cause prices to be below their fair values. This proven that investors are not always make rational decisions due to psychological biases and cognitive errors. Studies proven that investor's behavioural factor in property investment decision making is one of the causes to the downturn of property market (Kishore, 2004). Behavioral finance is becoming a crucial part of decision-making process due to highly influences on investor's performance (Banerjee, 2011). Sukanya & Thimmarayappa (2015) also agreed that behavioural finance suggests cognitive errors and emotional biases can adversely impact financial decisions. Hence, the study in behavioural finance particularly in property investment decision can explains to understand the property market behavior in Malaysia. Based on the property market report published by NAPIC 2016, the property market in four states (Klang Valley, Johor, Penang and Malacca) have shown a downturn in property transactions. These four states are considered as a diverse and active property market activities, and yet the property market in the respective states have negative growth from first half of 2015 to first half of 2016. The graph below shows property market movement in four respective states.



Figure 1: Property transactions of all types of properties in Klang Valley, Penang, Malacca and Johor

This paper attempts to relate the behavioural and psychological factors that may become the cause to the negative growth of the property market behavior in the respective states. Instead of the economic factors that cause to the downturn of property transactions in the four states, behavioural and psychological factors are not to be neglected because the judgments and decisions in property investment are made on the basis of human behavior (Amin & Pirzada, 2006). Chandra (2008) agreed that cognitive psychology is an essential element to be considered in the process of decision-making. According to Parikh (2011), a successful investor should encounter their emotional indiscipline to deflect such negative influence which can affect their rational behavior especially in making investment decisions. The fact that human behavior are main antecedents to change the investor's decisions in investment should be acknowledged. According to traditional finance considerations, investors usually cannot prevent behavioural and psychological factors from affecting their investment preference (Islamoglu, Apan, & Ayvali, 2015). Bikas, Jureviciene, Dubinskas, & Novickyte (2013) emphasized that behavioural finance differ from traditional finance due to the former explains

“why” investors make one or another decision. There are ten (10) behavioural factors that affect investor’s judgments and decisions and the factors are discussed and reviewed in the next sections.

1.2 Literature review

Property investment is one of various types of investment vehicle available to investors. Investing in property market is more complex compared to other markets. It is because, property market imply risks and can be regarded as a risky investment such as recession risk, interest rate risk as well as inflation risk (Lowies, Hall, & Cloete, 2012). Nonetheless, property investment also is very common for the investors due to its characteristics that stable in income return, portfolio diversification, inflation hedging, high tangible asset value and many others. As known, property investment involves a lot of information to be collected on its features. However, when investors invest in the property market, it is important to know what certain factors affect their investment decision which lead to better understanding and prediction of decision making in property markets. In theory, there are two different approaches to understand the human behavior in investment decision making includes the traditional finance and behavior finance. In traditional finance, markets are assumed to be efficient, the investors act rational and all information are considered to be available in the decision making process. Hence, investors tend to favour investment to maximize their wealth. When investors considering the economy views such as the physical, location, environment and finance factors, these factors are referring to the rational markets. Behavioural finance based on psychological factors refer to the opposite of traditional finance where the market is inefficient and investors are irrational in making investment decisions. According to Grover & Singh (2015), behavioural finance is considered as new area of research whereby it involves the human psychology of thoughts, feelings and attitudes which influence the financial decisions. Behavioural finance also can help improve the investment process and explains the global financial crisis to the investors (Malloy, 2011).

Fromlet (2001) also agreed that the idea of investment based merely on the notion that the market is predictable, while assuming that there is complete price flexibility and complete knowledge of the other market players are becoming more unrealistic. According to Burton (1973), markets may be irrational especially when it comes to investing whereby people tend to modify their decisions by their emotions. This phenomenon explains the opposite ways of investors should response in making investment decisions. In practice, the investor should be able to absorb all the information in the market and make a rational and optimal investment decisions. However, each individual has a different way of thinking and view in responding to the information received and thus, they tend to make a bias and irrational investment decisions (Prawirasasra, 2016). Jagongo & Mutswenje (2014) argued that the fear of loss in future urge investors to behave irrationally even though they are well informed and thorough research on the investment has been done. Investing is supposed to be rationally decided. Investment decisions involved the cognitive process and number of alternative need to be evaluated, weighted and finally the best alternative will be selected. However, throughout the process, investors will be influenced by different factors and changes in their behaviour. Hence, this paper attempts to examine behavioural factors of which the investors are capable to make an irrational decisions particularly in property investment.

1.2.1 Effect of behavioural factor on property investment decisions

According to Mwangi (2011), behavioural factors have significantly impact the property price dynamics compared to fundamental ones. He also found that Kenyan investors tend to use past performance as an indicator of future performance and make investment decisions based on it. He emphasized that Kenyan investors often use predictive skills, have high expectations on property returns and uses property price as a reference point in trading. Choka (2014) found that real estate investment decisions are greatly depend on investor’s sentiment although it is considered as illogical ways of making investment decisions. He emphasized that property investors should rely more on facts and figures rather than based on their gut

feelings. He also concluded that sentiment or behavioural factor causes property prices in Kenya traded beyond the expert's valuation. This findings complement Keynes (1936) whereby he argued that sentiment, reflecting unrealistic optimism or pessimism which lead to booms and busts in property prices. Gallimore, Gray, & Hansz (2000), in their study showed that the effect of loss aversion on the investors in their investment decision of housing real estate market. They found that property transaction prices are determined by seller characteristics in addition to unit's attributes, and makes the property market far from being a perfect asset market. Kishore (2004) adopt behavioural finance theory to examine the property boom in Australia (prices doubled between 1999 and 2003) and he found that there were a presence of investor's rationality and it was entirely speculative. He argued that irrational investors are the causes to the creation of high price in property which consequently have led to the pattern of herd mentality, developed upon fear and regret behavior of not owning a house and overreaction to the expected increases in future interest rates. His study explained how property investors make irrational decisions which has resulted in misinterpretation of real property market situation. This situation happened due to people believe that "market knows best" which means market have the tendency to resolve crises by itself. Unfortunately, this was wrong concept which become the cause of financial crises (Kishore, 2006b). Barberis & Huang (2001) found that investors tend to invest in more familiar investment such as investing in local companies while ignoring the fundamental principles of portfolio investment where in fact the diversification is important for return optimization. In other words, this type of investor tends to extract information that are easily available in the market. Baker & Ricciardi (2014), learnt that the combination of several behavioural biases with severe limits to arbitrage including the complexity nature (illiquidity, high transactions costs and short sale constraints) of property market may highly influence property valuations. As a result, property prices tend to deviate from their fundamental values and impede the price adjustments. Mwangi (2011) found that combining both the normative theory and behavior theory with psychological biases have significantly affect human judgment and decision making resulted in distorted in property prices. Whilst, Case and Shiller (1998, 1989) and Shiller (2005) concluded that investors often create irrational expectations on the growth in property price and merely based on the expectations for the asking price while disregards real market forces. Wilmington Trust Corp. (2016), argued that fear and greed are the most detrimental of psychological biases in investment decision making. They learnt that most investors tend to sell their stock when the stock prices drop significantly and move to more conservative investments. As a consequence, investors fear to re-enter the market even when the market shows signs of recovering and investors prone to lose opportunity to recover from losses. Utkus (2011) explained that investors occasionally make forecasts of the future that are subject to psychological biases have resulted in wide swings in prices known as market bubbles and crashes. These findings of earlier studies proven that psychological and behavioural biases have significantly influence investment decision making which signify the importance of conducting this paper.

1.2.1 Behavioural factors affecting property investment decisions

No	Behavioural Factors	Explanation
1	Representativeness	It refers to investors tend to associate new event whereas they knowing the event and through which only they make investment. For example, when a company make an announcement, the investor will correlate the announcement with past ones and decisions are made based on the past announcement while ignoring the fact that past announcement may be outdated.
2	Anchoring	It refers to the refusal of investor to extract new information and often relate or 'anchor' their opinion to a reference point although they hardly have any logical reason towards such decisions which eventually lead to irrational decisions. In anchoring, investors will fix a good price of an investment then began to evaluate the investment by using initial value known as 'anchor'. (Malik & Sahu, 2017). Anchoring can be captured by the fact that the investors rely on past experience, past prices (fair prices), ignore new information, fixing prices before buying or selling stock and being on the lookout for the best time to buy/sell stock, guided by moods and the level of openness to new

		experiences (Murithi, 2014). Anchoring is differ from representativeness or overreaction which also known as conservatism or belief perseverance. By adopting anchoring, investors tend to underestimate new information (Malloy, 2011)
3	Gambler's fallacy	Often, Investors erroneously believe that the onset of a certain random event is less likely to happen following an event or a series of events. Investors can easily fall prey to this gambler's fallacy.(Sukanya & Thimmarayappa, 2015).
4	Overconfidence	Overconfidence happens due to excessive optimism when investors are overconfident in their ability to outperform the market, but in reality most investors fail to do so. This is because, at the peak of optimism, greed moves the stocks beyond their intrinsic value, creating an overpriced market. At other times, fear moves prices below intrinsic value, creating an undervalued market (Sukanya & Thimmarayappa, 2015)
5	Herding behavior	It happens when investors tend to follow investment decision trend made by majority investors. Consequently, investors will not buy or sell a stock even if that decision is supported by technical or fundamental analysis. Investor is pressurized by the influence by the peers. They are more concerned about what others think of their investment decision. As a result of herding behavior, investors lose their own individuality in the decision making process (Malik & Sahu, 2017). This herd mentality is the result of two reasons. Firstly, there may be a social pressure of the media effect is often seen in the stock market. Most people do not want to be outcast from the group they belong. Secondly, there is a common rational that a large group is unlikely to be wrong (Sukanya & Thimmarayappa, 2015). This type of behavioural bias is a common culture adopted by most investors. (Grover & Singh, 2015).
6	Cognitive dissonance	It is a mental conflict when investors have lost confidence especially when their beliefs and assumptions on an investment are proven wrong. As a result, investors overlook new information that contradicts their beliefs and assumptions. Eventually, this behavior lead to reduction of investor's ability to make rational and independent fair investments (Malik & Sahu, 2017)
7	Regret aversion	It refers to the fear of bad outcomes and the desire to avoid blaming one's self for a poor result. Regret aversion may result in an individual either taking or failing to take action. For instance, an investor may choose to not invest in stocks to avoid regretting the decision should they decline in value. Conversely, an investor may choose to overweight stocks to avoid the regret of missing out on a sharp price appreciation (Wilmington Trust Corp., 2016).
8	Loss aversion	An inclination toward risk-averse behavior may keep an investor from pursuing beneficial long-term investment opportunities to sidestep the discomfort of potential short-term price fluctuations. It can also mean that investors will be slow to sell stocks whose prices have declined to avoid acknowledging a loss and any embarrassment they attach to having sustained a loss (Wilmington Trust Corp., 2016).
9	Mental accounting	The propensity for individuals to organize their world into separate mental accounts. Investors tend to treat each element of their investment portfolio separately, which can to inefficiency and inconsistency in making investment decisions (Shiller, 2000 in Mwangi, 2011).
10	Hindsight bias	Hindsight bias can be defined as the tendency to think that one would have known actual events that were coming before they happened. As a result of hindsight bias investors usually take wrong decision or pretend that the outcome of their decisions was known by them very earlier. If investor have loss on particular stock then they will pretend as if they knew it earlier that they will loss, as a result of this they don't learn lessons from their wrong decisions and such decisions may be taken again in future (Bhatt & Chauhan, 2014). It is a tendency to change a recollection from an original thought to something different because of newly provided information (Grover & Singh, 2015)

2. CONCLUSION

The paper presented a review of behavioural factors that influencing the investment decision particularly in property market. The issues of behavioural factors may explains why investors make certain investment decisions which resulted in vacillation of property market behavior. Ten (10) behavioural factors that significantly have influence on property investment decision making are discussed and reviewed.

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ID018 – Housing Price Volatility: Analysis in Malaysian Market

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Abstract

Housing market has grown far more rapidly in Malaysia. However, many researchers found that the variation in the housing price in Malaysia caused by internal and external factors. This research employs descriptive statistics, regression model and correlation method to examine the determinants of housing price volatility in Malaysian market. Applying the yearly data of 34 years from year 1982 to 2016 on annual basis, the dependent variable in this study is housing price while the gross domestic product, inflation rate, net income per capita, unemployment rate and inflation rate are the independent variables. Using Ordinary Least Square (OLS) method, the finding indicates that the gross domestic product (GDP) has shown positive significant relationship with housing price. In similar, the correlation between housing price and interest rate (INT) also was found positive. Contradict with the result, the inflation rate (INF) and unemployment rate (UNEMPL) is found insignificant in influencing the volatility of housing in Malaysia while, the result for net income per capita (NI) was found as the most significant. The outcome of the study is useful in providing the future research direction towards the variation of housing price in Malaysia.

Keywords: *housing price volatility; gross domestic product; interest rate; inflation rate; net income per capita*

1. INTRODUCTION

House price is a value for a residential property which gets the perfect balance between attracting solid offers and ultimately receiving top money (Michele, 2012). Silverstein (2014) stated that home equity is usually the most important investment and the largest component of household wealth. Nowadays, the percentage of individual that able to buy their own house is low compared to previous years due to the high cost of living and price of goods. Even though the rental fee is somewhat high, people tend to rent the house compared to buy for their own self. Looking at the statistics, housing price in Malaysia is slightly decline from 5.5% in year 2016 to 5.3% in year 2017. However, the price is still high as compared to other countries that lead to some serious problems such as homeless phenomenon, robbery, and other social problems.

1.1 Problem statement of the study

The volatility of housing price in Malaysia lead to various impact towards the country. Several researchers in the United States of America (USA) and a research team in Scotland have directly examined the relationship between housing markets and rates of homelessness. Using cross sectional studies, those studies found that tighter housing markets (low vacancy rates and high median rents) are associated with higher rates of homelessness (Batterham, 2012).

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The case of homelessness is increasing from year to year in Malaysia, as stated by Kuala Lumpur City Council (DBKL) indicates that the number of homeless people in Kuala Lumpur have increased by three-fold, from 600 people in 2014 to at least 2000 people. Suhaida et al. (2011) found out that rapid development in Kuala Lumpur and Selangor has resulted in the drastic increase of housing prices in Malaysia. This situation is parallel with high cost of goods and cost of living but contra with income per capita which is maintain by year to year. In that case, it leads to inability of the individual or citizen to buy house because they are not affordable enough. From the previous research done, volatility housing price problems are depending on macroeconomic factors such as gross national product, inflation, income, unemployment, interest rate and others. Thus, this paper will try to investigate the relationship and most significant factors that lead to housing price variation.

1.2 Literature review

The fluctuation of the housing price from year to year has attracted some researchers interest to problem solutions. Glossop (2008) stated several reasons of importance of housing investment for economy such as helping in labor markets, infrastructure and business, and enterprises. Due to this, if the housing sector is decline, it will significantly contribute to the negative impact to economic wealth. In other words, real estate development has traditionally been viewed as a variant of the classic firm investment problem where new supply depends on expected revenues and costs. Macroeconomic factors also contribute to the housing price volatility problems for example gross domestic product, inflation rate, net income per capita, unemployment rate, interest rate, and others.

A study has been done in Beijing, Shanghai, Guangzhou and Chongqing by Lei et al (2010) from 1995 to 2008 found that gross domestic product data is more elasticity compare to other variable such as average construction cost. Belej and Cellmer (2014), Hoxha and Salaj (2014), Xu and Tang (2014), Cheng and Fung (2015) and Hoo et al. (2016) also discover that the gross domestic product has positive relationship with the housing price. Nyakabawo et al. (2013) has extended the research in United States of America (US) by using Bootstrap Granger (temporal) non-causality test and fixed-size rolling-window estimation approach with quarterly time-series data from 1963 until 2012. From the result, if the housing price in US is increase, the gross domestic product will also increase, thus the changes in gross domestic product is influenced by variation of real house price index.

According to Xu and Tang (2014), income is one of the factors that has correlation with housing value in the United Kingdom. By using cointegration approach and error correction model from 1971 until 2012 quarterly, the result indicates that income and money supply has negative relationship with dependent variable which is housing price. A study done by Ong (2013) has found out the insignificant relationship between income and housing value., which also supported by Atasya et al. (2015). However, several researches done on volatility of housing price in Malaysia has resulted into significant result of net income per capita. As stated by Galati, Teppa and Alessie (2011) and Xin and Williams (2014), the real income of households directly reflects the movement of housing price as to their ability to spend and higher the income, the greater the capacity to pay. Nneji, Brooks and Ward (2013) also get the same result with a study of house price dynamics and their reaction to macroeconomic changes in United States of America.

Theoretically, interest rate has inverse relationship with price. Due to this, Hsin, Chia and Wan (2012) recognized that the interest rate has negative relationship on influencing the housing price. In similar, Karoki (2013) was found that negative relationship between interest rate and housing price in Kenya. However, McDonald and Stokes (2015) done a research about monetary policy, fiscal policy, and the housing bubble for year 2000 to 2010 which indicates that the interest rate is significant in influencing real estate market, thus the effect of interest rate towards house market was attractive enough. More than that, the finding on the research of fundamental economic factors that affect housing prices in the scope of Kosovo has

indicates that the housing price in Kosovo is depending on the volatility of interest rates (Hoxha and Salaj, 2014).

Ong (2013), Karoki (2013), Belej and Cellmer (2014), and Mallick and Mahalik (2015), has conducted the empirical analysis in determining regional housing prices direction towards inflation rate. Those findings indicate that there is negative relationship between inflation rate and housing price. At the point when the inflation rate is decrease, the housing value will react in opposite direction, meaning that even the variable is moving in same direction, but it does not influence each other.

In the cases of European, Belej and Cellmer (2014) found that there is increase in the unemployment rate that will affect the demand for housing, therefore it will cause a decrease in housing price. In the other word, the variation of the unemployment will affect housing market in European. However, Grum and Govekar (2016) was studying the influence of macroeconomic factors on prices of real estate in the case of Slovenia, Greece, France, Poland and Norway. By using multiple linear regression model from 2003 to June 2012, unemployment rate shows statistically significant relationship with housing price. Xu and Tang (2014) also representing positive relationship between unemployment rate and housing price in United Kingdom.

2. METHOD AND MATERIAL

Data has been taken annually from year 1982 to year 2016 and be measured by Ringgit Malaysia (RM), US Dollar and in percentage, taken from Data Stream and World Bank of Data. This study focuses on longitudinal study by using time series data. Housing price (HP) as dependent variable while gross domestic product (GDP), inflation (INF), net income per capita (NI), unemployment rate (UNEMPL) and interest rate (INT) as independent variables. This study uses an Ordinary Least Square method to determine the relationship between dependent and independent variables. Previous studies done which resulted in different factors contribute to the variation of housing price.

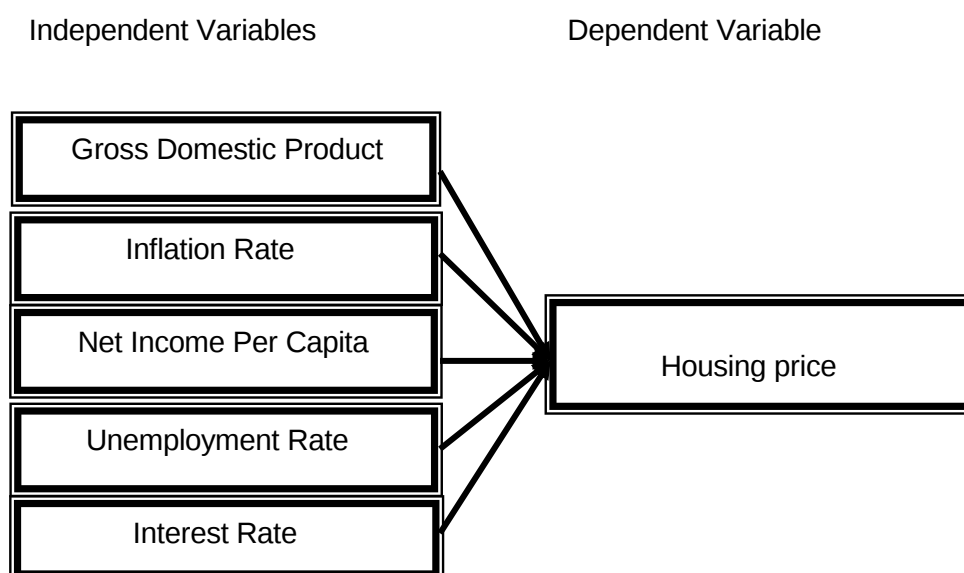


Figure 1: Theoretical framework

3. ANALYSIS AND RESULTS

Table 1: Descriptive analysis

Variables	Mean	Std. deviation	Min	Max
HP	77.82662	36.33909	40.67410	176.0500
GDP	5.799714	3.860361	-7.35900	10.00300
INF	2.706157	1.425248	0.290000	5.818900
NI	0.049374	0.029747	0.018100	0.110000
UNEMPL	3.871429	1.290137	2.400000	7.400000
INT	7.726000	1.699602	5.620000	11.54000

Table 2: Correlation analysis

Variables	HP	GDP	INF	NI	UNEMPL	INT
HP	1.0000					
GDP	-0.164147	1.0000				
INF	-0.175601	0.175029	1.0000			
NI	0.950456	-0.133127	-0.119639	1.0000		
UNEMPL	-0.465399	-0.046244	-0.325749	-0.521378	1.0000	
INT	-0.555734	-0.159769	0.257774	-0.573072	0.335267	1.0000

Table 3: Regression model

	Original Model (without correction)	Adjusted Model (with correction)
C	27.82036	-11.13779
GDP	-0.303304	0.166277
INF	-1.302102	-0.031483
NI	1144.830	112.3302
UNEMPL	0.274967	0.287964
INT	-0.297779	0.559275
HP (-1)		1.042274
R-SQUARE	0.908188	0.998029
F-STAT	57.37224	2278.905
F-STAT (PROB)	0.000000	0.000000
DURBIN WATSON	0.307428	0.845972

4. DISCUSSION

As a summary of the Ordinary Least Square (OLS) result, the gross domestic product is found to be positive relationship with the dependent variable which is housing price. More than that, the gross domestic product also significant in influencing the housing price in Malaysia. This is also supported by Lei et al (2010), Cheng and Fung (2015), Belej and Cellmer (2014), Hoxha and Salaj (2014), Karoki (2013), Nyakabawo et al. (2012), Hoo et al. (2013), Ong (2013), and Xu and Tang (2014) who were shared similar result. When the gross domestic product increased, the housing price will also be increased.

Besides, the inflation rate has been found to have be insignificant in influencing the housing price. The result is parallel with research that has been done by Belej and Cellmer (2014), Ong (2013), and Karoki (2013) in the scope of different countries. In the other words, either the rate of inflation is volatile or not, it does not affect the housing price. It is different with the result obtained by Mallick and Mahalik (2015) in which the researchers have found the significant correlation which is the variable is depending on each other.

In this study, the net income per capita indicates as the most significant variable that influence housing price in Malaysia. It shows that the positive relationship was existed between this variable. Based on previous research, there is several results obtained from Xu and Tang (2014), Galati, Teppa and Alessie (2011), Lei et al (2010), Nneji, Brooks and Ward (2013) and Atasya et al (2015) where they shared similar result in stating that the variable can really influence the housing.

The relationship between unemployment rate and housing price was presented as insignificant, meaning that the volatility of housing price in Malaysia is not influenced by unemployment rate. This result only was supported by Grum and Govekar (2016). While, the other researcher that studied about this relationship have found different result. It is clearly defined that; the different scope of study will result in different ways.

Lastly, the findings for interest rate is similar with gross domestic product resulted in positive significant towards housing price. The increase of the interest rates will influence the value of houses. It is because when the cost of borrowing is high, the developer will transfer the burden of cost towards housing price. This similarity can be seen from previous research done by McDonald and Stokes (2015), Karoki (2013), Hsin, Chia and Wan (2012), and Hoxha and Salaj (2014).

5. CONCLUSIONS AND RECOMMENDATIONS

Many research has been done regarding the issue of housing price variation and uncertainty volatility, showing that this matter should be look in depth and need to be solved by many parties such as Government and other related agencies or organizations. Even though the house price in Malaysia recently decreases, the number of citizen who affordable to buy it is still low, due to the increasing in cost of living was not parallel with the income. The Government needs to ensure, the price of goods is affordable for the buyers, whereas the developers also must play their roles by offering the acceptable price.

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ID020 – The Typology of Working Gen-Ys' Financial Intelligence: A Case in Malaysia

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Abstract

The purpose of the study was to identify the categories of Malaysian Gen Ys by their level of financial intelligence. This was due to the complaint made by the Malaysian government on the high percentage of debts among Gen-Y which mostly came from credit cards and poor saving rate (Khazanah Research Institute, 2013, AIF report, 2015) which has brought about a whole load of financial issues for society today. Therefore, a research was conducted among 1100 working Gen-Y in KlangValley (both private and public) using rasch analysis in order to measure their level of financial intelligence. A ruler of financial intelligence which comprised of 4 constructs: financial literacy, financial attitudes, trust and behaviors was produced. It showed that there were four categories of Gen Y in terms of their financial intelligence level; High FI Group, Moderate FI Group, Low FI Group and Poor FI Group. The ruler indicated that the level of financial intelligence of Malaysian gen-Y was generally moderate, indicating moderate knowledge of personal financial management and attitude. The ruler shows that the lesser the knowledge of finance, the lesser they concern about saving, the poorer the spending behavior they showed. Malaysian Government should expose the knowledge of finance to Malaysians as soon as they know the value of money.

Keywords: *financial intelligence, generation y, financial behaviors, financial attitudes, trust*

1. INTRODUCTION

As reported Bank Negara (2017) almost every Malaysians claims to be saving and recognized the need to save. This seems to suggest a positive financial behavior of Malaysians. However, Gen Ys aged between 30-35 were reported to be more likely to experience financial distress. This is consistent with the study conducted by AIF (2015) that showed the working Gen Ys were burden with education and car loans that they were hardly save their money. All these study were evidence to show poor financial management of Gen Ys which requires a serious attention by Malaysian government. If this is ignored, it may cause bad implication to the Malaysian economy. A study on measuring the level of financial intelligence of working Gen Ys against their specific attributes need to be conducted so that the issue can be solved more effectively, tackling the right attributes that requires attention.

1.1 Problem statement

Many studies on financial intelligence of Gen-Y have been conducted outside Malaysia. The few works that exist were focusing on how students spend and save their money while they were in college. Research on how good are Malaysian Gen-Ys in terms of their financial

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intelligence is still shallow. The most recent research, Mohd et al. (2016), on the level of financial intelligence of Malaysian Gen-Y was just a preliminary, where the sample was too small to be reliable. A research report provided by AIF (2015) was just describing the financial behavior of Gen-Y, indicating the percentage of savings and investments, indirectly reflecting financial intelligence level. This may not be helpful enough in finding ways to improve their financial intelligence as which aspect of skills and attitudes need to be improved are not revealed. Money management skill is a critical essence the younger generation, i.e. the Gen Y must have in order to be responsible working adults leading a quality life. Previous literatures (Fauzi et al., 2015; Miler et al., 2009) revealed that financial literacy among Gen Y is an important attribute that they must possess in order to ensure that they have enough financial knowledge to help them with their individual financial management. Therefore, this study would include the financial knowledge, their financial behavior and attitude in measuring their financial intelligence level.

1.2 Literature Review

1.2.1 Financial intelligence

The terms financial intelligence, financial literacy, financial knowledge and financial education often are used interchangeably in the literature and popular media. Few scholars have attempted to define or differentiate these terms (M. van Rooij et al., 2011; Remund, 2010; Huston, 2010; Servon&Kaestner, 2008; Johnson & Sherraden, 2007; Worthington, 2006; Huang et al., 2008).

Kiosaky (1997) described financial intelligence as the ability to make decision on matters related to finance, solving money problem, having the right attitudes, based on financial management knowledge. While financial literacy refers to the level of knowledge and understanding of the financial management. It is also the combination of consumers' or investors' understanding of financial products and concepts and their ability and confidence to appreciate financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being (Miller et al., 2009). They further explained the number of reasons why financial literacy is especially important today. First, financial products and services are increasingly complex and accessible from a growing number and type of providers. Second, at the same time as the increase in number and complexity of the financial products and services, individuals are also being asked to take more responsibility for important financial decisions, such as investing for their retirement. Finally, large numbers of consumers are entering financial markets for the first time, both because income is growing in developing countries and because new financial institutions, such as microfinance providers, and new technologies, such as branchless banking, which have made it easier for consumers to participate in financial markets (Mohamad Azmi Abdullah et al., 2014).

1.2.2 Financial behavior

Financial behaviors refers to the capability to capture of understanding overall impacts of financial decisions on one's (ie. person, family, community, country) circumstances and to make the right decisions related to the cash management, precautions and opportunities for budget planning (Tezel, 2015). It is also be defined as any human behavior that is relevant to money management. The common financial behaviors identified include cash, credit and saving behavior (Ozmete (2015). Many (Tezel, 2015; Ozmete, 2015; Huston, 2010; Miller et al., 2009; Mohd et al., 2016) have discussed the implication of poor financial literacy in terms of their many aspects of financial behavior such as poor investment, over spending, unmanageable credits.

The recent financial crisis has revealed the severity of the consequences that people have made through their lack of financial knowledge especially when it comes to making decision on investment in the financial markets. The global financial crisis has also accelerated awareness of the need to improve financial literacy among the population (Wolfe-Hayes, 2010).

Meanwhile Huston (2010) believed that the financially literate could do the most to boost financial literacy by becoming more informed on the economic issues and more important by demanding that the elected officials to demonstrate a degree of economic literacy. She further exerted that financial mistakes can impact not only individual welfare but create negative externalities that affect all economic participants as well. Hence, financial literacy will enable businesspeople to function efficiently at work because they are able to evaluate the information needed to make decisions that have financial consequences (Brown et al. 2006).

While financially literate consumers would have been more cautious in taking on credit that they could not afford, the financial illiterate ones may not know what danger they gotten themselves into. These skills of making sound financial decision are as important for consumers in developed-country financial markets as those in developing country financial markets. Financial literacy is an active process, in which communicating information is only the beginning and empowering consumers to take action to improve their financial well-being is the ultimate goal. Financial literacy is critical for promoting access to finance by creating incentives and environments that promote desired financial behaviours such as saving, budgeting, or using credit wisely (Miller et.al. 2009).

1.2.3 Financial attitudes

Attitude refers to someone's feeling about something. Therefore financial attitude is described as any feeling about financial matter which can be positive or negative. Edwards, Allen and Hayhoe (2007) found that financial attitudes were related to family openness. That means if a family are open to discuss about financial matters, the problems and consequences, the members tend to have a positive financial attitudes, showing the right behavior for investment, paying credits on time and careful in spending.

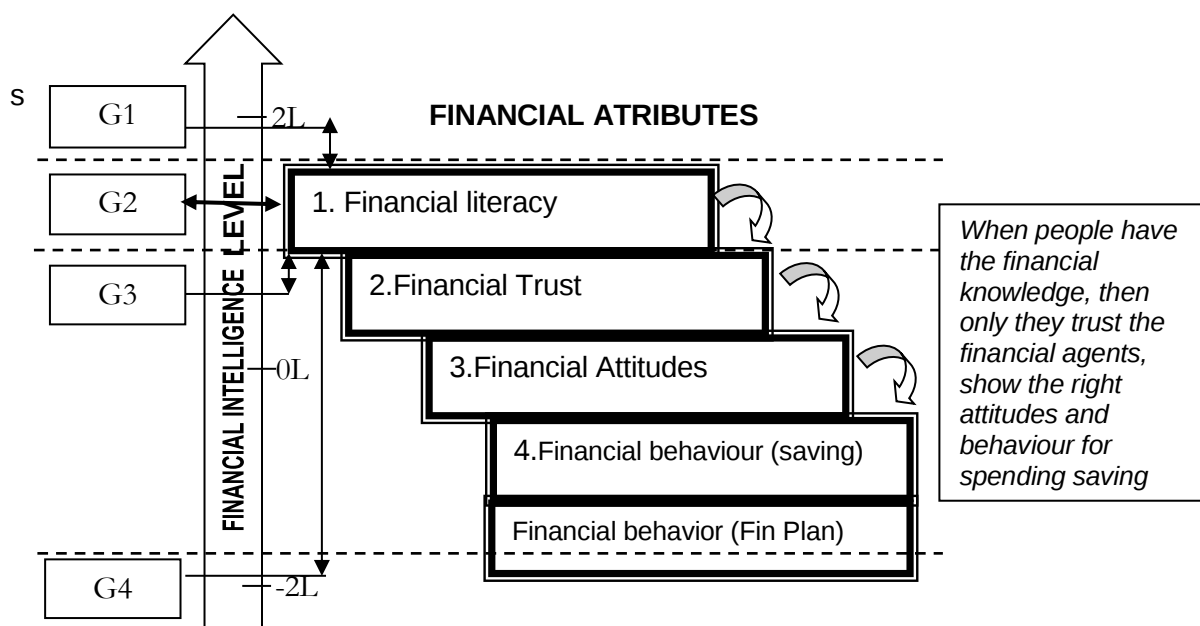


Figure 1: Financial intelligence ruler with attributes

The figure shows the conceptual framework of a ruler that measuring financial intelligence of Gen Y which may be classified into 4. The first group which is at the top score must have high level of financial literacy that would cause them to trust and show the right attitudes and behavior of financial plan and saving. The group that score the least, located the lowest on the ruler would show bad attitudes and financial behavior because they don't have the knowledge, thus have no trust in financial agents. Group 2 and 3 are differentiated by the degree of financial literacy each member in the group has.

2. RESEARCH METHODOLOGY

It was a cross-sectional study involving Gen-Y in Klang Valley, working in both private and public sectors. For that reason 1100 data were randomly collected and analyzed using Rasch analysis. 1000 questionnaire were distributed to private sectors and 1000 questionnaires were distributed at random to public sectors through Human Resource departments. However, only 1100 were managed to be collected.

2.1 Measurement

In the present study, financial intelligence is measured by the financial knowledge, financial attitudes, trust and financial behaviours. The variables were chosen based on the explanation provided by Robert Kiyosaki (1997). According to him financial intelligence is solving money problem through the decision on increasing financial knowledge, having the right attitudes, getting advice from the expert and taking the right decision on investment, saving, spending and making loans (financial behaviour). Since, the measurement for financial intelligence was hardly found, the measure was self-developed. In order to ensure the items measuring each construct tap fully, face validity was conducted by getting three experts from the area to evaluate how accurate each item measuring the construct. Originally there were 32 items, but reduced to 26 items. 6 items were removed due to the rejection from the two out of three experts.

3. ANALYSIS AND RESULTS

3.1 Determination of goodness fit of data

Table 3.2: Statistics summary

SCORE	TOTAL COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	OUTFIT ZSTD	MNSQ	ZSTD
MEAN	104.8	70.3	-1.57	.20	.98	-.2	1.04
S.D.	14.3	3.3	.46	.01	.28	1.5	.44
MAX.	133.0	74.0	-.61	.25	1.76	3.6	2.91
MIN.	68.0	62.0	-3.24	.19	.56	-3.0	.48
REAL RMSE	.21	TRUE SD	.41	SEPARATION	1.90	Person RELIABILITY	.78
MODEL RMSE	.20	TRUE SD	.41	SEPARATION	2.03	Person RELIABILITY	.80
S.E. OF Person MEAN = .09							

VALID RESPONSES: 94.9% (APPROXIMATE)

Person RAW SCORE-TO-MEASURE CORRELATION = .70 (approximate due to missing data)

CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .88 (approximate due to missing data)

Table 3.3: Summary of 73 measured item

SCORE	TOTAL COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	OUTFIT ZSTD	INFIT MNSQ	OUTFIT ZSTD
MEAN	43.1	28.5	.00	.35	.98	-.2	1.03
S.D.	38.8	3.3	1.86	.12	.41	1.6	.48
MAX.	118.0	30.0	3.08	.73	2.01	3.4	2.61
MIN.	2.0	16.0	-3.48	.24	.26	-3.9	.27
REAL RMSE	.40	TRUE SD	1.81	SEPARATION	4.58	Item	RELIABILITY .95
MODEL RMSE	.37	TRUE SD	1.82	SEPARATION	4.91	Item	RELIABILITY .96
S.E. OF Item MEAN = .22							
MAXIMUM EXTREME SCORE: 1 Item							
UMEAN=.0000 USCALE=1.0000							

As shown in Table 1, the item reliability of .95 indicated that there were enough good respondents that differentiate items' difficulty level. While person reliability of .78 shown in Table 1a indicated that there were enough items to differentiate persons' ability level. The Cronbach Alpha of .88 indicated high item consistency. The table also indicated that there were 3 groups of Gen Y with regards to their financial behaviour and financial literacy. This was indicated by the value of person separation of 2.03 shown in Table 3.3. The value 2.03 for the separations means that the groups of Gen Y (the respondents) were divided by 2 separation lines cutting the groups into 3 (as shown in Figure 2).

3.2 Financial intelligence ruler

In the present study, financial intelligence is measured by the financial knowledge, financial attitudes, trust and financial behaviours. The variables were chosen based on the explanation provided by Robert Kiyosaki (1997). According to him financial intelligence is solving money problem through the decision on increasing financial knowledge, having the right attitudes, getting advice from the expert and taking the right decision of investing and saving (financial behaviour).

Figure 2 is the logit ruler for financial intelligence. The ruler measures the level of financial intelligence of Gen Y based on the variables (financial knowledge, financial attitude, trust) where the unit of scale was logit. The scale ranged from -2logits to +2logits. This means a person who is located at 2 logit on the ruler would indicate having high level of financial intelligence. While, respondents located at -2 logit would indicate the opposite. The ruler is divided into two sides where the left side is where the respondents (working Gen Ys) were located while on the right side is where the items (questions) were located measuring financial intelligence which consist of 4 constructs: financial literacy, trust, attitudes, and financial behaviors. These items were arranged based on the difficulty level. The easiest item is located at the lowest level of the ruler, while the most difficult item is located at the highest level of the ruler. Items which accepted by all respondents are easiest items (located at the bottom line). On the left side, respondents who are located on the top were those people who agreed almost all of the items indicating that they have quite substantial knowledge of finance, thus they also possessed the right attitudes of financial matters, thus showing trust and positive financial behaviors.

Generally, the level of financial intelligence of Gen Y was moderately low because the person mean is located at 0.2 logit which is closer to item mean of 0 logit. Figure 2 shows the number of respondents and the difficulty of items capability hierarchy above a logit scale. The results confirm all items are scattered and pointing towards the capability level of respondents'

diversity. The ranking of respondents with high capability (easily agree) is above the scale, while the ranking of lower respondents (difficult to agree) is below the scale.

In Logit Unit

<more>|<rare>

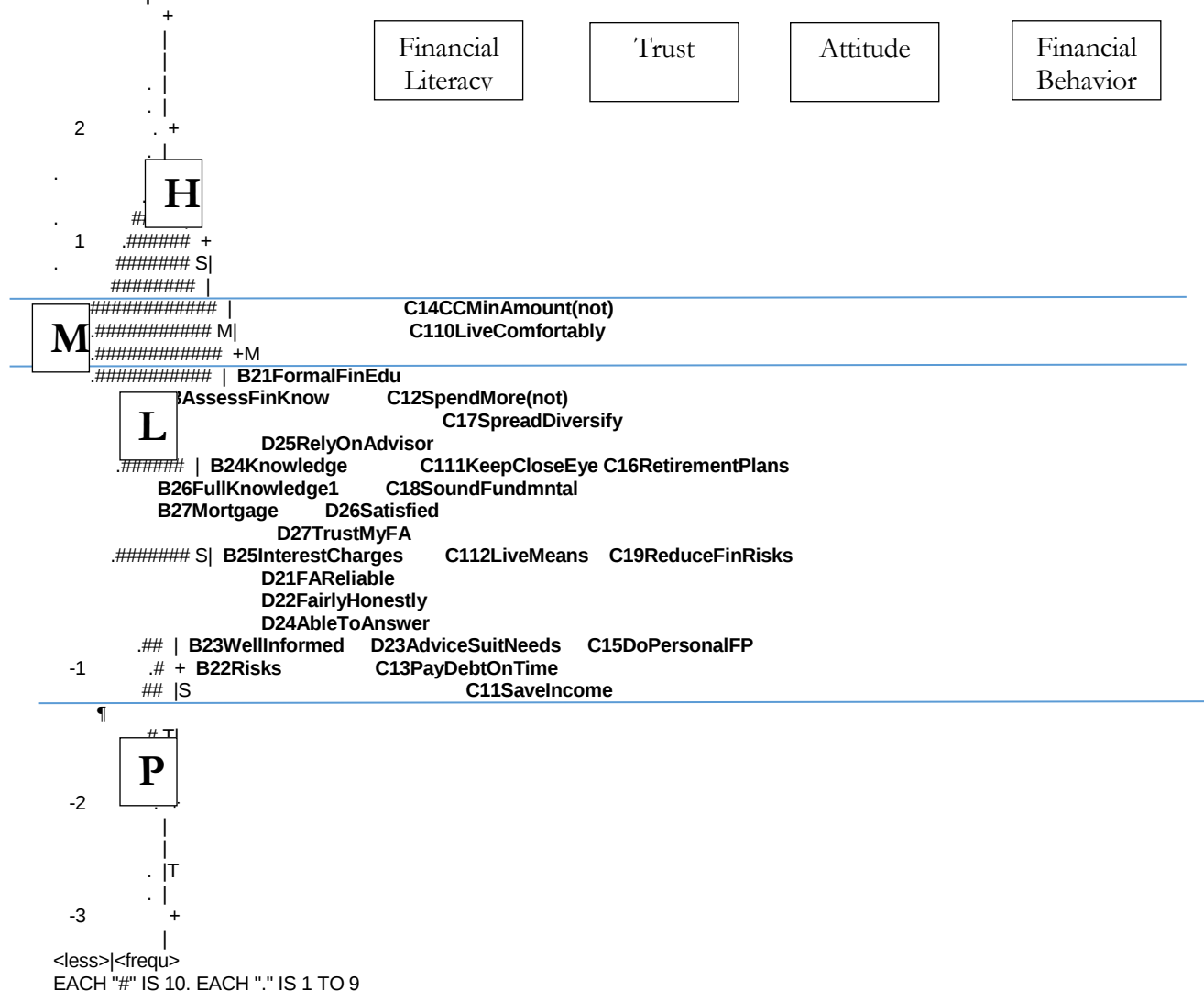


Figure 2: Financial intelligence logit ruler

The item which was difficult to be agreed upon is C14CC (*paying credit card more than minimum amount*) with difficult to be measured was 0.4 logit on top of the scale, while the simplest item to be agreed upon was item C11 (*save income*) with measurement of -1.2 logit on the lower scale. The difficult items could be answered by respondents who located at the top of the ruler, while easy items could be answered by all respondents (high, moderate and low financial intelligence).

Based on the analysis, there were 4 groups identified by the 3 separations (derived from Rasch output shown in Table 1). The first separation was drawn across groups at 0.4 logit, dividing the first (Above average (O) intelligence) and the second Group (Average (A) intelligence). While the second and the third group were divided at 0.0logit. The higher they are on the logit ruler (higher logit value) the higher the level of financial intelligence. With reference to the map (Figure 2), 40 percent of the working Gen Y belongs to the first group ('O' financial intelligence). The financial intelligence level of the first group was between the range of .4 logit and 2.6 logit, which indicate relatively high financial intelligence. Another 40 percent

of Gen Ys belong to the second group ('A' financial intelligence). Their financial intelligence level was ranged from 0.0 logit to .4 logit. This is considered moderate level of financial intelligence because it is located slightly higher than the item mean which was 0.0 logit. The third group was within the range of negative logit value indicating lower agreement level of most items. Lastly, 20 percent belongs to the fourth group ('L' financial intelligence). Since the third group was located in the range of negative score logits (started at -0.6logit below which reflects Gen Y's difficulty to agree with items located on the upper scale) their financial intelligence was considered very low due to poor knowledge of finance.

As shown in Figure 2, the items of **Attitudes** (*C14CCMinAmount(not) (do not paying credit card at minimum amount)*, *C110 Live Comfortable (live comfortably with my current income)*, *C12SpendMore(do not spend more than what I afford)*); items of **Financial Behaviour** (*C17SpreadDiversify (I diversify my investment)*); item of **Financial Knowledge** (*B21FormalFinEdu (have formal financial education)*, *B3AssessFinKnow (how I access my overall knowledge of finance)*), items of **Trust** (*D25RelyOnAdvisor (I rely on my financial advisor in investment)*), which had the logit measure of between 0.4 logit to -0.4 logit are items that could determine ones' financial intelligence level (among items that are located high on the logit ruler). Agreeing to these items would put someone to be located high on the logit ruler (high financial intelligence). This means, Gen Y with low financial intelligence can improve their financial intelligence if they no longer pay credit card at minimum payment, live comfortably with their current income, spend accordingly, diversify their investment, improve their financial knowledge and rely on financial advisor.

4. DISCUSSION

The findings revealed that Malaysian working Gen Ys have moderately low level of financial intelligence. Only those who have adequate knowledge of finance would not pay the minimum payment of credit cards and live in a comfortable life. Many were still paying the credit cards at minimum level. They were those who did not have adequate knowledge of finance. The findings also revealed that as a person acquire more knowledge of finance, the person would trust the financial agent, showed positive attitudes and positive financial behaviors like investment, moderate spending and saving. Interestingly, Gen Ys who understand risks would save their income even though they did not have adequate knowledge of finance. There were few numbers of working Gen Ys did not understand risk. These were the group which did not save their income. The findings of the present study has supported the findings of previous research (Tezel, 2015; Ozmete, 2015; Huston, 2010; Miller et al., 2009; Mohd et al., 2016). This shows that the issue of poor financial behavior faced by Gen Ys the whole world is due to lack of financial literacy which indicates low financial intelligence which later would lead to poor financial management. Therefore, in order to tackle the issue, the basic knowledge of personal financial management should be exposed to students as early as 9 years old because at this age kids know the basic calculations. They should be taught on how to save money and the consequences of over spent. For future research, the variable of religiosity should be added to the model (ruler) because as mentioned in the holy book of Quran, what cause the wrongdoing is the lack of faith, thus fail to control their *nafs* (desires) (Holy Quran 91:7-9 and hadith no. 31). Poor financial behavior is considered as one of the wrongdoings due to failure in managing their desire for material world.

5. CONCLUSIONS AND RECOMMENDATIONS

The purpose of the study was to identify classification of working Gen Y in terms of their level of financial intelligence. The financial intelligence were measured by looking at their financial literacy, their level of trust for financial agents, their financial attitudes and financial behaviors which includes spending, saving and financial plan. The objective of the study was achieved

where 4 classifications of working Gen Y were produced by the rasch financial intelligence ruler. It was clear that each group was differentiated by the level of financial literacy. The top group scored the highest showing the right attitude and behaviors of finance due to the right knowledge of financial management they had. The second and the third group score lower due to lack knowledge of finance. The findings suggested that Gen Y with no financial knowledge would never save money and had no financial planning, majority had loans that they found hard to save or to plan for future. Therefore, Malaysian government need to give exposure of financial knowledge at the very young age (as early as 9 years old as this was the time they are confident to count money). The practical knowledge on how to save money, encouragement to save money must be provided at school. Treat this subject as compulsory, pass or fail depending on how much they save money in the end.

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ID041 – Factors affecting Volatility Natural Rubber Price: Evidence among Producing Countries

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Abstract

World natural rubber production recorded a decline in the world's record of supply. Therefore, the study to identify the factors of this phenomenon is necessary as it affects the production of rubber among producing countries. Hence, this study uses secondary data and is collected from 2006 to 2015 for top ten largest natural rubber producing countries based on Malaysian Rubber Board (MRB) by 2015 ranking to address this problem. Using panel data random effect GLS, this study investigates factors that influence the volatility of natural rubber price, and studying the significance's level of independent variables toward dependent variable. The price of natural rubber is used as a dependent variable which the producer price index as a proxy while the independent variables are the price of crude oil, consumer price index, synthetic rubber price, economic growth, and rainfall. The findings of this study show that crude oil prices and economic growth are significant negative relationships in the direction of natural rubber prices while the consumer price index and synthetic rubber prices have a significant positive relationship in influencing the price of natural rubber. However, the results show that the rainfall is insignificant negative towards the price of natural rubber. This paper encourages cooperation between producer and consumer countries to stabilize the price of natural rubber.

Keywords: *natural rubber price; crude oil price; synthetic rubber price; rainfall; consumer price index; economic growth; producing countries*

1. INTRODUCTION

Natural rubber comes from the *Hevea brasiliensis* tree, which has the ability to produce the most valuable liquid rubber polymer as well as timber in various sectors of the world, especially the industrial sector. It can be marketed and available in a variety of shapes and features to the market that is ribbed smoked sheets (RSS), concentrated latex and others. The world's natural rubber production for the first seven months of 2017 amounted to 6,838 million tonnes while world consumption recorded at 7.486 million tonnes. As a result, it has resulted in a supply shortage of 648,000 tonnes in July 2017 (Trend of Natural Rubber & Statistics, 2017). This means that some factors act as a barrier to rubber production among producer countries such as climate changes are directly failing to meet world demand. Currently, Thailand is the largest natural rubber producer followed by Indonesia, Vietnam, China and Malaysia while China continues to be the largest consumer of natural rubber, which accounts for almost 37% of the world's natural rubber consumption in 2016. The productions of major producers such as Thailand, Indonesia, Malaysia and Vietnam have increased, while production in China and India declined in 2015. Therefore, China still relies on other producing countries to manufacture rubber products through import transactions. Therefore, it is driven by the instability of natural rubber prices in the world. In fact, most

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producer countries rely on one another as an exporter and importer of natural rubber to meet world demand and supply in producing rubber products.

Natural rubber is one of the major agricultural commodities instead of palm oil, cocoa, soya beans and others, which are well traded in the world among producers and consumers. However, this particular rubber has its substitute product like synthetic rubber that produced using crude oil (petroleum) as raw material and acts as a competitor for natural rubber due to lower production costs. Natural rubber industry is deeply affected by synthetic rubber since two thirds of the world's elastomer market (natural and synthetic rubber) occupied by synthetic rubber and their cost in manufacturing rubber products is low as compared to natural rubber.

Previously, natural rubber price had experienced volatile and unstable which bring negative impacts towards industrial sectors and economic. To analyze the factors behind natural rubber price fluctuations since the difficulties encountered when natural rubber prices change uncertainly, the researchers choose to conduct studies on the top ten of major natural rubber producing countries based on the Malaysian Rubber Board (MRB) of 2015 including; Thailand, Indonesia, Vietnam, China, Malaysia, India, Cambodia, Philippines, Sri Lanka and Papua New Guinea. The scenario of lower production of natural rubber stocks is encouraging more imports from exports and it is driving towards the deterioration of the economy due to expenditure over revenue of the countries.

The natural rubber price is volatile and affecting automotive industry, technical, medical and general rubber product. The producing countries like Thailand, Vietnam, China and Indonesia are greatly involved in tyre industry and China was the largest manufacturer of tyres in the world. Hence, China's automotive industry will be more affected due to fluctuation of natural rubber price compared to other countries because of the demand of natural rubber was downturn and in recovery period. Thus, income of producing countries of natural rubber will decrease because of under demand and over supply of natural rubber due to instability of its price.

In view of the scenario described above, the researchers chose to study several factors that are believed to affect the natural rubber price (dependent variable) including the price of crude oil, consumer price index, synthetic rubber price, economic growth, and rainfall. In this study, it is considered as independent variables. Therefore, this study aims to identify factors that influence the volatility of natural rubber price and determine the significance level of independent variables toward dependent variable.

The remainder of this paper is organized as follows: Sections 2 discuss relevant literature on the factors affecting natural rubber price. Section 3 present the data and method used in this study. Section 4 reports on the empirical analysis and discussion. Finally Section 5 contains the concluding remarks and recommendation by researchers.

2. LITERATURE REVIEW

There are number of studies studying the factors influencing the volatility of natural rubber price and it is the vast area to research on. Some factors have been detected that influences instability of natural rubber price [Aye, Wong and Ung (2016); Nur Hidayah (2013) and Arunwarakorn, et al., (2017)]. From those previous studies, it can be explained the crude oil price has a positive relationship with volatility of natural rubber price. As refer to this finding, increment in volume of import from exporter countries will decrease the price of natural rubber due to oversupply of stock natural rubber in importer countries especially during slowdown economic condition. However, one of the previous researchers find that the price of crude oil is a negative correlation with natural rubber prices, Khin and Hameed (2012)

state that when crude oil prices remain increase, it had a negative impact on the entire economy because crude oil was used in production almost everything including rubber. Thus, this hypothesis has been developed;

H₁: There is a significant relationship between crude oil price and natural rubber price.

In addition, commodity prices could be affected because of the economic condition since its price will follow normal market forces and depend on economic situation. Based on previous research conducted by Aye, Wong and Ung (2016), Nur Hidayah (2013) and Evennet & Jenny (2012) states that when the economy goes after inflation, then commodity prices will be affected as the consumer price index (CPI) is experiencing any movement. Based on their findings, the results have found that inflation (INF) has a positive correlation with natural rubber prices since the rise in inflation, as a proxy to the Consumer Price Index will increase the increase in natural rubber prices. Hence, this hypothesis has been developed;

H₂: There is a significant relationship between consumer price index and natural rubber price.

Furthermore, synthetic rubber price also leads to the changes of natural rubber price since synthetic rubber is a substitute for natural rubber. According to Aye, Zainalabidin and Amna (2012), they indicate that synthetic rubber is an important variable in influencing the price of natural rubber. It is also supported by Nurhazirah, Shridewi, and Hussin (2016) as they find that there is a positive relationship between synthetic rubber prices and natural rubber prices as synthetic rubber prices rise and crude oil prices will increase the price of natural rubber. Therefore, this hypothesis has been developed;

H₃: There is a significant relationship between synthetic rubber price and natural rubber price.

Natural rubber price is one of key issues that very sensitive to current economic condition because it is directly contributing towards growth of economy especially in contribution of Gross Domestic Product (GDP) in developing countries in term of international trade as well as export and import. Better world GDP growth could bring up the volume consumption of natural rubber and enhance the sentiment of natural rubber market. According to Neupane & Calkins (2013) stated that the rubber industry has always been susceptible to the price volatility of rubber latex, which destabilizes the benefits of rubber production to the local economy. The growers of natural rubber will lack of confident to invest in replanting and production of rubber due to unpredictable outcome. Therefore, low price of natural rubber will have reduction in production and make the supply of natural rubber decrease because of the farmer turn to other crops to cover the losses due to low natural rubber price. Thus, this hypothesis has been developed;

H₄: There is a significant relationship between economic growth and natural rubber price.

In Malaysia, one of the key factors that can affect the price of natural rubber is a climate factor that is a rainfall. The downward trend in the price of rubber is a result of imbalances in the rubber industry due to weather, seasonal factors and currency movements. Weather factor is one of the reasons why the rubber and industrial markets imbalance. This is in line with the VietinbankSc Industry Report 2013, which clarifies that climate change plays an important role in the production of natural rubber. It is important to control the production of natural rubber as it will directly affect the price in case of increasing natural rubber production become uncertain and unstable. However, based on literary studies it is found that the relationship between rainfall and natural rubber production is a negative relationship because the increase in rainfall will reduce the amount of natural rubber produced (Kannan, 2013). To ensure this statement, this hypothesis has been developed;

H₅: There is a significant relationship between rainfall and natural rubber price.

3. DATA AND METHOD

3.1 Data

The data consists of 10 top ranking Natural Rubber Producing Countries in the world based on Malaysia Rubber Board (MRB) in 2015 which are Thailand, Indonesia, Vietnam, China, Malaysia, India, Cambodia, Philippines, Sri Lanka and Papua New Guinea. The dependent variable use is the producer price index as a proxy of natural rubber price while the independent variables are the price of crude oil, consumer price index, synthetic rubber price, economic growth, and rainfall for the period from 2006 through 2015 comprises of 10 years observation. All the information and data obtained through Data Worldbank, food and agriculture organization of the United Nations (FAO), Indian Rubber Board (IRB), Malaysian Rubber Board (MRB), World Integrated Trade Solution (WITS), Ycharts, Rubber Research Institute Department of Agriculture (RRID), and International Rubber Study Group (IRSG). The descriptive statistics are shown in Table 1, which consists of mean, minimum, maximum and standard deviation of the data.

Table 1: Descriptive statistics

Dispersion Analysis					
	Minimum	Maximum	Mean	Standard Deviation (SD)	Coefficient of Variance(CV)
PPI	111.85	149.84	134.683	13.99509	0.1039113
COP	50.7533	105.0091	83.32806	19.4315	0.2331927
CPI	64.088	147.657	102.5611	18.04951	0.1759879
SRP	128.3	213.8	168.37	27.18545	0.1614625
ECO	1.735	4.327	3.0224	0.9365898	0.3098828
RNF	43.16	316.28	188.3172	78.8164	0.4185301

Notes: The dependent variable is Producer Price Index (PPI). The independent variables are express as Crude Oil Price (COP), Consumer Price Index (CPI), Synthetic Rubber Price (SRP), Economic Growth (ECO) and Rainfall (RNF).

3.2 Panel data model

The present study applies the panel data technique, which is known to be powerful research tools. The panel data model specify in this study is of the following structure:

$$y_{it} = x'_{it}\beta + z'_{it}a + \varepsilon_{it} \quad (1)$$

or

$$y_{it} = \sum_{j=1}^N \alpha_i d_{ij} + x_{it}\beta + \varepsilon_{it} \quad (2)$$

where

$$d_{ij} = \begin{cases} 1 & \text{if } i = j \\ 0 & \text{otherwise} \end{cases}$$

y_{it} is the dependent variable producer price index (PPI) and X_{it} represents five independent variables Crude Oil Price (COP), Consumer Price Index (CPI), Synthetic Rubber Price (SRP), Economic Growth (ECO) and Rainfall (RNF) where i , number of countries = 1, 2,.....10, t , number of years = 1,2,.....10. The ε is the error term.

4. RESULT AND ANALYSIS

Table 2: Pooled least square (POLS) regression

F- statistics	= 163.90			
Prob > F	= 0.0000			
R-squared	= 0.8971			
Adjusted R-squared	= 0.8918			
Variables	Coefficient	Std. Error	T	P > t
_cons	54.04398	4.440139	12.17	0.000
COP	-0.1035262	0.0429102	-2.41	**0.018
CPI	0.42 14102	0.0343773	12.26	***0.000
SRP	0.300094	0.0355012	8.45	***0.000
ECO	-1.199113	0.537679	-2.23	**0.028
RNF	-0.0045521	0.0059002	-0.77	0.442

Notes: The dependent variable is Producer Price Index (PPI). The independent variables are express as Crude Oil Price (COP), Consumer Price Index (CPI), Synthetic Rubber Price (SRP), Economic Growth (ECO) and Rainfall (RNF).

*** Significant at 1% level

** Significant at 5% level

Based on the results in Table 2, it shows that the R-squared value is 0.8971, which indicates 89.71% of the variation in dependent variable depends on the 5 independent variables and for the remaining 11.29% unable to be explained by the independent variables. Additionally, the results revealed the consumer price index (CPI) and synthetic rubber prices (SRP) significantly and positive to support producer price index (PPI) at 1% level which achieved 99% confidence interval since the $p > z$ value is less than 0.01. The results support Evennet and Jenny (2012), Nur Hidayah (2013) and Aye, Wong and Ung (2016) who find that the consumer price index (CPI) affects the price of natural rubber. The results show that throughout the inflation period all commodity prices, especially rubber, are rising and vice versa. It is related and in line with the theory and definition of inflation. For the synthetic rubber price (SRP), the results show that the increase in synthetic rubber prices will increase the price of natural rubber. Therefore, this study is in line with Aye, Zainalabidin and Amna (2012) and Nurhazirah, ShriDewi and Hussin (2016). Hence, these findings prove that H_2 and H_3 have been answered. The findings show that consumer price index (CPI) and synthetic rubber prices (SRP) have a significant relationship toward natural rubber price which measured by producer price index (PPI).

Whereas crude oil price (COP) and economic growth (ECO) are significant at 5% level. The coefficients show 0.1035262 and 1.199113 where 1% increase in whether the price of crude oil (COP) or ECO will lower the producer price index (PPI) according to the respective coefficient readings. The price of crude oil (COP) indicates that it is negatively and significantly associated with the price of natural rubber, which states that countries with higher crude oil prices will cause a reduction in the indices of natural rubber prices. Khin and Hameed (2012) explains that if the crude oil prices remain, it will have an adverse impact on the economy as most crude oils are used in manufacturing good production including rubber. It happens since increase in crude oil price will incurred many cost of production in the manufacture of rubber products and will increase the price of the rubber due to higher production costs. As for economy growth (ECO), it is negatively and substantially related to the price of natural rubber as the encouraging economy can drive high natural rubber demand in the market and vice versa. According to Nguyet (2013), the number of demand from major consumer countries such as China, United States and others has detected and influenced the price of natural rubber as it pushed the price fluctuations when demand was uncertain due to economic conditions for acquiring genuine rubber stocks. This proves that H_1 and H_4 failed to be rejected and allow the fact that crude oil price (COP) and economic growth (ECO) have a significant relationship to the natural rubber price.

Rainfall (RNF) is found to be the only variable that insignificant toward producer price index (PPI) with a value of 0.442 above the threshold of 0.05 with the coefficient of 0.0045521. Rainfall is not an important variable over the price of natural rubber because it directly affects production levels and not prices. Increased in rainfall will decrease the production volume due

to low tapping frequency. The results are consistent with the study of Budiman (2007), Nguyet (2013), Kannan (2013) and Mesike and Esekhide (2014) which explain that rain is not important in influencing the price of natural rubber but acts as the most explanatory variable in affecting the total production of natural rubber.

5. CONCLUSIONS AND RECOMMENDATIONS

As a conclusion, the price of natural rubber becomes uncertain at this time and will have a negative impact on emerging and industrialized countries due to progressive interruption. This study deliberately finds the cause of driving unstable natural rubber prices. The objective of this study is to identify factors that influence the volatility of natural rubber price and determine the significance level of independent variables toward dependent variable. From the discussion above, there are five factors selected as independent variables used to determine the relationship and its effect on the price of natural rubber. Sample of 10 countries from top-level natural rubber producing countries from 2006 to 2016 were selected and the results were obtained through panel data random effect GLS regression.

From the result obtained, it shows that consumer price index (CPI) and synthetic rubber price (SRP) are positively significant with producer price index (PPI) and act as important variables in determining the price of natural rubber. Meanwhile, crude oil prices (COP), economic growth (ECO) are negatively significant towards natural rubber price, and ultimately, the rainfall is determined as insignificant and unimportant to the price of natural rubber. It shows that from five factors, rainfall unconsidered as an important factor in influence the volatility of natural rubber price. Based on the results, all hypotheses are accepted except for hypothesis 5.

The findings suggest that rubber product manufacturers need to ensure that exports must override imports to avoid excess in the market as it may affect the price of natural rubber. In line with the theory of supply and demand, when the demand is uncertain, the supply of natural rubber will push the price into uncertain. The findings show that CPI and SRP are the main factors affecting the price of natural rubber. Thus, the government as a responsible authority can increase the natural rubber yield at an appropriate rate to help stabilize prices through control of the CPI as well as SRPs in the country. In addition, the government also needs to monitor the rubber market performance before getting more intervention in certain commodities in order to avoid losses that affect rubber tappers. Cooperation between producer countries and consuming countries is needed to stabilize the price of natural rubber.

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ID062 – Competency of Takaful Operator in Malaysia

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Abstract

Malaysia has witnessed a fabulous development of Islamic takaful industry for the past few decades. As at December 2016, there are 11 takaful operators in Malaysia which 2 of them are foreign based companies. As at December 2016 Total asset recorded is RM272 billion for both general takaful and family fund. The aim of this study is to determine the significant factors which influence the competency of Malaysia takaful operators. The panel data of eight-year- period from year 2008 until 2015 consists of 6 Takaful Operators listed on Bursa Malaysia were selected as they contribute an average of 12% of Malaysia gross domestic product (GDP). The analysis was performed using STATA 10. Return on Asset (ROA) is used as a proxy for performance as dependent variable while firm size, liquidity, solvency and leverage ratios have been selected in describing the performance as independent variables. The result found that firm size and leverage have substantial influences on ROA. As a recommendation for future studies, many companies and longer period data collection should be taken into consideration for a robust result.

Keywords: *islamic takaful; competency; return on asset (ROA); firm's size; leverage*

1.0 INTRODUCTION

In 1984, takaful industry has existed and become a new face in the global financial industry. The beginning of takaful has become a concern and associated to the restoration of Islam, which is the desire of Muslim to spend their lives in this world and hereafter accordance to the teachings way of Islam. During the announcement that been dispensed by the Malaysian National Fatwa Committee which is stated and declared that the conservative or conventional life insurance is considered haram (void) and has certain policy that contradicted with the Islamic teaching and principles, it causes the takaful's in Malaysia suddenly growth among the Muslims. Then, all the forms of conventional insurance that do not following the Islamic teaching and views had been stated by the Fiqh Academy of the Organization of the Islamic Conference (OIC) as a haram (void) that should the Muslims stay away. In 1982 a task force was set up in Malaysia where the recommendation was built by introducing the Takaful Act 1984. Since the enactment of the Takaful Act 1984, Malaysia has become forefront in the global takaful industry which provides establishment and regulation for takaful business where the other country can follow and use this enactment in their place.

In principle and activities, Islam does not reject or prohibited totally the concepts of insurance. In this world, the scholar and jurist of Muslim think that the concept of pooling of losses been using in insurance can be accepted in Islamic insurance where it does not contradict with the Shariah law and regulation. In Islam, the compensation and help to the people that has a

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problem or unfortunate, it become the responsibility to other people to help. It is not only accepted in Islam but it more encouraged the people to do this and practice in their daily life. It is for the Muslims to understand the benefit and reward by helping others. The basic element and content in a contract that been using by insurance has similarity with the takaful operation of model where it must carry utmost good faith, indemnity, proximate cause and insurable interest that had been said by Salman Fahad (2005).

Takaful models contain two types which are Al- mudharabah model (profit sharing) and Alwakalah (agent) that usually been using by takaful operator (Engku Rabiah Adawiah 2010).

- i) Al-Mudharabah also known as a profit sharing, where the takaful operators using it in business has a variety in terms of distribution channel, management fees and product. Takaful operator will act as a mudharib that is manager, while the participants as a rabbul mal that is capital provider. In this model, the profits that get from the transaction it will be shared among takaful operator and participant according to the ratio that had been agreed. But, if the losses happen or occur it will be borne by the participants that act as a capital provider.
- ii) Al-Wakalah also known as an agent, unlike al-Mudharabah model. In this concept, basically the participant and takaful operator will act as an agent and capital provider. Fee will be rewarded to the takaful operator for the services rendered. It is based on the investment profits that had been agreed the ratio among them.

The period of study will be cover from year 2008 until 2015. Information gathered are merely extracted from takaful operators' annual report. The data collected which been segregated into dependent and independent were also from the same source. The developments of takaful operator were based on Bank Negara Malaysia Report (BNM) Report. Table 1 below shows the selected Takaful Operators and the date of incorporation for each operator.

Table 1: List of selected takaful operators

No.	Takaful Operator	Shareholders/ Parent company	Year of commence
1	Syarikat Takaful Malaysia Berhad	BIMB Holdings Bhd	1984
2	Takaful Ikhlas Sdn Bhd	MNRB Holdings Bhd	2003
3	MAA Takaful Berhad	MAA Holdings Bhd Solidarity	2006
4	Hong Leong Tokyo Marine Takaful Berhad	Hong Leong Group and Tokio Marine & Nichido Fire Insurance Co. Ltd	2006
5	Prudential BSN Takaful Berhad	Prudential Plc and Bank Simpanan Nasional	2006
6	CIMB Avivia Takaful Berhad	CIMB Group and Aviva Plc	2006

1.1 Problem statement of the study

According to the Arab news dated 27 Jun 2011, the Islamic financial industry of total asset is expected to surpass \$1.5 trillion by on year 2012 where been said by the president of the Islamic Development Bank (IDB). In the meantime, several developing countries across the world known about this news, now they are trying to seek the opportunity by having the industry with more sound of regulatory infrastructure and investment opportunities in this Islamic industry. For examples, Southern Asian countries, such as Singapore, Indonesia, Malaysia, Sri Lanka, Brunei and Bangladesh are competed to make Islamic financial institution stand in the same direction or more to growth and achieving the same result with the existing conventional insurance financial industry. Malaysia country has become a leader or forefront among this country where Malaysia provide a uniform regulatory infrastructure for the Islamic financial industry in this region (Lim et al., 2010).

Referring to the BNM (2011a) the overall revenue generated from family Takaful policies had been improved to RM4,030.2 million or 20% in year 2010 from RM3,381.6 million in year 2009. The situation has contributed to the increasing of a net contribution to family takaful where in 2009 it was recorded at RM2,719.8 million and jump to RM3,326.9 million in 2010. Then, for

the net investment income from family Takaful also exhibited a similar growth level from RM354.8 million in 2009 to RM451.6 million in 2010. But, in this case not all the good thing happened in maintaining the trend. It is obviously due to the competition of market condition at the world-wide level which led to small drop from RM170.1 million in 2009 to RM145.8 million in 2010 in its underwriting profit. Even though the Takaful providers that having operating profit in Malaysia improved from RM247.5 million in 2009 to RM272.4 million in 2010, but because of high operating costs, the overall profit still declined. Then, the investment income for general Takaful still can be happy when there are increasing happening from RM57.7 to RM67.9 million in 2010. According to BNM Deputy Governor (BNM, 2011b), in Malaysia the takaful industry has showed a positively numbers when the industry a going faster and growing much from the expected view, this numbers been shows between a year 2005 and 2010 where it is attaining a growth rate of 28% in 2010. According to (BNM, 2011c), the market has a wide potential for the Takaful industry to growth at the global view, it is because only 54% of the population having one or the other life insurance or family Takaful while the rest remain uncovered. Now, the Takaful operators only has nine that operated, with an asset base of RM14,691.1 million and a total net contributions income of RM4,406.0 million, which is 6% of total Malaysian Gross National Income.

1.2 Literature review

In Malaysia, Bank Negara Malaysia has adopted a gradual approach because of developing the takaful industry which is separated into three stages:

- Stage I (1984-1992) the enactment of a dedicated regulatory law had been introduced, such as the Takaful Act 1984 and the establishment of the first takaful operator in 1984. During this period, the primary focused for the takaful industry was the establishment of the basic infrastructure for the industry. It is for to govern the conduct of takaful business and it needs the registration of the takaful operators. The Shariah Committees has established is to make sure that the business operations of a takaful operator are according with the compliance of a Shariah principles and regulation at all times.
- Stage II (1993-2000) it is where the introduction of competition with the other entry of takaful operator. The cooperation among takaful operators has been showed in this period where it includes the region of the formation of the ASEAN Takaful Group in 1995 and the establishment of ASEAN Retakaful International (L) Ltd. in 1997. This situation has facilitated retakaful (reinsurance) arrangements among takaful operators in Malaysia and in the other region, such as Brunei, Indonesia and Singapore.
- Stage III (2001-2010) it is begun with the introduction of the Financial Sector Masterplan (FSMP) in 2001. It is to enhance the capacity of the takaful operators and reinforce the Shariah law and regulatory framework. The Malaysia has become an international center for the Islamic finance by having the FSMP section that relates to the Islamic banking and also takaful. During this period, it can be see that an increased pace of development and competition with the others licensing of three new operators. In 2002, the establishment of the Malaysian Takaful Association (MTA), an association for takaful operators had been promoted to further the development of the takaful industry. This can help to improve the industry self-regulation through uniformity in market practices and promoting a higher level of cooperation among the players in developing the industry.

In a country's where the economic has been growth, insurance and takaful has plays an important role by offering the financial safety to the firm as well as individuals against uncertainty of monetary losses (Kihara, 2012). This is because, the world has become categorized by the risks and uncertainties, where the insurance evolved and growth as a way of providing security against such phenomena.

The global financial crisis of 2008-2009, has brought huge effects for the world economy. This global financial situation was caused by the subprime mortgage crisis that happening in the United States, which this country become the first country affected. This situation apparently happens in the mid of 2007. Europe was the first affected, and then the problem quickly spread to the rest of the world including East Asia. Later, from a housing crisis and then it grew into a banking crisis with the investment and merchant banks, where it first absorbing the impact of the financial crisis before it spread to the commercial banks (Krugman, 2009).

The unpleasant experience from the Asian financial crisis had initiated the Bank Negara Malaysia (BNM) to standardize and regulate the financial sector. The practice is however will not distressing the stock market. BNM had continuously control and monitoring the non-performing loans (NPLs) as a share of financial assets and for 2008 it has recorded as the lowest among Asian countries (World Bank, 2008). From 2009 onwards, Malaysia's economic fundamentals remain strong and confident. It is inevitable for Malaysia to been invulnerable from external environment risk, however the financial markets have been successfully managing by fiscal stimulus designed in compensating of exports contraction.

There are not many research been done on how Islamic insurance (Takaful) manage their company or facing the problem during financial crisis 2008-2009 and figure out what has influenced it to grow rapidly in Malaysia. Thus, this study attempts to explore the phenomena by filling the above explained gap via associating with internal factor which may affects the competency. To this end, we hope the study will furnish us on the understandings towards the competency of takaful operator in Malaysia.

1.3 Objective

The objective of this study is to analyze the impact of internal factors on the competency of takaful operator in Malaysia. In this study, the researchers used data from six takaful operators in Malaysia during time frame 2008 to 2015. During this time, all six takaful operator were operating as complete Islamic takaful.

General Objective

The core objective is to investigate the most important determinants of competency in the takaful sector of Malaysia.

Specific Objectives:

- i. To analyze the relationship between selected independent variables (Firm size, Leverage, Solvency, Liquidity) and dependent variables, ROA.
- ii. To analyses and identify the most significant factor that determines ROA

1.4 Research questions

This study will attempt to answer the question whether there is any association of such factors towards the competency of takaful operator which represented by Return On Assets (ROA). In short, the question can be specifically design as follows:

- i. What is the relationship between firm size, leverage, solvency, liquidity with the performance of Takaful Operator in Malaysia?
- ii. What is the most significance factor influenced the Competency of Takaful Operator In Malaysia?

2.0 METHOD AND MATERIAL

Theoretical framework is the tools been using to gather the related information from the research to show the direction in this study. The framework act as a main core to show the

relationship whether positive or negative will happen between dependent and independent variables. It also can show the possibilities of the hypotheses.

The purposed of this theoretical framework is to study the correlation between the ROA and the independent variables that consist of firm size, liquidity, solvency ratio and leverage ratio.

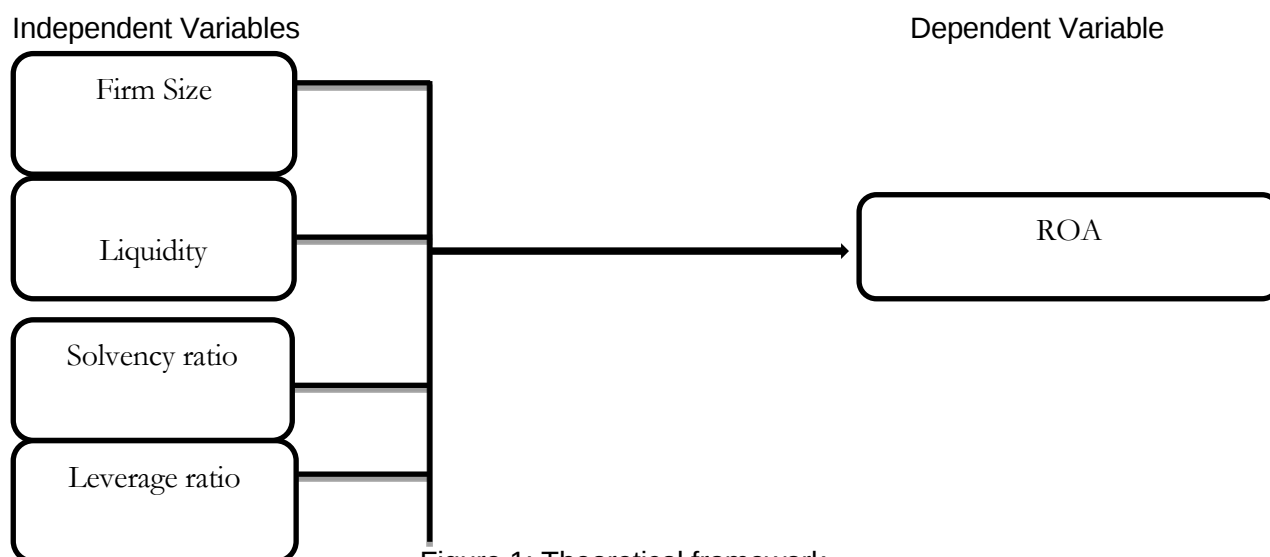


Figure 1: Theoretical framework

Dependent variable

The profitability ratios that are usually use is the net profit margin, return on assets (ROA) and return on equity. In determining ROA, net profit before tax of the firm will be divided to Total Assets. One of the popular methods in quantifying financial performance will be return on total assets which was developed in 1919 by Dupont. Firm's ability determination is according to the ROA in making use of its assets (Tangen, 2003). Examples, of the previous studies (Agiomirgiannakis, et al. 2006) ROA has been using in measuring of financial performance.

Independent variable

In measuring the predictor variables competency of takaful operator in Malaysia, four measures will be applied as independent variables. The variables namely; firm size, liquidity, solvency ratio and leverage ratio.

- *Firm size*: Total assets will be applied in measuring firm size and its summarized by the natural log of total assets (LOGTA)
- *Liquidity*: it measures the ability of the firm in using either real cash or quick assets to retire its liabilities. Liquidity Ratio = Current Assets / Current Liabilities.
- *Solvency ratio*: It indicates whether a company's cash flow is sufficient to meet its short-term and long-term liabilities.

$$\text{Solvency ratio} = \frac{\text{Net Income} + \text{Depreciation}}{\text{Short Term Liabilities} + \text{Long Term liabilities}}$$

- *Leverage ratio*: To finance a firm's assets, the leverage has been using and it is measured through total liabilities divided total equity.

2.2 Data collection method

This research has four independent variables and to analysis the variable, it uses the panel data. The data are taking directly from annual report of the takaful operator with the aim of identifying the independent variables which have the most impact toward return on asset. All the variable will be analysed using stata 10.1. The model equation is as below:

$$ROA_{i,t} = \beta_0 + \beta_1 FR_{i,t} + \beta_2 LQ_{i,t} + \beta_3 SR_{i,t} + \beta_4 LR_{i,t} + \epsilon_{i,t}$$

Where:

ROA = Return on asset

FR = Firm size

LQ = Liquidity

SR = Solvency ratio

LR = Leverage ratio

ϵ = Error component for company i at time t assumed to have mean zero $E[\epsilon_{it}] = 0$

β_0 = Constant

β = 1, 2, 3...5 are parameters to be estimate

Hypothesis

There are two kinds of the hypothesis that is null hypothesis that can be told by (H_0) and another one is the alternative hypothesis that showing by the (H_1). The null hypothesis shows no relationship between dependent and independent variable. The alternative hypothesis shown below:

Return on Asset and Firm size

H_1 : There is significant relationship between ROA and firm size

Return on Asset and Leverage

H_2 : There is significant relationship between ROA and leverage

Return on Asset and Solvency

H_3 : There is insignificant relationship between ROA and solvency

Return on Asset and Liquidity

H_4 : There is insignificant relationship between ROA and liquidity

3.0 ANALYSIS AND RESULTS

Table 2: Descriptive analysis

Variable	Mean	Std. Dev	Min	Max
ROA	.0112603	.0249367	-.0816188	.0764346
Liquidity	4.566113	3.404522	.3891427	13.68023
Solvency	.0327219	.1372695	-.3047676	.8525376
Leverage	5.238958	3.870069	.085	15.456
lgfirmsize	20.59359	1.051791	18.4313	22.63186

Table 2 represents descriptive statistics of the analyses. Mean can be referring to the average quality for every variable. While minimum display the lowest number of data while greatest is the most elevated number in that specific variable. Moreover, there is the estimation of standard deviations which identify with the scrambling of the data for each variable. The data shows that for the highest mean value is lgfirmsize where the value is 20.59359 and the lowest value is ROA where the value is 0.0112603. The lowest for minimum was found in a solvency with -0.3047676 while the highest in maximum is 22.63186 found in lgfirmsize. Besides that, standard deviation value demonstrates that leverage ratio has the highest value with 3.870069 follow by liquidity that is 3.404522, then lgfirmsize 1.051791, solvency .1372695, the last is the ROA where the value is 0.0249367. From this outcome, the total takaful operator output has vast scattering value.

Table 3: Pearson correlations

	ROA	Liquidity	Solvency	Leverage	lgfirmsize
ROA	1.0000				
Liquidity	0.0258	1.0000			
Solvency	0.3310	0.2601	1.0000		
Leverage	-0.0798	-0.0139	0.0437	1.0000	
lgfirmsize	0.2987	0.1307	0.2714	0.7591	1.0000

Table 3 above represents Pearson correlations between the dependent and independent variables. Furthermore, it can be used to check multicollinearity between the independent variables. Since the coefficient value of all independent variables is below 0.8 there is no multicollinearity exists.

Liquidity shows positive correlations with the ROA with the value 2.58%. In other words, when liquidity decreases, profitability moves to the opposite direction. Besides that, solvency and lgfirm size also shows positive correlation with the ROA with 33.10% and 29.87% respectively. It means that when solvency and lgfirm size decrease, ROA will increase. Meanwhile, leverage has a negative relationship with the ROA, where the value is 7.98%. In other words, when the leverage increases, ROA will decrease.

Table 4 below reveals the model of Pooled OLS Regression. This analysis aims to examine the simultaneous effects of several independent variables on depended variable charted on interval scale. Based on the probability t-value, the independent variables which are leverage and lgfirm size shows the significant impact in determinant of ROA which is less than 0.01 on 99% confidence level. In contrary, liquidity and solvency show insignificant relationship to the ROA with value 0.302 and 0.187 which value over than 0.05. The result also indicated that R – squared is 0.3479. It means 34.79% variation in the ROA can be explained by the independent variables while the remaining is due to randomness and other factors not included.

For the understanding of the coefficients, a 1% expansion in liquidity will decrease by -.0009843 in ROA, a 1% decrease in solvency, it will increase 0.0329701 in ROA. Then, a 1% increase in leverage, it will decrease by -.0044451. Contradict to that, a 1% decrease in lgfirm size, it will be expanding by .0187475 in ROA.

Table 4: Pooled OLS regression model

Source	SS	df	MS	Number of obs	48
Model	0.010167273	4	0.002541818	F(4, 43)	5.73
Residual	0.019059082	43	0.000443234	Prob > F	0.0009
Total	0.029226355	47	0.000621837	R-squared	0.3479
				Adjusted squared	R- 0.2872
				Root MSE	0.02105

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Liquidity	-.0009843	.0009432	-1.04	0.302	-.0028864	.0009177
Solvency	.0329701	.0245603	1.34	0.187	-.0165606	.0825007
Leverage	-.0044451	.0012715	-3.50	0.001	-.0070094	-.0018808
lgfirm size	.0187475	.0048649	3.85	0.000	.0089364	.0285586
_cons	-.3481153	.094374	-3.69	0.001	-.5384387	-.157792

Table 5: Breusch and Pagan Lagrangian multiplier test

	Var	sd = sqrt(Var)
roa	.0006218	.0249367
e	.0003722	.0192934
u	.000304	.0174346

Test: Var(u) = 0
chi2 (1) = 1.15
Prob > chi2 = 0.2829

Breusch and Pagan test is to decide whether to use POLS or panel data analysis (PDA) for further analysis. Based on the result in Table 5 above the p-value of chi2 is 0.2829 which is greater than 0.05. Therefore, GLS Regression Model will be the final stage in analysis.

In this test, all the aggravation and issue have been dispensed with. When the Prob > chi2 shows 0.000, this analysis is suitable to be used. In ensuring whether the variables are significant or not, the outcome must show up in $P > |z|$ be below 0.01. If so, it will be considered as remarkable variable.

Table 6: Random effect GLS regression

Random-effects GLS regression						
ROA	Coef.	Std. Err.	Z	P > z	[95% Conf. Interval]	
Liquidity	-.000415	.0009385	-0.44	0.658	-.0022545	.0014245
Solvency	.032047	.0231752	1.38	0.167	-.0133755	.0774694
Leverage	-.0052478	.0012412	-4.23	0.000	-.0076805	-.002815
lgfirmsize	.025518	.0061578	4.14	0.000	.0134488	.0375871
_cons	-.4859072	.1224585	-3.97	0.000	-.7259216	-.2458929
sigma_u	.01743459	(fraction of variance due to u_i)				
sigma_e	.01929337					
rho	.4495199					

Number of obs = 48

Group variable : code

R-sq : within = 0.4198
between = 0.2891
overall = 0.3315

Random effects u_1 ~ Gaussian
corr (u_i, X) = 0 (assumed)

From the result as shown by table 6, the independent variables which are leverage and lgfirmsize showed significance relationship with the ROA. This can be seen from the p – values with all of them are below than 0.01.

Meanwhile, liquidity and solvency showed insignificance relationship with the ROA. This can be seen from the p – values with two of them are above than 0.01. For the R – squared result, in general will be seen to clarify the model. From the result, the 33.15% can be clarified in this study, and the rest will be clarified by the residuals. From the same evidence, it obviously discloses that firm size and leverage have substantial influence on ROA. Both variables carried a p- value of 0.00

For the understanding of the coefficients, a 1% expansion in liquidity will decrease by - 0.000415 in ROA, a 1% increase in solvency will positively increase 0.032047 in ROA. In parallel, a 1% increase in lgfirmsize, it will be expanding by 0.025518 in ROA. Contradict to that, a 1% increase in leverage will decrease by -0.0052478.

4. DISCUSSION

Takaful has no doubt in contributing to economic growth towards have Muslims community by offering financial protection against risk to an individual or companies which exposed to monetary losses due to unanticipated situations. Therefore, it is extremely important to recognize the factors that mostly influence the insurers' profitability to survive negative shocks and maintain a good financial stability.

The first objective is to examine the most important determinants of competency in the takaful sector of Malaysia. Besides that, this research also purposed to identify the internal variable that has the most significant factor affecting competency of takaful operator in Malaysia. All the above objectives have been achieved.

In this study, it is found that firm size is significant and has positive relationship with the profitability. In addition, the result is consistent with the previous study by Serrasqueiro and Nunes (2008). The study took place in Portugal for the period of 1999 -2003 on performance of big and small scale which resulted a positive relationship. In parallel, Lee (2009) also found a similar relation between profitability and the size of the firms operating in USA between the years of 1987-2006.

For the leverage, there is significant and has a negative relationship with the profitability. Ahmad et al. (2011) in their study on Pakistan's life insurance sector also show the same pattern. The results reveal that an increase in debt by Pakistan insurance companies will significantly reduce its profitability. The scenario has impulse the insurance companies to rely more on stock option in raising its investment capital. Due to capital stock market volatility, it creates another challenge in using stock. Thus, internal source is opting to in raising its capital effectively. It is also supported by Zeitun & Tian, 2007 which show a negative relationship between leverage and firm performance.

There is also insignificant and has negative relationship between profitability and liquidity. The finding for this research is totally contras with the previous studies such as (Amal, 2012 and Chen & Wong, 2004), where it has significantly positive relationship between profitability and liquidity. The researcher recommends for the companies to decrease its current liabilities and increase its current assets simultaneously with the aim to cushion the impact of having less cash which create difficulty in repaying to policyholder when loss arose. Besides that, sufficient level of liquidity, will warrant the insurance companies to satisfy its instantaneous obligations to other creditors and policyholder especially without having to intensification of it profits on investment activities and underwriting or in worse scenario liquidate financial assets. It is different and contrasts with this research, where the hypothesis is insignificant and has negative relationship between profitability and liquidity.

Solvency ratio has a positive relationship but insignificant with the profitability. Solvency ratio indicates the additional value of assets over the value of insurance liabilities and other liabilities of policyholders' and shareholders' funds. The finding from this research is different from the earlier studies that had been done by (Charumathi 2012). In his study, it presented that there is a significant positive relationship between profitability and solvency ratio. The research finding is same with the other researchers that are Durinck et al. (1997), who claim that the firm will require more external financing to cushion the rapid growth. However, this external financing will have lifted the liabilities, since as the external equity financing was insignificant. As a firm grows, the solvency ratio will thus become smaller.

5. CONCLUSIONS AND RECOMMENDATIONS

The independent variables which are firm size, liquidity, solvency ratio and lastly leverage ratio has an impact on the competency on takaful operator. Based on the result, the researcher would like to propose some recommendations. For the next exploration, it is recommended to consider other microeconomic variables which are believed to have different impact to the dependent variable. The variables suggested will be premium growth, underwriting risk and others which is deeming to influence the result.

It is also suggested to prolong the period of study and add more takaful operators to get better outcome and effect. Besides that, the future research may proceed an exploration by choosing

different nations or locales that practice Islamic insurance (takaful), for example, Europe or America as their core business. It is believed that with different countries will provides different level of competency. Malaysia as a leader of Islamic Financial Hub in South East Asia region will gain valuable experience and acquaintance from other countries in strengthening it competencies.

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ID068 – Financial Distress: Case of Malaysian Public Listed Companies

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Abstract

This study attempts to predict the internal and external factors that affect financial distress of 21 Malaysian public listed companies that fall in PN17 categories. Financial distress is the dependent variable while firm characteristics (profitability and size) and macroeconomic variables (gross domestic product and exchange rate) are the independent variables. The observation is from 2012 to 2016 and all the tests are conducted based on yearly data which is total of 105 yearly data observations. Fixed Effect panel data Ordinary Least Square (OLS) was used as the analysis procedure in predicting financial distress. Results found that both of the internal factors; profitability and size of company negatively significantly give impact to the financial distress which return on asset and total asset as the proxy respectively. However, only GDP as external factors that signifies a negative relationship with financial distress and exchange rate positive insignificantly correlated with financial distress. Top managers should consider these variables in order to detect early signs of financial distress thus can take an action to prevent such problems.

Keywords: financial distress; firm characteristics; macroeconomic variables; PN17; ordinary least square

1. INTRODUCTION

Estimation of financial distress companies has become one of the most common areas of research study in finance. The study on financial distress is very important especially to the economic development of a country, companies themselves, current investors and stock market regulators. Thus, many studies had been conducted in the area of predicting financial distress companies internationally as an early warning sign of bankruptcy in the future. Being aware of the signal can help prevent losses due to bankruptcy or insolvency. Recent history indicates that there have been several businesses failures throughout the world. A research by Campbell et al. (2011) has stated that this failure is happen in businesses due to the poor performance, inefficient producers, and they are likely to have high financial leverage cash flow problems. However, this failure can be eliminated with the efforts undertaken by various parties concerned. Nevertheless, businesses failure can be happening in developed or developing countries if they did not aware of any future risks internally or externally.

As at September 2017, United States America (USA) experienced 19 large retailers that have filed for bankruptcy protection and some of them are even opted to file for a second time (Thomas, 2017). Financial distress also happened in United Kingdom (UK) which is also known as developed country. Martin (2017) has marked that huge numbers of British businesses are experiencing critical levels of financial distress and that is the biggest annual increase since 2014 which is up 25% year on year. He also stated that the distress happened

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because of the businesses are losing their momentum in the economy, thus putting them to increase the financial pressure. Getting worse, almost 300, 000 of those businesses in distress were Small Medium Enterprise and about 21,000 were larger businesses.

Apart of that, Asian countries also faced financial distressed. As at July 2017, Singapore's oil & gas company namely Nam Cheong Group Bhd has failed to pay their debt followed by other companies in that country (Khoo, 2017). Apathy and Chua (2017) state, as an approach to rescue the distressed companies, The Singapore Companies (Amendment) Act 2017 has introduced significant changes to the existing Scheme of Arrangement (Scheme) provisions. Additionally, Malaysia also not exempted from experiencing financial distress as there are 21 companies are listed under Practice Note 17 (PN17) that need to be restructured and to seek protection. Moreover, in order to prevent losses due to bankruptcy, a company should being aware of the signals of financial distress. Referred to Lamers (2009), a lot of business owners are fail in monitoring their cash position due to ignore the early warning signs which they unchecked them in a first place. The business owner was not prepared enough for the economic slowdown thus caught by the strain placed on cash flow by defaulting debtors.

According to Bursa Malaysia, in 2012, there are 24 companies are experienced financial distress and fall in PN17. The number of companies increase to 28 in 2013 thus shows that there are many other companies that face financial difficulties. Fortunately, there is a good sign when the companies in PN17 categories keep reducing to 23, 21 and 15 in 2014, 2015 and 2016 respectively. This is due to the successful of the companies to submit the restructure plan to the Bursa Malaysia within the timeframe to be de-listed in the stock market. However, the number of companies increases again in 2017. As at 30th June 2017, Kaur (2017) stated that out of the 907 companies listed on Bursa Malaysia, there are 21 companies are classified under PN17. It represents 2.32% of the total number of companies listed in the stock market are having financial difficulties which may lead to liquidation and it is may harm the economic development of a country.

Even though the percentage of current distress companies is only 2.32% which is a small figure, but these companies play an important role to the country's economic development and growth. This is because the companies that fall in PN17 category come from various industries such as oil and gas, construction, telecommunications, education and assisted reproductive technologies industries. Index Mundi, the data portal that gathers facts and statistics from multiple sources highlighted Malaysia GDP is composite from three major sectors which agriculture, industry and services. 8.2%, 37.8% and 54% are the percentages contribution of agriculture, industry and services to total GDP respectively. Thus, industry is crucial for the country as it is the second largest contributor which is 37.8% to the total GDP of Malaysia economic growth.

1.1 Literature review

Financial distress

A competitive business environment will ensure only the fittest companies will survive and the firms that faced financial distress will end up in total shutdown. According to the research by Purnanandam (2004), there are three possibilities of a firm may face when they experiencing financial distress. First, the impacts that financial distressed firm possibly will lose are their valuable clients, trusted suppliers and important employees. Second, firm that experience financial distressed may breaches its debt covenants or misses coupon or principal payments without being bankrupt. Lastly, a distressed firm is more likely to forego positive projects because of high external financing cost.

On the other hand, Campbell et al. (2011) also have suggested that distressed companies usually have the characteristics or symptoms that they have recently made losses and damages, have high level of debt, low, fluctuate and volatile in stock earnings and low levels of

cash hold in hand. Hence, it is clarified that experiencing financial distressed will give harm instead of good for the companies themselves and a country. Generally, measurement for financial distressed is by using leverage ratio as this ratio is used to measure the long term solvency of firms (Chancharat, 2008).

Profitability

Generally, profitability is used to measure firm's performance. Thus, it is important for to measure the relationship between profitability of the distressed company and its financial condition. A study by Lamberto and Rath (2010), they stated a firm that have very progressive profitability from the beginning of their business and operation is tending to survive and last longing. As per suggested by Chancharat (2008), this is because the firm's profitability is the key survival factor when a business generates greater profit, they will have greater earning. Mochabo et al. (2017) has examined the relationship between bank diversification and financial distress of commercial bank listed of Kenya is positive. They believed that when commercial banks generate more profits, the more potential the bank likely to be in financial distress. However, it is contrast to the study of Yan, Hong, Kit, Kit and Lian (2016) that profitability ratio of the companies is negatively significant to the probability for a firm to experience financial distress. It means that a firm with a poor and bad record of profitability and solvency will have higher probability of facing bankruptcy. Thus, this hypothesis was developed:

H₁: There is significant association between profitability and financial distress.

Size of firm

Mochabo et al. (2017) investigated the effect of bank diversification and financial distress of commercial bank listed at the Nairobi Securities Exchange, he stated that size of firm is having positively and significantly correlation with financial difficulty. Other studies by Noor et al. (2012), Chancharat (2008) and Thim et al. (2011) also have the same finding which positively relationship between size of firm and financial distressed. They found that size of firm is significant factors to determine the distressed firms as they suggested that companies with higher proportion of total asset are more likely to face financial distress.

Nonetheless, the result was contradicted with Yirgu (2017) that examined the determinants of financial distress for banks in Ethiopia as he uncovered that firm size is negatively linked to financial distress. This may due to the benefit of diversifications that the firm has made when they have greater assets. Wangige (2016) and Lamberto and Rath (2010) also believed that large firms tend to have better ability to survive during crisis compared to the small firms. Thus, this hypothesis was developed:

H₂: There is significant association between size of firm and financial distress.

Gross domestic product (GDP)

According to Yirgu (2017) in his study, it is found that the GDP has negative and statistically significant impact of economic growth on financial distress of a company. It indicated that when there is increasing in economic activity or growth, the probability of a firm to be distress is lower. Charalambakis (2014) and Mishra (2013) also has the same thought as he identified that GDP growth have a negatively significantly effect on the chances for the firm to financially distress. When GDP of a country is increasing, the total income raises thus simultaneously give the good impact to the financial status of firms.

Parallel with the research done by Liou and Smith (2006) which is macroeconomic variables in identification of financial distress, both of them found that GDP has negatively and closely associated with financial distress. Bunn and Redwood (2003) believed that GDP is negative and significantly associated with probability for a firm to be fail in the future.

H₃: There is significant association between gross domestic product and financial distress.

Exchange rate

Cyril and Okechukwu (2014) have examined the effect of macroeconomic variables on financial performance indicators for Nigerian conglomerate sector and they found that there is positive insignificantly relationship between exchange rate and companies' financial status. In line Illo (2012), the result showed that there is positively correlated between exchange rate and financial distress. It implied that when exchange rate increase, debt ratio of a company also will increase hence increase the chances for the company to fall in financial distress.

A study on the effects of exchange rate fluctuations on financial performance of commercial banks in Kenya by Majok (2015) also has supported the results. It was found that a positive insignificantly relationship is exist between exchange rate and financial distress of a company. This therefore specified that as a country currency reduced in value, the return by companies also decreasing thus the company will likely to face financial difficulties. Plus, according to Chancharat (2008), he found that a countries with low political risk that have a stable exchange rate are less likely to fail and have a lower survival rate.

H₄: There is significant association between exchange rate and financial distress.

2. METHOD AND MATERIALS

2.1 Data collection method

The data were extracted from the financial statements (statement of comprehensive income and the statement of financial position) of selected 21 companies listed in Bursa Malaysia Berhad. This research uses panel data which study on 21 companies classified under PN17, for 5 years of annually data covering the period from 2012 until 2016. All the data will be analysed using Stata software.

2.2 Model specification

In this study, a quantitative method is used to investigate the financial distress through statistical, mathematical and computational techniques. This approach allows the researcher to examine the relationship between variables of firm characteristics and economic variables on financial distress, which can be used to look for cause and effect relationship thus a prediction can be made. Thus, financial distress will be represent by debt ratio, PROF as a profitability, SIZE as a size of company, GDP as a gross domestic product and lastly ER as an exchange rate.. The function can be formulated as below:

$$FD = \alpha - \beta_1 PROF - \beta_2 SIZE - \beta_3 GDP + \beta_4 ER + \varepsilon$$

Where:

α	= constant
$\beta_{1,2,3,4}$	= coefficient of the independent variables
FD	= financial distress
PROF	= profitability
SIZE	= size of company
GDP	= gross domestic product
ER	= exchange rate
ε	= error term

3. RESULTS AND DISCUSSION

3.1 Descriptive analysis

Table 1.0: Descriptive statistic

Stats	FD	PROF	SIZE	GDP	ER
Mean	7.327789	-201413.9	4.828262	2.6086	3.6954
Minimum	0.02	-1.91e+07	-2.302585	2.438	2.813
Maximum	203	65.6	8.679873	2.831	4.14
Std. Dev.	30.03892	1959091	2.356641	0.1576687	0.4605517
Skewness	5.452568	-9.592192	-.9733181	0.1619274	-1.21490
Kurtosis	33.3495	93.01031	4.356714	1.440995	2.937713

Table 1.0 above summarizes the data in explaining the variation of the data's size and give fundamental idea on characteristics of each variable. These statistics consist of mean, minimum, maximum, standard deviation. Skewness and kurtosis value.

3.2 Correlation matrix

Table 2.0: Correlation matrix of the independent variables

	FD	PROF	SIZE	GDP	ER
FD	1.0000				
PROF	-0.8722	1.0000			
SIZE	-0.5896	0.3423	1.0000		
GDP	-0.0520	0.1165	0.0214	1.0000	
ER	0.1381	-0.1125	-0.0904	0.2692	1.0000

Table 2.0 above presents the Pearson correlation matrix of the variables employed in this study. It is the statistical measure that determines the relationship between all variables and to analyses the association between each variable. The higher value correlations of coefficient show the stronger relationship between variables. Based on the results, the FD is found to be negatively correlated with PROF, SIZE and GDP. However, it shows the ER have positive relationship with FD which is resulted at 0.1381. Correlation matrix reveals that independent variables are not highly correlated. For this reason, there is no multicollinearity problem exist between the independent variables as all the value is less than 0.8.

3.3 Empirical regression results

Table 3.0: Fixed effect OLS regression

Financial distress	Coef	Std. Err	t	P> t
Profitability	-.0057954	.0004145	-13.98	0.000
Size of Firm	-8.878799	.8045437	-11.04	0.000
Grodd Domestic Product	-9.454387	4.431999	2.13	0.037
Exchange Rate	2.052118	1.691183	-1.21	0.229

The regression analysis is used to test the hypotheses developed in the study. Hypothesis 1 predicts a significant association between profitability and financial distress. The results reported in Table 3.0 show the association financial distress and the hypothesized variable derived from the extend literature. The adjusted R square is 73.38% of the variation in the dependent variable which explained by variation of all the independent variables. Only 26.62% cannot be explained that may subjected by other variables. From the outcome of FE panel OLS regression, profitability is found to be negative and significant relationship with financial distress. The result supports Hypothesis 1 which predicts that financial distress is significantly related to profitability. It implies that the probability of the company to be financially distressed increase when their profitability is decrease. Expressly, when the company performance becomes slowdown, the income and earnings will be decrease by time. This result is supported by a few previous researchers as they also using profitability to determine the factors affecting financial distress. Yan et al. (2016), Charalambakis (2014) and Thim Thim et al. (2011) have the same result with this study which is profitability has negatively significant

correlation with financial distress. They stated that the companies are likely to be financially distressed due to poor performance and bad record of profitability. Therefore, there is negative significant relationship between profitability and financial distress.

Apart from that, the result showed that there is negative and significant relationship between size of the company with financial distress. It indicates that the larger the size of the company, the lower the probability of the company to face financial distress. This finding is parallel with the study of Lamberto and Rath (2010) which he stated that there is negative and significant relationship between company size and financial distress. Yirgu (2017) and Wangige (2016) also found the same relationship, but insignificant. In the study, they stated that when the company is having higher proportion of total asset, the probability of the firm to diversify its business will increase thus lessen the potential for the company of facing financial difficulties. Besides, they also believed that large companies tend to have better capability to survive well during economic crisis than small companies. Hence, there is negative significant relationship between size of the company and financial distress.

Additionally, the findings from FE panel OLS revealed that GDP has negative and significant relationship with financial distress. It means that the company tends to face financial distress when the GDP is decrease. The finding from OLS is consistent with Yirgu (2017), Charalambakis (2014) and Mishra (2013) since they also claimed that the relationship between GDP and financial distress is negatively significant correlated. From their study, they indicated that when the economic growth is increasing by time, the probability for the company to fall into financial distress will be lower. This is because, the total income of firms will increase during GDP of country in a best position 50 thus give the good impact to the financial status of the company. In fact, Liou and Smith (2006) and Bunn and Redwood (2003) have the same thought, that the chances of companies to face financial distress will be decrease when GDP is increase. They said that slowdown in GDP is the main factor for the increasing of financial distress prediction. Thus, there is negative significant relationship between GDP and financial distress.

For exchange rate, the results from FE panel OLS showed there is positive relationship but insignificant impact towards financial distress. It implies that increment in exchange rate will increase the possibility of companies to experience financial distress. This result is supported by Cyril and Okechukwu (2014) and Majok (2015) which indicated the positively insignificant relationship between exchange rate and financial distress. Illo (2012) also found the relationship of exchange rate towards financial distress is positive but significant. Specifically, higher currencies will cause export activities of a country to be more expensive which will reduce their earning and income, thus discourage local business to widen their operation. Consequently, the companies will have no chance to grow their business globally due to increase in exchange rate and this will make the companies to face financial difficulties. Thus, there is positive significant relationship between ER and financial distress.

4. CONCLUSIONS AND RECOMMENDATION

The main purpose of this study is to uncover the impact of firm characteristics (internal factor) and macroeconomic variable (external factor) towards financial condition of selected Malaysian public listed companies. For this study, the dependent variable, debt ratio was used as a proxy for the financial distress (FD). While the independent ratios incorporated in the study are return on asset as a proxy for profitability (PROF), total asset as a proxy for size of company (SIZE), Gross Domestic Product (GDP) and exchange rate (ER). Based on the findings and analysis, it showed that the study have answered all the objectives listed.

The first objective is to determine the factors that contribute to financial distress. Profitability, size of company and GDP are found to play as important role in giving impact to the financial

condition of company except exchange rate which not important towards company financial condition. The next objective is to measure the relationship between internal and external factors to the financial distress. The internal factors are the profitability and size of company while the external factors are GDP and exchange rate. According to the result obtained, both profitability and size of company which represent by return on asset and total asset respectively have negative relationship with financial distress. Whereas, the external factors which are GDP and exchange rate have negative and positive relationship with financial distress respectively.

The last objective for this study is to find the most significant factor that affects financial distress. From the result OLS, it is found that the most significant factors that affects financial distress is profitability. This result is supported by most of previous researcher, thus this variable has given the most significant impact towards financial distress. In consummation, the study further revealed that the profitability, size of company and GDP were negatively related to financial distress while positive insignificant relationship between exchange rate and financial distress.

It is suggested to the future researcher to use other model in predicting financial distress among companies. Besides, it is recommended to the future researcher to use other independent variables as an internal and external factor. Finally, future researcher is proposed to extend the period of the study in order to get more precise and accurate results since the more the data collected, the better the result obtained.

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ID070 – First Time Reporting of Key Audit Matters (KAM) by Malaysian Auditors: An Exploratory Study

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Abstract

This paper reports on the early first cohort of Audit Reports issued by external auditors in response to the requirement of ISA 701, Communication of Key Audit Matters (KAM) in the Auditor's Report, which became effective for audits of financial statements on or after 15 December 2016. Based on 15 Audit Reports of financial statements for year ending 31 December 2016 available in early 2017, this paper reports that only one out of 15 had a disclaimer and no KAM reported for the audit as ISA 701 specifies that no KAM should be reported following an audit disclaimer. The other fourteen audit reports were all clean reports with the number of KAMs reported ranging from one to five. The highest most significant audit matter reported was revenue recognition and inventory valuation followed by asset impairments of both tangible and intangible assets. Justifications by auditors of matters considered most significant ranged from no additional information (it is most significant because it is material) to articulate explicit link with business model and industry specific factors thus compliance with disclosure of KAM may be compliance de jour rather than compliance de facto. Despite the additional requirement to disclose KAM, this study finds no evidence of audit delays. All KAMs disclosed are elaborations of and related to a client's significant accounting policies choice. From KAM disclosures, readers of audit reports now are informed of the audit risk areas where estimates were made and judgments prevailed challenging auditors to exercise greater skepticism. This preliminary finding provides pointers for greater research into the cost benefits and communicative value of KAM disclosure in the Audit Reports of Listed companies in Malaysia.

Keywords: key audit matters; professional skepticism; audit delays; revenue recognition; asset impairment; international auditing standards

1. INTRODUCTION

The auditor's report accompanying the financial statements issued in a company's annual report gives assurance to users of financial statements as to whether the audited financial statements are free from material misstatements or not. Materiality is determined by the auditor based on the auditor's assessment using the audit risk model. The materiality threshold set will define the auditor's assessment using the audit risk model. The materiality threshold set will define the boundary of how much evidence is needed and how much work needs to be performed. Such assurance gives credibility to the audited financial statements and therefore deemed useful for decision making by users of financial statements. In Malaysia, the Malaysian Institute of Accountants (MIA) mandates that audits must be performed in accordance with approved auditing standards to ensure minimum quality of work performed.

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The audit process of assessing risk of material misstatements and the appropriate response to the risks identified makes auditing a critical rather than difficult process involving judgment and the exercise of professional skepticism (Kelly, Yong and Gibson, 1990). What happens in the entire audit process must be documented as required by the standard on Audit Working Papers. These papers are not accessible to the users of audit reports. What users get is only an audit report with the auditor concluding in the form of an opinion following a standardized template issued by MIA. This practice will now change when MIA issued ISA 701, Communication of Key Audit Matters (KAM) in the Auditors' Report whereby the auditors are now required to include a new additional paragraph in the audit report, issues deemed as of the greatest significance during the audit, discussed and reported to those in charge of governance. The auditors are now required to be transparent to intended users of the audit report on key or critical areas of the audit.

1.1 Problem statement of the study

The mandatory disclosure of KAM introduced by ISA701 creates a new reporting regime to external auditors whereby for the first time auditors must disclose in a separate paragraph of the audit report, matters limited only to those identified as most significant to the audit and why and how auditors responded to the significant matters. The changes are expected to bring benefits not only to auditors but also to auditees and users of audited financial statements. Although the audit report is now providing a lot more information as directed by ISA 701, not much coverage has been given by the media despite the claims that the market wants auditors to be more transparent. Given this new reporting regime to be effective for periods ending on or after 15 December 2016 what were the first reported KAMs identified by Malaysian external auditors and why?

It is the objective of this paper to examine the nature and extent of KAMs in the early batch of the pioneering audit report cohort for year ended 31 December 2016 and whether selecting KAMs, presenting it without a boiler plate template and reporting the responses to the KAMs lengthened the audit process thereby jeopardizing the timeliness of audit reports. To date there is no published study on KAMs and its impact in Malaysia. The researchers believe this is the first study relating to KAMs in Malaysia. It is exploratory and paves the way for more research in the near future. The paper is organized as follows: the next section presents the literature review followed by the methodology of the study. Results and discussion of the results are then presented before the paper concludes.

1.2 Literature review

This section presents a brief literature review based on the directives and guidance from MIA, the sole regulatory body of the accounting profession in Malaysia, as well as empirical work published on KAM from countries which had adopted KAM reporting earlier than Malaysia. Studies of audit regulations have used Institutional theory to explain why regulators of professions need to introduce regulations to its members. Bealing et al. (1996) examined the early regulatory actions by the Security Exchange Commission (SEC) in US as dramaturgy of political exchange. Regulators try to justify their role and acquire legitimacy via mandating its members to comply with the regulations issued. Part of the conformity by MIA in turn to International Auditing Standards issued by the International Auditing Standards Board, London, is also a process of conformity, or isomorphism, to pressures from global capital markets for standardized regulatory practices across the globe. Such isomorphism is termed coercive isomorphism. Baker et al (2014) also concluded that external audit has evolved to be what it is today through coercive isomorphism, driven largely by regulations as regulators of the auditing profession internationally sought to maintain and justify their legitimacy.

There are limited studies on the usefulness of KAM disclosures in the audit report. Siluiu-Cordos and Timea-Fulop (2015) used an ex-ante approach by examining responses which were comments received by IAASB at the stage when the proposed new standard was just an Exposure Draft. The comments were received from respondents in the European Union

countries. Most respondents agreed that disclosure of KAM will have a positive impact on the audit reporting process. Likewise an experiment on non-professional investors showed that if KAM were placed prominently in the audit report, respondents were more likely to use it to change their investment decisions compared to if they only received a standard audit report (Christensen et al. (2014).

Ex-post studies of the benefits and usefulness of KAM however, have produced mixed results, not all of which support the usefulness expected. In France the reporting of Justification of Assessments or KAM appears to be more symbolic than informative thus negating the intended usefulness of such disclosures as envisaged by regulators (Bedard et al., 2014). As posited by Institutional theory, compliance which is coercive isomorphism may result in compliance in form, that is compliance *de jour* rather than compliance *de facto*. Lennox et al., (2017) reported that first time reporting of KAM in the UK does not make the audit report incrementally informative to investors. What information is disclosed in the expanded audit report has been factored in by investors based on risk related information in earlier announcements preceding the release of the audit report. Disclosures do capture reliably the uncertainty in accounting measurements but lack incremental information content. Investors have been informed earlier from other sources made available of these risks areas of misstatements. Reid et al. (2016) reported that audit quality has improved after the implementation of KAM disclosures in the audit report as evidenced by reduction of abnormal accruals reduced after KAM disclosures.

The informational value of KAM disclosures has also had an attention directing impact (Sirois et al. (2014). Investors pay more attention to KAM related matters and less to remaining parts of the audit report. Hence KAM disclosures have made information search and acquisition more efficient. Also in a litigious environment KAM disclosures could reduce the probability of potential legal actions against auditors when misstatements are the same as those identified in KAMS (Kachelmeier et al. (2017).

In sum therefore, results of prior literature have yielded mixed findings. Studies using various methods and focusing on specific users of the new audit report incorporating KAM disclosures report that in some jurisdictions, KAM disclosures have brought positive effects whilst in others there are no effects at all.

2. METHODOLOGY

Data for this study is based on the audit reports available for year ending 31 December 2016 to capture the early birds affected by the new standard, ISA 701, which became effective for audits of financial statements for periods ending on or after December 15, 2016. Hence the earliest cohort to comply would be those having a 31 December year end. ISA 701 is also applicable only for listed companies (Para 5, ISA 701). Therefore only audit reports of listed companies were used as data source. Bursa Malaysia mandates that audited financial statements must be submitted within four months after year end. For this purpose the researchers examined the date of the auditor's report for evidence of timeliness or delay in view of the additional requirement to select and justify reporting KAM disclosure to those charged with governance of the entity.

The researchers also examined the number of KAMs reported to identify its nature and justification by auditors as to why among all the material items in the audit, the KAMs disclosed were considered as the most significant. Interviews were held with a few auditors of the Big 4 regarding the problems faced in wording and communicating KAMs as there is no standard boiler plate format to follow. The KAMs reported were then ranked in terms of most reported KAM and further analysed whether the KAMs disclosed had possible association with industry

type. As an exploratory study, the researchers used descriptive statics and applied a grounded theory approach to identify possible emerging issues from the KAMs disclosed.

3. ANALYSIS AND RESULTS

Table 1 below summarizes the KAMs reported by 15 listed companies:

Table 1: Summary of KAMs disclosures by early 2017 cohort

COMPANY	AUDIT OPINION	AUDITOR AND AUDIT REPORT DATE	NUMBER OF KAMS	ISA 701 REQUIREMENTS
Maxwell	Disclaimer	Baker Tilly 28.4.17	NIL	No KAM to be reported if a disclaimer audit report is issued. Compliance with ISA 701
Genting	Unqualified	PWC 4.4.17	Impairments of intangibles, property plant and equipment, investment (3)	
Cycle and Carriage	Unqualified	PWC 22.2.17	Inventory write down (1)	
Nestle	Unqualified	PWC 28.2.2017	Revenue recognition (1)	
CCM	Unqualified	KPMG 24.3.17	Goodwill impairment, inventory obsolescence (2)	
Prestariang	Unqualified	Crowe Howarth 28.3.17	Recoverability of Development costs, contract customers (2)	
Lafarge	Unqualified	Delloitte 28.3.17	Goodwill impairment, inventory obsolescence (2)	
7-11	Unqualified	EY	Revenue recognition (1)	
Metronic Global	Unqualified	Siew Boon Yeong Associates	Freehold land and buildings, financial assets, deferred tax assets, Trade receivables, revenue from contract works (5)	
Cocoa Land	Unqualified	UHY 3.4.2017	Inventory valuation, (2)	
Air Asia	Unqualified	PWC 5.4.17	Revenue recognition, impairment of investment in associate, aircraft maintenance provision, derivatives and financial risk (4)	
Maxis	Unqualified	PWC 8.2.17	Assessment of carrying value of intangible assets with indefinite useful life, financial risk on adequacy of funds (2)	
Muda Jaya	Unqualified	KPMG 10.4.17	Revenue recognition and provision on long term contracts. Valuation of investment in associates (3)	
Favel Favco	Unqualified	Crowe Horwwarth 30.3.17	Revenue recognition, valuation of trade receivables, inventories under work-in-progress, write down of cranes (4)	
Duopharma	Unqualified	KPMG 20.3.2017	Inventory provisions (1)	

From Table 1 above, all audit reports evidenced compliance with the new audit regulation of ISA 710. Only one company received a disclaimer report and accordingly, following the requirement of ISA 710, no KAM was mentioned as disclaimers make KAM irrelevant. The 14 unqualified audit reports gave reasonable assurance that the financial statements audited were free from material misstatements. The KAM paragraphs of the 14 companies showed the number of KAMS deemed as significant or critical matters by the auditors. ISA701 does not specify how many KAMS must be reported as a minimum and the maximum but leaves it to the judgement of the auditors. However Paragraph 30 of ISA 701 states that lengthy lists of KAM may be “contrary to the notion of such matters being those of most significance in the audit”. Table 1 shows the number of KAMs reported ranged from 1 to 5 matters which all relate to significant accounting policies disclosed in the notes to accounts. In studies on audit regulations, Institutional Theory finds that when the regulator of the auditing profession (in Malaysia it would be MIA) in a particular country issues new directives, members of the profession would comply and change their behavior described as coercive isomorphism. Compliance is 100% because the directives come from a regulator empowered to sanction any non-compliance.

What were the KAMs reported? The highest number of KAM reported is revenue recognition and inventory valuation (10), followed by impairment of intangible assets, investments and trade receivables. This pattern is similar to KAMs disclosed in UK audit reports summarized by MAZAR (March, 2016) whereby most reported KAMs by 100 FTSE100 companies in UK 2014/15 audit reports were revenue recognition and asset impairment regardless of sector or industry. All audit reports were timely with no delay despite the additional costs involved in identifying, assessing and discussing KAM with those in charge of governance.

The audit report is addressed to shareholders specifically but ISA 710 identifies the users of the audit reports as “intended users” suggesting a wider audience. The conceptual framework for Malaysian Financial Reporting Standards as issued by the Malaysian Accounting Standards Board (MASB) identifies users of financial statements as investors, creditors and lenders. Whilst in form all the audit reports examined complied with a new paragraph disclosing KAMS, the rationale for selecting the number of items and which items merit being that which mattered most, posed a greater challenge as it has to be couched specific to the current year situation and not a repeat of what has already been disclosed elsewhere in the financial statements. Discussions with a few audit staff of two Big 4 audit firms reveal that communicating highly technical matters in English was more challenging than selecting KAMS themselves. This difficulty is further compounded by the absence of a prototype report disclosure or template to help auditors explain why such an issue is a reportable KAM.

4. CONCLUSIONS AND RECOMMENDATIONS

This paper reports on how auditors of Malaysian listed companies respond to the requirements of ISA701, a new auditing standard effective for financial statements audit for year ending on or after 15 December 2016. The standard ushered a new audit reporting regime for external auditing in Malaysia as it mandates auditors to disclose, for the first time, information hitherto privy only to auditors and their clients, in the audit report itself. It therefore created a new reporting regime for Malaysian external auditors. Such items are deemed as most significant in the audit when reporting to those in charge of governance of the companies concerned. All 15 audit reports complied with the disclosure requirements appropriately with respect to identification of KAMS, rationale for considering the KAMS disclosed as most significant and how auditors responded to the KAMS identified. Based on 15 early audit reports available before 30 April 2017, our paper reports that none of the audit reports were delayed despite the need for greater disclosure in the audit report and no KAM boiler plate template is available to craft matters deemed as critical. Our study shows the number of KAMs reported ranged from one to five. The most cited KAMs are revenue recognition unique to the nature of clients’

business and inventory valuation followed by valuation of intangibles. The new auditing standard has indeed forced auditors to communicate non-standard KAMs. Auditors interviewed commented that the most challenging part of the new requirement is the selection of what constituted “most significant” and how to articulate it to ensure professionalism in communication. This paper contributes to a new research opportunity on the changing audit reporting regime in Malaysia as to date no paper has been published on the implications of KAM disclosures in Malaysia. Future research should consider whether KAM disclosure has enhanced audit quality and useful to intended users of audited financial statements or not.

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ID071 – The Macroeconomic Determinants of Stock Market Performance: Evidence from Asean-5 countries

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Abstract

This paper examines the factors that affect Asean-5 stock market performance from January 2000 to December 2016. A monthly data set of 354 observations from Datastream for each country namely Malaysia, Singapore, Indonesia, Thailand and Philippine were collected and analyzed. This paper employs panel data to determine whether the macroeconomic determinants such as money supply, inflation rate, foreign direct investment, oil price changes, and trade volume influence on the Asean-5 stock market performance. Based on Random Effect Model, the study revealed that all the independent variables have significant relationship with stock market performance. The results of stock market performance with money supply, inflation, and oil price changes have positive relationship with stock market performance. However, foreign direct investment and trade volume were found to have negative relationship.

Keywords: *stock market performance; oil price; trade volume; inflation; foreign direct investment, money supply, Asean Five*

1. INTRODUCTION

In general, stock market performance uses an indicator that is known as index as a barometer to measure the whole or for a segment of the market. Decision of buying and selling of the shares are being influenced by the indicator value as it indicates the financial health of an industry in which the investor has invested. The changes that used in the overall stock market will act as indicator in identifying the real performance of the market. During the year of 1987, 1997 and 2007, stock market had experienced a bad memory as crash hit the market around the world, and Hong Kong was the most affected. This memory is known as *Unlucky Seven* for the investors. According to Holland (2017), scarcely had Hong Kong's handover hangovers faded, when Thailand devalued the baht, triggering a wave of currency devaluations across Asia, the collapse of two US structured credit funds in July that year signaled the start of the sub-prime crisis, the credit crunch, and the global financial crisis that followed were the causes to this crash. The investors have been wondering as either it will be any chance for this strike to be happen this year as it occurs at regular interval every 10 years. Considering that stock market is one of the most important components for a company to increase their funds, it is very crucial for the company to have good index values as it mirroring to the current performance of the company's shares. Thus, this study will examine the macroeconomic factors that affect Asean-5 stock market performance which may be affected by the changes of economic environment.

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1.1 Problem statement of the study

Stock market performance plays an important role in the global economy and financial markets, following its impact on corporate finance and economic activity. The bullish performance of the stock market signifies that the country's economic position is in good condition and on the other hand when stock market conditions plummeted as a whole, the country's economy is also declining. Global capital markets faced with uncertainty of prospects growth following volatility commodity prices, humidity global growth and results in contingency European Union referendum in the United Kingdom affecting investor sentiment global. According to Apergis and Takagaki (2017), stock markets in Asia are highly volatile compared with those in other regions, though they often enjoy higher returns. While Asean stock market performance also slowed in tandem with the decline in stocks in the region following the collapse of oil and commodity prices, while digital currencies also declined due to concerns over tightening regulations. The *Unlucky Seven* is another tragedy that really worried by the Asean investor as the crash was hit the stock market very hard during the year of 1987, 1997 and 2007. According to Holland (2017), the crash typically forces the investor to take any regulatory response to restores the stability in the market. Then, the stability became instable as the investor takes more and more risk since the investor lulled by the false sense of security. Thus, the investor is worrying about the crash which either the crash might be strike again in 2017 or not. Therefore, to identify the crash might be happen in 2017 or not, this paper will studying about the factors that may affect the stock market performance by focusing to macroeconomics factors. This macroeconomic factors are based on the selected countries namely Malaysia, Singapore, Indonesia, Thailand and Philippine.

1.2 Literature review

The stock market is important for economic growth as they ensure maximum flow of resources productive investment opportunities. However, this stock market is very sensitive to changes in economic conditions where any change in the economic component can make significant changes to the stock market performance. Therefore, it is very important for the relevant parties in the industry whether policy makers, economists and investors or the public are keen to understand the implications of macroeconomic variables to the stock market

There are numerous factors having impact on the performance of stock markets, such as, expansion in the country's economic activities, strength in the exchange rate, decrease in lending interest rates and improvement in recovery of outstanding loans, rescheduling and payment of foreign debts, large scale mergers and acquisitions, better relationship with the neighbor countries, investor friendly policies and strong regulatory framework (Imran Ali, 2009). The implications of macroeconomic factors may differ from one stock market to another, or different from one period to another. In this study, five macroeconomics variables were investigated to determine the influence of these selected variables on stock market performance in Asean five regions.

Previous study on the influence of money supply on stock prices theoretically stock prices tend to move higher when the money supply in an economy is high. According to Maysami and Koh (2000) and Bosupeng (2014), money supply and stock prices are positively correlated. On the other hand, Pearce and Roley (1985) found that there was a negative relationship between money supply at stock price. They found an increase in money supply led to a drop in stock prices. According to Alatiqi and Fazel (2008) the causal relationship of the money supply to the stock price is often obtained in two steps: the negative causal relationship of the money supply to the interest rate, followed by negative causal relationship from interest rates to stock prices. Therefore, its absence the causal relationship from the money supply to the stock price may be partly due to the short term effects of uncertainty whether the interest rate will fall (up) as a result of the increase (decrease) in the supply of money.

With regards to the influence of inflation rate on stock market growth, theories stated that during high inflation rates, stock market is smaller and less liquid. Inflation reduces the purchasing power hence the number of stocks traded also reduced. Increase in inflation also reduce force the lending rates to increase which lessening the activities buying and selling in the stock market. While empirical evidence of the negative relationship between inflation and stock growth has been significant since (Pearce & Roley, 1983; Azariadis & Smith 1996). They argue that the rise in inflation rate will lead to reduction of real returns on financial investments and other assets, causing financial institutions to increase interest rates. As a result, fewer loans were made in the financial sector, which affected capital formation. Nevertheless Mohiudin and Mubasher (2013) stated that an increase in inflation lead to higher stock price which is higher rate of return. It can be justified that during inflation, the company will pass the higher cost of production of product to the consumer by increase the selling price over time. This situation will increase the revenue and earnings of the company, thus return of stock will also increase. Another study by Adusei (2014) also found a statistically positive significant relationship between inflation and the performance of stock market returns in Ghana and Ghana Stock Exchange (GSE) in the long run where GSE is s one of the emerging markets in Africa.

It is well reviewed in the literature for three decades ago that foreign direct investment is one of the important determinants for stock market. However, the results of these empirical studies are unclear. On the one hand, there is a study that found a positive relationship between FDI and stock market performance (see for example, Jeffus, 2004, Adam and Tweneboah, 2008; Elsadig 2012; Azam & Ibrahim, 2014). On the other hand, several other studies have shown that FDI and market performance are negative correlation (see for example, Mencinger, 2003; Elia et al., 2009; Doytch & Uctum 2011). As for the Asean region, FDI has been a major force in economic transformation in driving the country towards developing countries. Studies conducted by Yussof and Ismail (2002) found that the impact of foreign direct investment in Asean-4 countries went well after these countries collaborated in facilitating easy listing of investment-linked, output employment and export statistics. A study on Nigerian stock market for the period of 1981 to 2010 using Johansen cointegration and the error correction mechanism (ECM) technique revealed that stock market performance and foreign direct investment has a positive relationship but insignificant impact for a long run relation (Musa and Ibrahim, 2014). However, opposite findings showed by Idenyi et. al, (2016) on the same stock market for the period of study 1984 to 2015 as they found that there is a negative relationship between foreign direct investment and stock market growth when using VECM method but positive relationship between variables when using IMP and GCF approach.

The significant volatility of crude oil prices not only affected the economic sector but the impact is also felt in the performance of stock market. The study conducted by Ramos and Veiga (2010) on the asymmetric effect of oil price fluctuations in the international market found that rising oil prices led the stock market to decline but the decline in oil prices did not necessarily lead to a return on the stock market. Their subsequent study also proved the instability of oil prices to have a negative impact on the return on the international stock market. But both of these findings only apply to developed countries. Siddiqui (2014) argues the impact of oil price volatility on stock market performance will have a different impact in the case of importing and exporting oils. Based on several studies on the world's major oil exporting countries, the Gulf Cooperation Countries (GCC) and oil importers discovered that rising in oil prices spurred an increase in stock returns in oil exporting countries and reduced returns on oil importers (Hammoudeh & Aleisa, 2004; Fayyad & Daly, 2010; Filis et al., 2011).

Other than oil price change, trade volume is another determinant of stock market performance that contributes to the country's economic growth. Trade volume is defines as the amount of securities that were traded in the market over a given period of time. Trade volume is also one factor that affect stock price in the market. However, availability of studies

on the relationship between trade volume Asean's stock market is skimpy Mporu (2012) state in his study on South. Earlier study by Sun (2003) also discovered the same findings that trade volume is positively correlated with stock price changes. The researcher used the dataset from thirty stocks in the Dow Jones Industrial Average (DJIA) as a representative sample of equities.

2. METHOD AND MATERIAL

The data used in this paper is a panel series data, which comprises observations of multiple fields obtained over multiple time periods for the same countries. The fields in this study are the stock market indices and the macroeconomic variables of known South-East Asia countries or generally Asean-5 countries, namely Malaysia, Singapore, Indonesia, Thailand and Philippines. The time period for this study is from 2000 to 2016 (seventeen years of data). All the data such as stock market indices, money supply, inflation rate, foreign direct investment, oil price changes, and trade volume for each country are gathered from Thompson-Reuters Datastream database. Since stock market indices for each selected country, are only available in the form of monthly aggregates, the study has utilized all the data on monthly basis in order to synchronize the regression process. Altogether, there are 354 total number of observation is used in this study.

This study employ panel data analysis is in order to investigate the relationship between selected macroeconomic determinants and the stock market performance. Hsiao (2005) and Ozturk and Yilmaz (2015) claimed that the accuracy of the parameter estimates can be improved by pooling the data using panel analysis and thus allows the estimation procedure to have more degrees of freedom and sample variability. Moreover, this model allows modeling the differences among the subjects, referred to 'heterogeneity compared to the purely cross-sectional or purely time-series data sets (Ozturk & Yilmaz, 2015).

To verify the linkages between the dependent and independent variables, the research employed a multiple linear estimation process to investigate the effect on the dependent variable (SMP), a proxy to stock market performance and the independent variables (MS, INF, FDI, OP and TV). These variables are expressed in a functional form as;

$$SMP_{i,t} = \alpha + \beta_1 (MS)_{i,t} + \beta_2 (INF)_{i,t} + \beta_3 (FDI)_{i,t} + \beta_4 (OP)_{i,t} + \beta_5 (TV)_{i,t} + \epsilon_t$$

Where:

SMP	= Stock Market Performance
MS	= Money Supply
INF	= Inflation
FDI	= Foreign Direct Investment
OP	= Oil Price
TV	= Trading Volume
α	= Constant term
ϵ_t	= Error term

This study will run the descriptive statistics to know mean, maximum, minimum and standard deviation. Correlation test should be run in order to find the relationship between dependent variable and independent variables, and also to test multicollinearity problem where the values between independent variable should be less 0.8. Then, Pooled Ordinary Least Square (POLS) will be tested to determine the data is pooled or panel. The Breusch and Pagan Lagrangian multiplier test is performed to analyze whether to employ pooled OLS or panel data method. If BP Lagrangian multiplier test is significant, the data can be analysed by using

Random Effect Model. Hausman Fixed test will be conducted if the data can be explored to Fixed Effect Model.

3. RESULTS AND ANALYSIS

Table 1 describes the descriptive statistics for the six variables in the study. From the result, it can be seen that, the highest value of mean is the stock index for the Asean-5 countries stood at 328.4095 points and while the lowest value resulted on money supply which is 13.26055.

Table 1: Descriptive statistic

Variables	Mean	Maximum	Minimum	Standard Deviation
Stock Index	328.4095	995.33	1.2	323.6432
Money supply	13.26055	18.73859	10.55924	2.32448
Inflation	22.31207	116.9	-4.35	37.43982
Foreign Direct Investment	45.80885	895.41	0	100.7289
Oil Price Change	64.28428	147.65	18.52	31.47566
Trade Volume	105.5076	147.62	76.87	8.234344

The inflation is observed to have a mean of 22.31207 while, foreign direct investment in Asean-5 countries stood at a mean of 45.80885. The mean for oil price change was 64.28428 and trade volume stood at 105.5076. The standard deviation figures from Table 1, reveals that the most volatile data is stock index with a standard deviation of 323.6432 and the least fluctuating data is money supply rate with S.D. of 2.32448.

Table 2: Correlation result

Variables	Result
Money supply	0.3730
Inflation	0.2786
Foreign Direct Investment	-0.4838
Oil Price	0.0795
Trading Volume	-0.3896

Pearson Correlation test is used in this research to determine the relationship between all variables and to identify the multicollinearity problem arises. The result from the test must be less than 0.8 as to ensure that there is no multicollinearity problem. From the above test, no multicollinearity problem detected. The findings also shows that money supply, inflation and oil prices has a positive correlation with stock performance while foreign direct investment and trading volume have negative correlation with stock performance. Ignoring the negative sign, the most influence variable among these five variables is foreign direct investment.

Table 3: Pooled ordinary least square (OLS) result

Variables	Coef	P > t
1. Money Supply	35.86344	0.000
2. Inflation	5.601655	0.000
3. Foreign Direct Investment	-1.032459	0.000
4. Oil Price Changes	1.516389	0.006
5. Trade Volume	-7.690833	0.000

*R² = 0.4181 f-stat = 0.0000

The model of Pooled OLS will be acceptable when the result of Prob > F is below than 0.5. Meanwhile, the P > |t| value should be less than 0.05 as to identify the level of confidence for the research. Based on table above, the model of Pooled OLS is acceptable for this research since the current result of Prob > F is 0.0000 which is below than 0.05. Besides, the table also shows the confidence level is 95% as the value of P > |t| is below than 0.05. From the the coefficient of determination, (R₂) result, indicates 41.81% of independent variables are able to explain the dependent variable (stock market performance), while the remaining is unexplained. Out of five variables, foreign direct investment and trade volume have shown negative relationship with stock market performance while the other three

variables, money supply, inflation and oil price changes show positive relationship with stock market performance.

Table 4: Result of Breusch Pagan Langrangian multiplier test

Prob > chi2	0.0000
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The Breusch and Pagan Larangian multiplier test is performed to analyse whether to employ pooled OLS or panel data method. From the result in table 4 above, it shows that p-value is significant as Prob> chi2 is 0.0000 less than 0.05. Therefore, The Random Effect Model (REM) will be explored further in this study.

Table 5: Random effect model result

Index	Coef	P > z
1. Money Supply	35.86344	0.000
2. Inflation	5.601655	0.000
3. Foreign Direct Investment	-1.032459	0.000
4. Oil Price Changes	1.516389	0.006
5. Trade Volume	-7.690833	0.000

*R² = 0.4181 Prob > F = 0.0000

Table 5 above shows the results for Random Fixed Effect Model. Random Effect model can only be accepted when the Prob > chi2 shows the p-value of 0.000 means significant as less than 0.05. The final model for Asean Stock Market Performance can be formulated as follow:

$$\text{SMP} = 649.0576 + 35.8634\text{MS} + 5.6017\text{INF} - 1.0325\text{FDI} + 1.5164\text{OP} - 7.6908\text{TV}$$

Based from above model, the result reveals that, money supply, inflation and changes in oil prices show positive relationship with stock market performance appear to be significant with the dependent variable as the Z-test is below 0.05 for each variable thus signaling a positive relation with stock market performance. The coefficient of determination (R²) is 0.4181 clarifies that 41.81% of the independent variables able to explain the dependent variable, and the residual is unexplained. However, another two independent variables namely foreign direct investment and trade volume have significant but negative relationship with stock market performance.

4. DISCUSSION AND CONCLUSION

This paper examines the impact of macroeconomics determinants on the performance of Asean-5 stock market by using monthly data for the period of study January 2000 to December 2016. From this study, all the independent variables such as money supply, inflation, foreign direct investment, oil price changes and trade volume are significantly related with stock market performance. However, there are some other factors that may influence the stock market performance as it is suggested and recommended to be done in the future analyst of the research. For the further study, the researcher required to considering on compilation of various microeconomic factors such financial position of firm, profit and loss and dividend given might be influence and have relation with the stock market performance. This may help to identify either the microeconomic variable have significantly related to stock market performance or not. In addition, the future research may also study on the causal effect of the variables to the stock market performance. Besides, since the Asean-5 stock market countries are the leading countries in the Asean economic region, further research need to be done in the region that will be of great benefit to policymakers and decision makers in these developing countries as they can use the findings research on improving the economic development of the Asean region. Thus, an extended study on Asean-5 market efficiency need to be to be conducted to gain a better understanding of the Asean market behavior to assist investors, portfolios managers, and companies to make rational decisions. Also, finally, autonomous regulatory bodies and visionary system of

government for each Asean countries should closely work together to develop an efficient Asean stock market region.

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ID072 – Macroeconomic and Financial Variables on the Malaysian Bond Market

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Abstract

The issuance of government and corporate bonds is very much influenced by the country's economic activities. The selected macroeconomic and financial variables of Malaysia and the U.S. have been analyzed to study their relationships with the Malaysian bond market from 2010 to 2016. 67 numbers of observations have been analyzed by using the Random Effect Regression Model. The result shows that the U.S.'s interest rate and Gross Domestic Product (GDP) and Malaysia's Consumer Price Index and gold price significantly affect the Malaysian bond market development. Based on the findings of this study, it shows that gold price of Malaysia particularly gives an impact towards the performance of the Malaysian bond market.

Keywords: *Malaysian bond market; bond price; macroeconomic and financial variables; random effect regression.*

1. INTRODUCTION

Privatization helps economic growth in Malaysia. In 1980s, Malaysian public companies were privatized in an effort to reduce government spending. The main reason for the shifting is to support the New Economic Policy (NEP) in order to ensure that Malaysia has a sound economic development and reduce government spending. Besides, privatization also gives companies the authority without relying on the government in conducting businesses in this challenging global market. Both public and private companies are the backbones of the country that ensure good economic growth and boost the nation to be a developed country.

However, in doing so, they need a steady working capital in order to finance their projects and expenditures. The private sector usually depends more on borrowing from the banking sector as the source of fund for their projects and operating activities. However, excessive reliance on the banking sector in order to get financing for business activities may cause harm as banks are exposed to economic crises. The 1997 financial crisis has witnessed the catastrophe which caused most businesses to shut down. Malaysia has then been overly dependent on bank financing, which worsened the economic condition in Malaysia (Zainuddin, 2001). This has been an important wake-up call which urged Malaysia to have more sound and efficient fund-raising instruments, such as bonds that can still be used to raise funds during a looming economic slowdown.

The government started issuing bonds in 1970s in order to meet with the increasing demand of funding needs in the development of economic-activity purposes (Muhammad & Adrian, 2006). However, due to the lack of the well-developed bond market in Malaysia, the trading of bonds has been conducted through the banking system. This however has affected the performance of the bond market when a financial crisis stroke Malaysia in 1980s. Therefore,

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the need of a sound regulatory framework for the bond market is compulsory in order to have a sound bond market.

Marketable debt instruments, which are called government bonds, have been issued by Bank Negara Malaysia (BNM) in order to finance the government development in terms of working capital and expenditures (Noriza, 2013). There is a variety of debt securities which are available in the Malaysian bond market, such as fixed-coupon bearing bonds, convertible bonds, asset-backed securities, and callable bonds. Depending on the bond market instead of loans from financial intermediaries, such as banks, will give more advantages especially during the strike of a financial crisis.

Nowadays, Malaysia does not only depend on loans per se as the medium of financing but, as the financial market, it also offers investment tools, such as debt securities that can be used during an economic slowdown. This is due to the fact that bonds are a secured long-term financing. Therefore, Malaysian companies are able to finance their projects by issuing debt securities and do not have to rely on other countries' and World Bank's loans to get financing. According to Hale (2003), a bond market is an avenue to raise funds for corporations at a lower cost compared to bank loans. This is because loans bring more disadvantages to the economic growth of Malaysia compared to debt securities.

1.1 Problem statement of the study

According to the Maybank Investment Bank Research, as stated in The Stat Online (2016), the fast-growing size of the Malaysian bond market has witnessed a stable market performance. The contribution has been due to the increasing demand in corporate bonds and Islamic bonds (Sukuk). With a high level of foreign investors flocking to invest in the Malaysian Government Securities (MSG), it is crucial to understand well how the bond market works in order to promote and encourage the sustainability of investment in the local MYR bond market. The selected macroeconomic factors have been identified to have influences on the issuance of Sukuk (Nursilah Ahmad, Siti Nurazira Mohd Dauda, & Zurina Kefelia, 2012). Therefore, studying macroeconomic and financial variables of Malaysia and the U.S. is necessary in order to see their impacts on the Malaysian bond market.

1.2 Literature review

According to the Cbonds (2016), the Malaysian bond market is one of the developed and dynamic bond markets in the Association of Southeast Asian Nations (ASEAN) countries. The market size for the Malaysian bond market at the end of 2011 was RM848 billion (\$282.3 billion) and it was contributed by the increasing demand in the corporate bond and sukuk. A well-developed government bond market, which is complimented by a sizeable corporate bond market, is a conducive fund-raising avenue for foreign participants. According to Asean+3 (2012), there are a few types of bonds that are offered by the Malaysian bond market. It can be categorised under the issuance by the government, such as the Malaysia Government Bonds, the Government Investment Issues, Sukuk Simpanan Rakyat, and the Merdeka Savings Bonds, and the issuance by the corporations, such as the Khazanah Bond, the Cagamas Bond, the CIMB Bond, and the Maybank Bond. The market is segmented into conventional and Islamic markets.

In the meantime, Bhattacharyay (2013) has reported that the increasing demand for bond financing in the Asian countries is related to the rate of economic growth. Besides, changes in economic variables could also be a factor driving the security expected returns in the bond market (Edwin, Gruber, & Blake, 1995). In addition, Balduzzi, Elton, and Green (2001) have revealed that seventeen (17) public news release including scheduled macroeconomic announcements have a significant impact on the price of a three-month bill, a two-year note, and a 10-year and a 30-year bond. The announcements have significantly and persistently increased the volatility and volume of the bonds. Meanwhile, a well-developed bond market can boost up the economic growth of the country due to the ability of the private sector to meet

the borrowing requirements to finance projects for economic developments. This is due to the fact that it is indeed crucial for a country to have a sound debt market in order to promote the development of a country (Chaudhari, Raje, & Singh, 2014).

Bond price

Bond is usually expressed as a percentage of par value and converted to a point scale. Par value is generally set at 100, representing 100 per cent of a bond's face value of RM1, 000.00. If the bond is traded at 95.50, the bond price is RM955.00 where the bond is traded at a discount. If the price is quoted and traded at 101.80, then the price of bond is RM1, 018.00 where it is traded at a premium.

However, the price of bond could fluctuate in a secondary market along with the fluctuations of an interest rate. This is because a bond price is always affected by the fluctuations of the interest rate (Sullivan, 2014). As the interest rate increases, the bond price will reflectively decrease, which makes the bond less attractive. When the bond price decreases, it will be sold at a much cheaper price compared to the buying price. However, it is vice versa if the interest rate decreases.

Since the widening of yield spread is related to the bond price, when the bond price decreases, the bond-yield spread increases, making the bond-trading market volatile (Faerber, 2000). The average spreads are lower during an economic expansion (Tang & Yan, 2008). Furthermore, the value of a bond always fluctuates due to several reasons. For bond investors, it is crucial to understand the factors that will affect the fluctuations of a bond price, such as interest rates and credit rating, therefore, the investors are able to predict the movements of fluctuations of the bond price and when the profit could be gained (Sullivan, 2014). Normally, bond investors will receive interest payments, which are called coupon payments as a return.

Nevertheless, the bond price has its own risk. According to the Investment Industry Association of Canada (IIAC), the price of bond always fluctuates. Since then, the determinants of fluctuations of the bond price will be discussed and analyzed in this study.

Gross domestic product (GDP) of the U.S.A

According to the Economic Times, the Gross Domestic Product is the final value of goods and services produced within the geographic boundaries of a country during a specified period of time, which is normally a year. The Gross Domestic Product is a one important key indicator of the economic performance of a country. It is vital for economists and investors to analyze a current economic condition for the purpose of sound decision-making.

Market capitalizations, such as stock issues, listing of equities, and government bonds, are positively associated to the Gross Domestic Product (Odetayo & Sajuyigbe, 2012). This study has used a pool of data collected from 1990 to 2011 by using the Ordinary Least Square (OLS) Estimation Technique. According to Kapingura and Makheta (2014), it has been stated that their study accepts the hypothesis if the Gross Domestic Product is positively related to the bond market. As the Gross Domestic Product increases, the bond price will increase as well. However, the short-term Treasury Bills (T-Bills) has a negative relationship with the Gross Domestic Product (Hsing, 2015). This is because a higher Gross Domestic Product will lead to inflation. During the inflation, the bond price usually decreases as the interest rate increases. This is because interest rate and bond price will always have a negative relationship. As the U.S. is one of the major trading partners of Malaysia, it is necessary to study these key economic variables on the Malaysian bond market.

Consumer price index (CPI) of Malaysia

A consumer price index (CPI) estimates average price of consumer goods and services acquired by households by taking a weighted average of price change for a pre-given

consumer basket. According to PIMCO (2011), CPI is used as one of key indicator in order to measure the inflation rate and thus the economic performance of a country. This is because as the price of goods and services goes up, the inflation rate may occur thus will lead to falling in bond prices, increase in interest rate as well as increase the volatility of the market. The bond prices reflect about 85 percent of the new information about inflation as it occurs (Huberman & Schwert, 1985). According to Muhammad (2009), the CPI has a significant relationship with the bond market. This study uses ARIMA model in order to analyze how monthly government bonds response to CPI announcements. Linda (2011) study result indicates that CPI and bond price has a significantly negative relationship.

Interest rate of the U.S.A

In a bond market, when an interest rate is low, investors are unwilling to invest in bond due to the risk of the purchasing power of a fixed-rate long-term bond is low (Bhattacharyay, 2013). This is because the investors may encounter losses since bonds will be sold at a higher price compared to the intrinsic value of the bonds. Interest rate and bond price are literally moving in the opposite directions (James, 2010). When the interest rate increases, the price of bonds will decrease because the investors are less attracted to invest in debt securities. The negative relationship between interest rates and bond prices has been examined by James (2010) who stated that the price of outstanding bonds must decline in order to stay competitive when the interest rate is high. This has also been supported by Noriza (2013) who found out that both bond price and interest rate have an inverse relationship. On the other hand, a fall in interest rate will lead to an increase in bond price (Wells & Zibell, 2011).

The yield spread of USD-denominated Malaysian bonds has been found to have a negative impact on the interest rate (Batten, Fetherston, & Hoontrakul, 2006). This finding has been supported by Faerber (2000) who stated that the increase of interest rate will cause in the decrease of bond price, which can be translated into the widening of the debt securities yield spread and vice versa. The relationship between the interest rates of the U.S. and Malaysia can be explained by Goh (2017) in her statement in The Sun Daily Online. The increasing of interest rates by the U.S. Federal Reserve will cause the Overnight Policy Rate (OPR) of Malaysia to increase. Rises in the OPR will lead to rises in lending interest rates. However, it could not be denied that the increase in the OPR of Malaysia will depend on its economic condition too. Therefore, there is a positive relationship between the interest rates of the bond price of the U.S. and Malaysia which causes the bond price of Malaysia to decline. Hence, the negative relationship between bond price and interest rate has been well-explained through working papers, research papers, and articles.

Gold price of Malaysia

Gold is a valuable and expensive metal that is used for investment and industrial purposes (Bhattacharyay, 2013). Gold as a hedge instrument against price fluctuation has long been used in other financial products, like stocks and bonds. Baur and McDermott (2010) have examined the role of gold in the global financial system. In addition, Baur and Lucey (2010) have studied whether or not gold is a safe-haven asset in financial markets. However, gold is a safe haven for stocks but not for bonds in the bull-and-bear markets as the safe haven for gold is short-lived only for a limited time around fifteen (15) trading days. Chiang, Lin, and Huang, (2013) have stated that, in the period of a financial crisis, gold is a good safe haven for bonds only when innovations flow from gold to bonds and not the opposite. Gold could be a good safe-haven instrument against bonds. Gold is no longer a good hedge for bond as it can move in the same trend with bonds as when the bond price falls, the gold price also declines. This study has used the Multivariate Garch Model in order to analyse the data. Unfortunately, much of the existing literature concentrates on the impacts of stocks and bonds on gold but not the other way around. Therefore, this study will be filling in the gap of the scarce literatures.

2. METHOD AND MATERIAL

2.1 Data collection method – Secondary data

For this study, the data have been collected from four (4) secondary sources which are listed in Table 2.1 below. This is a panel data analysis and the period of time taken for this research is within seven (7) years, which is from 2010 until 2016, by using the yearly data.

The methods used for the analyses in this section are descriptive statistics, correlation, T-statistic, and R-squared. The results from the study have been carried out by using the Stata 10.1 Software.

Table 2.1: Data sources

	Types of data	Measurement	Sources
Dependent Variable:			
1.	Bond Price	In Index	Bond Info Hub
Independent Variables:			
1.	Gross Domestic Product of the U.S.	In USD	Global Economy
2.	Consumer Price Index of Malaysia	In Index	World Bank
3.	Interest Rate of the U.S.	In percentage	Department of Statistics
4.	Gold Price of Malaysia	In RM	Malaysia Goldprice.org

2.2 Coefficient

The Regression Model has been run by using the Linear Model, as follows:

$$BP = \alpha + \beta_1 GDP + \beta_2 CPI - \beta_3 IR + \beta_4 GP + \varepsilon$$

Figure 2.1: The Equation Model of Bond Price and GDP, CPI, Interest Rate of the U.S., and Gold Price of Malaysia

Where;

BP = Bond Price

α = Constant

β = Coefficient

GDP = Gross Domestic Product of the U.S.

CPI = Consumer Price Index of Malaysia

IR = Interest Rate of the U.S.

GP = Gold Price of Malaysia

ε = Error Term

3. ANALYSES AND RESULTS

3.1 Correlation analysis – Pearson's correlation

According to Table 3.1, Bond Price has a positive correlation with Gold Price at 0.1537. Meanwhile, Bond Price is negatively correlated with Gross Domestic Product (-0.3426), Consumer Price Index (-0.3575), and Interest Rate (-0.2810). Moreover, Gross Domestic Product shows a positive correlation with Consumer Price Index, Interest Rate, and Gold Price at 0.9978, 0.5842, and 0.2532 respectively.

On top of that, the table also reveals that Consumer Price Index is positively correlated with Interest Rate and Gold Price at 0.5553 and 0.2616 respectively. However, Interest Rate has a negative correlation with Gold Price at -0.0513. In a nutshell, all the variables of this study show that there is no multicollinearity problem except for Consumer Price Index and Gross Domestic Product. However, the multicollinearity problem has been taken care of by using the Random Effect Model.

Table 3.1: Correlation

	BP	GDP	CPI	IR	GP
BP	1.0000				
GDP	-0.3426	1.0000			
CPI	-0.3575	0.9978	1.0000		
IR	-0.2810	0.5842	0.5553	1.0000	
GP	0.1537	0.2532	0.2616	-0.0513	1.0000

3.2 Descriptive statistics

Table 3.2 shows that the maximum and minimum value for bond prices for the last 7 years is 109.96 and 98.35 respectively. The bond price's standard deviation value is 2.64281 is lower than the mean which indicates that the price has low variability. The maximum and minimum value for GDP is 18.569 and 14.964 respectively and stays on average at 16.76114 points. Next, the average consumer price index, US interest rate and gold price is 107.6714, 1.701429 and 11.89778 points respectively. The gold price reveals the smallest fluctuation in price. The result also reveals that the skewness for bond price, GDP, consumer price index, interest rate and gold price has normal distribution. This is due to the value for all of these variables are around zero. The value of kurtosis shows that all variables are below 3 except for interest rate which indicate that the distributions are flat. However, interest rate distribution (11.424513) shows the opposite.

Table 3.2: Descriptive statistics

	BP	GDP	CPI	INTER	LGSIZE
Max	109.96	18.569	115.2	2.17	12.02443
Min	98.35	14.964	100	1.16	11.75468
Mean	103.7307	16.76114	107.6714	1.701429	11.89778
Skewness	0.550104	0.0226867	0.0244269	0.0351624	0.0163456
Kurtosis	2.865172	1.69756	0.746543	11.424513	1.66204
SD	2.642981	1.230219	5.07672	0.3802146	0.096562

3.3 Breusch Pagan test

Before the Random Effect Regression Technique was selected to analyze the data, the Ordinary Least Square Method had been conducted. However, in order to choose which technique that was suitable for this study, the Breusch Pagan Test had been conducted.

Table 3.3: Breusch Pagan test

Chi2(1)	92.47
Prob > Chi2	0.0000

According to Table 3.3, the probability value for Chi2 is 0.0000, which is significant at 1 per cent. Therefore, the Random Effect Regression Technique was used to analyze the data for this study. Apart from that, the autocorrelation problem was automatically removed once the Random Effect Regression Technique was used.

3.4 Regression model – Random effect

$$BP = 147.1754 + 12.95826 \text{ GDP} - 3.242002 \text{ CPI} - 2.51645 \text{ IR} + 7.78485 \text{ GP}$$

Figure 3.4: The Regression Model

According to Figure 3.4 above, if the other factors are held constant, Bond Price will increase by 147.18. Gross Domestic Product and Gold Price have a positive relationship with Bond Price. Meanwhile, Consumer Price Index and Interest Rate have a negative relationship with Bond Price.

3.5 Coefficient

Table 3.5: Coefficient

	Coefficient	Standard error
GDP	12.95826	2.29473
CPI	-3.242002	0.5446508
IR	-2.51645	0.5894265
GP	7.78485	1.748834

The coefficient has revealed that Bond Price has a positive relationship with Gross Domestic Product. If Gross Domestic Product increases by 1 per cent, Bond Price will increase by 12.96. However, with 1 per cent increase in Consumer Price Index, Bond Price will decrease by 3.24. Hence, this shows that Bond Price has a negative relationship with Consumer Price Index. On the other hand, if Interest Rate increases by 1 per cent, Bond Price will decrease by 2.52. This indicates that Bond Price has a negative relationship with Interest Rate. It is vice versa with Gold Price and Bond Price. If Gold Price increases by 1 per cent, Bond Price will increase by 7.78, which shows that Bond Price and Gold Price have a positive relationship.

3.6 T-Statistic

T-statistic has been used to analyze the significance of the independent variables of this study. According to Table 3.6, there is a significant relationship between Bond Price and Gross Domestic Product with the value of T-statistic 5.65. Meanwhile, the significant value for Gross Domestic Product is 0.0000, which is significant at 1 per cent. Besides, the value of significant for Consumer Price Index is 0.0000, which is significant at 1 per cent. In the meantime, the value of T-statistic for Bond Price and Consumer Price Index is -5.95, which signals a significant relationship between both variables.

In the interim, Table 3.6 also displays that Interest Rate is significant in influencing Bond Price at the value of T-statistic at -4.27. The probability value for Interest Rate is 0.0000, which indicates that Interest Rate is significant at 1 per cent. The probability value of Gold Price is 0.0000, which indicates that Gold Price is significant at 1 per cent. However, the value of T-statistic for Bond Price and Gold Price is 4.45, which is greater than 2. Thus, it shows that Bond Price and Gold Price have a significant relationship.

According to rules of thumb, the value of T-statistic should be greater than 2 in order to ensure that the independent variables are significant towards the dependent variable. Statistically, the values of T-statistic for all the independent variables in this study are greater than 2. Therefore, the overall results of T-statistic show that for Gross Domestic Product, Consumer Price Index, Interest Rate, and Gold Price are highly significant towards Bond Price.

Table 3.6: T-Statistic

Variables	T-Statistic	Probability
CONSTANT	5.12	0.0000
GDP	5.65	0.0000
CPI	-5.95	0.0000
IR	-4.27	0.0000
GP	4.45	0.0000

4. DISCUSSIONS

From the Random Effect result that has been generated, Gross Domestic Product is positively related and significant with Bond Price. Thus, it shows that the bond price of the Malaysian bond market will increase if the Gross Domestic Product of the U.S. increases. This means that the Gross Domestic Product of the U.S. will significantly affect the performance of the bond market in Malaysia. In other words, the growth of the bond market is dependent on the Gross Domestic Product of a country as well as the Gross Domestic Product of the major

trading partners like the U.S. This result is supported by the previous studies on Bond Price and Gross Domestic Product. Among them are Odetayo & Sajuyigbe (2012) who have figured out that Bond Price has a positive relationship with Gross Domestic Product by conducting the OLS method. Besides, Kapingura and Makheta (2014) have also supported this finding by reporting that the bond market is positively related with Gross Domestic Product. However, Hsing (2015) who has the opposing view has stated that the short term T-Bills have a negative relationship with Gross Domestic Product. As for this study, Gross Domestic Product is found to be significantly and positively related with Bond Price.

Apart from that, the Consumer Price Index of Malaysia is found to have a significantly negative relationship with Bond Price. This clearly indicates that the performance of the Malaysian bond market is affected by the Consumer Price Index of Malaysia. As Consumer Price Index increases, Bond Price will decrease. When the Consumer Price Index increases, inflation will increase too. The inflation gives an impact towards the performance on the Malaysian bond market. In order to combat the higher inflation rate, the interest rate will have to increase and will simultaneously cause the price of bond to decline. According to Linda (2011), the increase in Consumer Price Index will cause Bond Price to decrease. In the interim, Muhammad (2009) has found out in his study that Consumer Price Index has a significant association with the bond market. Therefore, it is evident that the finding of this study is supported by the previous studies.

The result from the Random Effect Method has shown that the interest rate of the U.S. has a negative and significant association with the bond price. This indicates that the interest rate of the U.S., which is one of the Malaysia's major trading partners, gives an impact towards the performance of the Malaysian bond market. The result is supported by Wells's and Zibell's (2011) study that has reported that the decrease of interest rate causes the bond price to increase. Besides, James (2010) has also found out that interest rate and bond price will move in the opposite directions, which means that when the interest rate increases, the price of bond will decrease, and vice versa. This has also been supported by Noriza (2013) who has stated that bond price and interest rate are inversely associated. Likewise, Faerber (2000) has also supported this finding by stating that there is an inverse relationship between interest rate and bond price. Batten et al. (2006) have found out that the country's growth rate, inflation rate, interest rates, and stock market are the most explainable variables that change bond-yield spreads. An increase in interest rate leads to an appreciable increase in bond-market development (Fredrick, 2014).

Furthermore, the result of the finding for the impact of gold price with the performance of bond market has been supported by a few researchers. There is some kind of relatedness between gold and stocks and gold and bonds (Chiang, Lin, & Huang 2013). Their study has found out that gold and bond price move together. According to Baur and Lucey (2010), gold is generally not a safe haven for bonds in any markets. Sieron (2015) has stated that the relationship between gold price and bond price is positively related. This is associated with the finding of this study which states that the gold price has a significant and positive relationship with the bond price. This means that when the gold price of Malaysia increases, the bond price will increase too. Therefore, based on the findings of this study, it is evident that the gold price of Malaysia will give an impact towards the performance of the Malaysian bond market.

Finally, based on the findings of the study, the interest rate of the U.S. and the Consumer Price Index of Malaysia has a negative relationship with the bond price. Meanwhile, the Gross Domestic Product of the U.S. and gold price of Malaysia are positively associated with the bond price too.

5. CONCLUSIONS AND RECOMMENDATIONS

The finding of Ameer (2007) is consistent with Min's (1998) study after observing that there is an extremely limited number of empirical evidence concerning the relationships between macroeconomic variables and bond markets in the Asian economies. The relationship between gold as one of the financial assets with the economic variables are frequently researched but there is limited empirical evidence on the reverse relationship, such as the effect of gold price on bond price.

Therefore, this study has attempted to achieve the above objective along with this study's objectives which are to examine the existence of the relationship between the economic and financial variables on the bond market. Based on the findings, the Gross Domestic Product of the U.S. and gold price of Malaysia has a positive relationship with the bond price and vice versa for the Consumer Price Index of Malaysia and the interest rate of the U.S. Hence, it is true that these macroeconomic and financial variables give impacts towards the performance of the Malaysian bond market since all the variables used in this study are significantly associated with the performance of the Malaysian bond market. The fluctuations of bond prices in Malaysia are influenced by these factors.

The future study could lengthen the period of the study, which is the yearly data used in this study. In addition, other macroeconomics variables, such as Industry Production Index, Inflation Rate, Interest Rate, and other financial variables can also be considered as the other alternatives of independent variables to see the results from different angles and perspectives.

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**ID091 – The Impact of Asset Structure and Business Risk to Capital Structure on
Manufacturing Companies Food and Beverage Sub Sector in
Indonesia Stock Exchange**

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Abstract

This study aims to determine the effect of Tangible Assets (TAN), and Business Risk (RISK) to Capital Structure (DER) on manufacturing companies food and beverage sub sector in the Indonesia Stock Exchange. This research is associative research and the type of data used is quantitative data. The data used were obtained from the company's financial statements have been audited on the Indonesia Stock Exchange during the study period. The analytical method used is descriptive analysis and multiple linear regression. The population of this research are manufacturing companies food and beverage sub sector period 2013-2016, which amounted to 15 companies. The sample in this study amounted to 14 companies. The results of this study showed that simultaneous TAN and RISK not significantly influence the capital structure (DER) on manufacturing companies food and beverage sub sector in Indonesia Stock Exchange 2013-2016 period. Partially, variable TAN and RISK negative effect and not significant to DER on manufacturing companies food and beverage sub sector in Indonesia stock Exchange.

Keywords: *tangible assets, business risk, and capital structure*

1. INTRODUCTION

Economic growth in Indonesia is currently experiencing a significant increase. This can be seen from the rate of economic growth in Indonesia which increased by 5.18% in 2016 compared to 2015 at 4.88% (source: www.ekonomi.compas.com). One of the sectors of the company that has an important role in economic growth in Indonesia which has an opportunity to grow and develop is a manufacturing company. This company produces products that will meet basic human needs, so that the smooth production of this company is guaranteed and in any condition consumers still need products from this company especially in the food and beverage industry.

1.1 Problem statement of the study

The food and beverage industry is the sector with the largest contribution to the Indonesian economy, which is 5.5% of the national gross domestic product and 31% of the gross domestic product of non-oil and gas processing industry. In 2016, the growth of this industry reached 8.4% or higher than the growth of non-oil industry by 5.21% and support the national economic growth up to 5.02%. This growth is a positive growth, although it is still below the growth of the food and beverage industry in 2014 (source: www.kemenperin.go.id).

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Capital structure according to Bambang (2008: 22), is a permanent spending which reflects the balance between long-term debt and own capital. Capital structure becomes a very important issue for the company because good bad capital structure will be able to affect the company's financial condition. Direct capital structure decisions affect the amount of risk borne by shareholders and the amount of expected returns or returns.

The financial manager should make sure that the company can obtain the necessary funds at minimal cost and with the most favorable terms. A wrong decision on the capital structure can lead to a dangerous financial position and eventually lead to bankruptcy. There are several factors that influence the capital structure, according to Sartono (2008: 248), among others: sales level, asset structure, company growth rate, profitability, liquidity, firm size, profit variable and tax protection, firm scale, macro.

One of the factors that can affect the capital structure or funding decision of a company is the structure of the asset. Hadianto et al (2010), defines the structure of assets as a comparison between fixed assets and total assets owned by the company. According to Bambang (2008: 298), a company whose majority of its assets come from fixed assets will prioritize the fulfillment of its funding needs with debt. Firms with large amounts of fixed assets can use more debt because fixed assets can be a good assurance of corporate loans. If the company has large amounts of fixed assets, then the company will use a lot of long-term debt in the hope that the assets can be used to cover the bill (Weston & Copeland, 2010). Investors will be more confident to invest when investors are able to assess the company's assets.

Capital structure decisions are directly affected by the risks borne by shareholders and the expected rate of return (Brigham & Houston, 2011). The decision of the capital structure taken by a financial manager is not only influenced by the asset structure, but also influenced by the business risks facing the company. Business risk is a risk of a company when it is unable to cover its operational costs and is affected by the stability of revenue and expenses (Gitman, 2009). Firms with high business risks tend to avoid using debt financing compared to firms with low business risk levels. However, the greater the risk of an asset, the greater the expected return on the asset.

This research is important because capital structure is one barometer of investor's level of trust. The better the capital structure owned, the more investment investors will invest, but on the contrary the weaker the capital structure owned then investors will consider the decision making in investment investment. Based on the above description, the authors are interested to further examine the " *The Impact Of Asset Structure And Business Risk To Capital Structure On Manufacturing Companies Food And Beverage Sub Sector In Indonesia Stock Exchange.*"

1.2 Literature review

Capital structure is the balance or comparison between foreign (long-term) capital with own capital in a company (Riyanto, 1995 in Nurrohm, 2008). According to Van Horne and Wachowicz (2013: 176), capital structure is a permanent long-term financing (proportion) of a company that can be represented by debt, preferred stock, and ordinary equity shares. In a business activity determining the right capital structure is a challenge for corporate executives. The Company will strive to obtain funds with minimal capital costs with maximum results (Raharjaputra, 2009: 212).

Capital structure is measured by Debt to Equity Ratio (DER). Debt to Equity Ratio (DER) is a comparison of debt and equity in the company's funding and shows the capability of the company's own capital to meet all its obligations. According Sukardi and Herdinata (2009: 19), the company's capital structure is centered on a combination of debt and capital. Companies can issue different shares with different combinations. But the company is also trying to find a combination that is able to optimize the market value. Optimal capital structure is one of the

things that can maximize the value of the company's stock market. If this ideal combination can be created, then the company's stock will reach the maximum price and the capital structure used is the optimal capital structure

Modigliani and Miller theory (MM)

The theory of modern capital structure was introduced by Modigliani and Miller in 1958. Modigliani and Miller published a financial article on American Economic Review 48 (1958, June) entitled "The Cost of Capital, Corporation Finance, and The Theory of Investment". Modigliani and Miller (1958) prove that the value of a firm is not influenced by its capital structure (Brigham and Houston, 2001). Modigliani and Miller (1958) argue that in perfect market circumstances the use of debt is irrelevant to firm value, but in the presence of taxes the debt will be relevant (Modigliani and Miller, 1960 in Hartono, 2003). But Modigliani and Miller's Study (1960) is based on a number of unrealistic assumptions, among others (Brigham and Houston, 2001):

- a. No broker fees (brokers)
- b. No taxes
- c. No bankruptcy fees
- d. Investors can borrow at the same rate as the company
- e. All investors have the same information as management on future corporate investment opportunities
- f. EBIT is not affected by the use of debt.

Pecking order theory

The next theory is pecking order theory. This theory was first imposed by Donaldson in 1961, while the naming of pecking order theory was conducted by Myers in 1984 in Journal of Finance volume 39 under the title The Capital Structure Puzzle, which states that there is a sort of order (pecking order) for the company in using capital. This theory is called pecking order because this theory explains why firms will determine the most preferred hierarchy of funding sources. In summary the theory states that (Brealey and Myers, 1991 in Husnan, 2000);

- a. The company chooses internal funding. The internal funds are derived from the profits generated from the Company's operations. The Company tries to adjust the targeted dividend distribution by avoiding drastic change of dividend payouts.
- b. A reluctant dividend policy to change, accompanied by unexpected fluctuations in profitability and investment opportunities, results in the fact that operating income funds sometimes exceed the funding requirement for investment, although on other occasions, it may be less. If the operating fund is less than the investment requirement, the company will reduce the cash balance or sell the securities owned.
- c. If external financing is required, the company will issue the safest securities first by issuing bonds, followed by optional securities (such as convertible bonds), only when insufficient, new shares published.

Pecking order theory explains why profitable firms generally borrow in small amounts. This is not because the company has a low debt ratio target, but because it requires a little external financing. While less profitable companies tend to have larger debt because internal funds are not enough, and debt is the preferred external source.

Trade-off theory

The Trade Off Theory explains the relationship between taxes, the risk of bankruptcy and the use of debt due to capital structure decisions taken by firms (Brealey and Myers, 1991). This theory is a balance between the advantages and disadvantages of the use of debt. The basic assumption used in the trade off theory is the existence of asymmetric information that

explains the decision of capital structure taken by a company, namely the existence of information owned by the management of a company can convey information to the public.

According to the trade-off theory disclosed by Myers (2001), the company will be indebted to a certain debt level, where tax shields from additional debt equal the cost of financial distress. The cost of financial distress is the bankruptcy costs and agency costs which increase as a result of the decrease of a company's credibility. Trade-off theory has implications that managers will think within the framework of a trade-off between tax savings and financial difficulties in determining capital structure.

Based on trade-off theory, the firm's decision to use debt is based on a balance between tax savings and financial difficulties. From this theory can also be concluded that companies with a high level of profitability should not use too much debt in order to avoid the risk that is not desirable. Because companies with high profitability will certainly try to reduce taxes by increasing the ratio of debt, so the additional debt will reduce taxes.

Signaling theory

Signaling or signaling is an action taken by a company management that guides investors about the prospects of the company (Brigham and Houston, 2001: 36). Companies with lucrative prospects will try to avoid the sale of shares and seek any new capital required in other ways, including the use of debt in excess of the normal capital structure targets. Companies with less favorable outlooks will tend to sell their shares. Announcement of a stock's emission by a company is generally a sign that management views the company's prospects gloomily. If a company offers new share sales, more often than usual, then its share price will decrease because issuing new shares means giving negative signals that can then suppress the stock price even if the prospect of the company is bright. The announcement of more debt usage in the company's capital structure shows the company's optimism about the future prospects of the company, where the company will be more profitable and able to fulfill its financial obligations.

Balancing theory

The capital structure model in Balancing theories (Myers, 1984 and Bayles and Diltz, 1994) is called the balance theory that is, balancing the benefits and sacrifices arising from the use of debt. As long as the benefits are still large, the debt will be added. But if the sacrifice for using the debt is bigger then the debt is no longer added. The sacrifices for using the debt can be in the form of bankruptcy costs and agency costs. The cost of bankruptcy, among others, consists of legal fees that is the cost to legal experts to resolve claims and distress price is the wealth of companies forced to sell cheaply when the company is considered bankrupt.

Equity market timing

Baker and Wurgler (2002) argue that the company will issue equity when the market value is high and will buy back equity when market value is low. This practice is then referred to as equity market timing. The purpose of doing this equity market timing is to exploit temporary fluctuations that occur in the cost of equity against the cost of other forms of capital. According to Baker and Wurgler (2002: 3), capital structure is the cumulative result of doing equity market timing in the past. Baker and Wurgler use the market-to-book ratio, which is generally used as a proxy for measuring investment opportunities, but in theory the market-to-book ratio is also used to see if the value of an equity is overvalued or undervalued. Baker and Wurgler built a variable model of external finance weighted average market-to-book ratio. This variable is the weighted average market-to-book ratio of a company in the past. This variable is used by Baker and Wurgler to see the business of a company in performing equity market timing.

Factors affecting capital structure

1. Structure of assets (Tangible assets)

The asset structure represents a portion of the total asset that can be used as collateral. Brigham and Gapenski (1996: 190) argue that in general companies that have a guarantee of debt will be easier to get debt than companies that have no guarantee. This theory is also consistent with Luke Setia Atmaja (1999: 56) which states that companies that have assets that can be used as debt collateral tend to use a relatively large debt. Companies that have long-term fixed assets, then the company will use long-term debt financing hitpotik, with the hope that the asset can be used to cover its debts. Conversely, the company whose most assets in the form of receivables and inventory value is highly dependent on the sustainability of the profitability level (sales) of each company, should be financed with short-term debt financing (Weston and Copeland, 1997: 363). According to Bambang Riyanto (2001: 298), most industrial firms where most of their capital is embedded in fixed assets will prioritize the fulfillment of their capital needs from the permanent capital, ie their own capital, while foreign capital is complementary. This can be attributed to the existence of a horizontal conservative financial structure rule stating that the amount of capital itself should at least cover the total fixed assets plus other assets of a permanent nature. And companies that are mostly from their own assets from current assets will prioritize the fulfillment of their funds with short-term debt.

2. Business risk

Business risk is the uncertainty that companies face in conducting their business activities (Prabansari and Kusuma, 2005). Business risk can occur if the company has a debt that is too high portion. This will certainly increase the likelihood of bankruptcy in the company. According to Gitman (2009), business risk is a risk from the company when it is unable to cover its operational costs and is affected by the stability of revenue and expenses. Companies with high business risks tend to avoid using debt financing compared to firms with low business risk. Less debt use is a way of avoiding the possibility of bankruptcy in companies with high business risks. Business risk is demonstrated by the variability in income that will be received in the future (Ferry & Jones, 1979). According to Reilly & Brown (2009), the investment world recognizes business risks as part of risk premium, which is defined as the uncertainty of income streams caused by the nature of the business itself such as products, customers, and how their products are earned.

Based on previous research theories and studies, a conceptual framework of asset structure, and business risk of the capital structure were developed. The conceptual framework of the study is illustrated as follows:

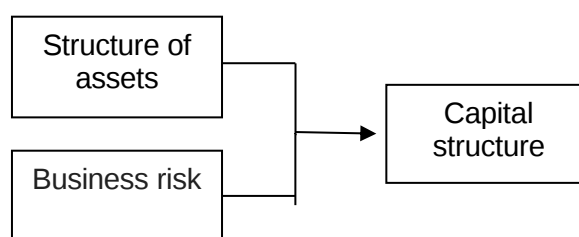


Figure 1. Research Framework

Hypothesis

Based on the conceptual framework, the hypothesis of this study is as follows:

1. Structure of assets have a positive and significant impact on capital structure.
2. Business risk positively and significantly influence to capital structure.
3. Structure of business assets and risks simultaneously have a significant effect on capital structure.

2. METHOD AND MATERIAL

The population of this research are *manufacturing companies food and beverage sub sector in the Indonesia Stock Exchange* period 2013-2016, which amounted to 15 companies. The sample in this study amounted to 14 *manufacturing companies food and beverage sub sector in the Indonesia Stock Exchange*. This research is associative research and the type of data used is quantitative data. The data used were obtained from the company's financial statements have been audited on the Indonesian Stock Exchange during the study period. The analytical method used is descriptive analysis and multiple linear regression.

2.2 Data collection method

This research pattern is done in two stages. The first stage is done through literature study that is looking for journals, previous research and books related to the problem under study. The second stage is documentation study, which collects financial statements of each food and beverage sub-sector manufacturing company listed in Indonesia Stock Exchange in 2013 until 2016. Secondary data collection is obtained from internet media by downloading at www.idx.co.id to obtain data on the financial statements required in the study

3. ANALYSIS AND RESULTS

3.1. Descriptive analysis

Descriptive analysis provides an overview of the phenomenon or characteristics of the data. The goal is to facilitate in reading the data and understand the meaning. The results of data processing in the form of descriptive statistics will show the sample characteristics used in this study include the number of samples (N), average sample (mean), minimum and maximum value, and standard deviation for each research variable. Description of the research consists of: Capital Structure (DER), Asset Structure (TAN), and Business Risk (RISK) presented in Table 3.1 below:

Table 3.1: Results statistic: Descriptive

	DER	TAN	RISK
Mean	1.048659	0.539221	0.095125
Maximum	3.028644	0.875051	1.296962
Minimum	0.154803	0.196144	-1.007239
Std. Dev.	0.503503	0.169479	0.295470
Observations	56	56	56

Source: Hasil Penelitian, 2018 (Data Diolah)

a. *Variable Capital structure (DER)* with 56 observation data has an average value of 1.048659, minimum value of 0.154803 is owned by Delta Djakarta company Tbk. in 2016, this is because this company has a very small amount of debt while the total equity is very large. The maximum value of 3.028644 is owned by Multi Bintang Indonesia Tbk. in 2014, this is because the company has a total debt that is much greater than the total equity. This causes the company's capital structure (DER) is quite high. The standard deviation of DER is 0.503503.

b. *Variable Asset Structure (TAN)* with 56 observation data has an average value of 0.539221. The minimum value of 0.196144 is owned by Nippon Indosari Corporindo Tbk. in 2014, this indicates that the company Nippon Indosari Corporindo Tbk. has the smallest proportion of fixed assets of its total assets compared to other companies. In other words, the company has the smallest fixed asset investment during the study period, where the debt value of the company Nippon Indosari Corporindo Tbk. decreased because external parties were less confident to lend to companies with fixed asset value on a small scale as debt guarantees that made the DER value in this company decrease from 2013 by 1.3150036 to 1.2318966 in 2014. Maximum value of 0.875051, owned by the company Delta Djakarta Tbk. in 2016,

where it has the largest fixed asset investment percentage of its total assets during the study period. The uncertain conditions of corporate earnings make the company choose a source of capital that comes from equity rather than debt, so even though the value of TAN increases in 2016 but the DER value in this company decreased from the year 2015 by 0.222099 to 0.1548027 in 2016. Standard deviation from TAN is 0.169479.

c. Business Risk Variables (RISK) with 56 observation data has an average value of 0.095125, minimum value of -1.007239 is owned by company Prasadha Aneka Niaga Tbk. by 2015. Companies with low risk levels tend to find it easier to get creditors' trust to lend, as the lower the risk of business, the less likely the bankruptcy of the company will be the DER of Prasadha Aneka Niaga Tbk. increased from 2014 by 0.640173 to 0.912925 in 2015. The maximum value of 1.296962 is owned by Ultra Jaya Milk Industry and Trading Company Tbk. in 2013. The greater the business risk, the use of large debts will make it difficult for companies to recover their debts, so companies with high business risks tend to avoid using debt financing compared to companies with low business risk levels that make the DER value in the company decline from year 2012 of 0.443940 to 0.3952438 in 2013. The standard deviation of RISK is 0.295470.

3.2. Selection of panel data regression analysis model

a. How test

In determining the model estimation between Common Effect Model (CEM) and Fixed Effect Model (FEM) can be done with Chow Test.

Table 3.2: Results Chow Test

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.382653	(13,40)	0.0000
Cross-section Chi-square	62.893460	13	0.0000

Sumber : Hasil Penelitian, 2018 (Data Diolah)

Based on the results of the Chow test in Table 3.2, it is known that the probability value is 0.0000. Because the probability value < 0.05 , then H_0 is rejected and H_1 is accepted, in other words the estimation model used is FEM.

b. Hausman test

In determining the model estimation between Random Effect Model (REM) and Fixed Effect Model (FEM) can be done with Hausman Test.

Table 3.3: Results Hausman test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.079087	2	0.1301

Sumber : Hasil Penelitian, 2018 (Data Diolah)

Based on the results of the Hausman test in Table 3.3, it is known that the probability value is 0.1301. Because probability value > 0.05 , then H_0 is accepted and H_1 is rejected or in other words estimation model used is REM or Random Effect Model.

c. Lagrange multiplier test

In determining model estimation between Common Effect Model (CEM) and Random Effect Model (REM) can be done with Lagrange Multiplier Test.

Table 3.4: Results Lagrange multiplier test

Lagrange multiplier (LM) test for panel data

Date: 03/20/18 Time: 17:03

Sample: 2013 2016

Total panel observations: 56

Probability in ()

Null (no rand. effect)	Cross-section	Period	Both
Alternative	One-sided	One-sided	
Breusch-Pagan	20.61111 (0.0000)	1.374474 (0.2410)	21.98558 (0.0000)

Sumber : Hasil Penelitian, 2018 (Data Diolah)

Based on the results of the Lagrange Multiplier Test in Table 3.4, it is known that the probability value is 0.0000. Because probability value < 0,05, then H₀ is rejected and H₁ is accepted or in other words estimation model used is REM or Random Effect Model.

3.3 Multiple linear regression

Multiple linear regression analysis of panel data model was used to find out the influence between TAN (X₁) and RISK (X₂) variables on DER (Y) in food and beverage manufacturing company in Indonesia Stock Exchange. Multiple regression test of panel data model is done to find the relation between independent variable and dependent variable. Regression results can be seen in Table 3.5 below:

Table 3.5: Results: Multiple linear regression test

Dependent Variable: DER

Method: Panel EGLS (Cross-section random effects)

Date: 03/20/18 Time: 17:23

Sample: 2013 2016

Periods included: 4

Cross-sections included: 14

Total panel (balanced) observations: 56

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.223511	0.276530	4.424515	0.0000
TAN	-0.302201	0.473419	-0.638338	0.5260
RISK	-0.125087	0.159201	-0.785716	0.4355

Sumber : Hasil Penelitian, 2018 (Data Diolah)

Based on data processing in Table 3.5, it yields multiple linear regression equations of panel data model, as follows:

$$Y = 1.223511 - 1.031972X_1 - 0.059177X_2$$

Based on multiple linear regression equation, following the interpretation of the model of regression equation above:

a. *Constant* of 1.223511 means with considering the independent variable, then the level of capital structure of 1.223511.

b. *TAN coefficient* is equal to -0.302201 means that every addition to TAN of 1 unit, assuming other variables are considered constant, will decrease the capital structure of 0.302201.

c. *RISK coefficient* is equal to -0.125087 means that every addition to RISK variable of 1 unit, assuming other variables are considered constant, will decrease the capital structure of 0.125087.

3.4. Hypothesis testing

In testing hypothesis, will be tested the significance of partial regression coefficient as a whole or simultaneously (F test), test of significance of individual partial regression coefficient (t test) and coefficient of determination analysis. The statistical values of F test, t test and coefficient of determination, can be seen in Table 3.6

Table 3.6: The statistical value of F Test, t Test, and Coefficient of determination

Dependent Variable: DER				
Method: Panel EGLS (Cross-section random effects)				
Date: 03/20/18 Time: 17:23				
Sample: 2013 2016				
Periods included: 4				
Cross-sections included: 14				
Total panel (balanced) observations: 56				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.223511	0.276530	4.424515	0.0000
TAN	-0.302201	0.473419	-0.638338	0.5260
RISK	-0.125087	0.159201	-0.785716	0.4355
Effects Specification			S.D.	Rho
Cross-section random			0.378183	0.5928
Idiosyncratic random			0.313406	0.4072
Weighted Statistics				
R-squared		0.020570	Mean dependent var	0.401424
Adjusted R-squared		-0.016390	S.D. dependent var	0.316908
S.E. of regression		0.319494	Sum squared resid	5.410065
F-statistic		0.556545	Durbin-Watson stat	1.862419
Prob(F-statistic)		0.576499		
Unweighted Statistics				
R-squared		0.066945	Mean dependent var	1.048659
Sum squared resid		13.00993	Durbin-Watson stat	0.821523

Sumber : Hasil Penelitian, 2018 (Data Diolah)

a. Significance effect test simultaneously (Test F)

According to Table 3.6, the probability value of F (Prob (F-statistic) test is 0.576499. Because the probability value, is 0.576499 greater than the level of significance, is 0.05, then H0 accepted and H1 rejected. It can be concluded simultaneously TAN and RISK not significant effect on the capital structure of food and beverage manufacturing companies listed on the Indonesia Stock Exchange.

b. Partial effect significance test (t test)

Partial significance test results (t test) based on Table 3.6, as follows:

- 1). The coefficient value of the TAN-free variable is -0.302201, which is negative. The value can be interpreted that the TAN variable negatively affects the capital structure (DER). The probability value of the TAN variable is 0.5260, ie ≥ 0.05 , the TAN variable has no significant effect on the capital structure (DER) at the 5% significance level.
- 2). The coefficient value of the RISK free variable is -0.125087, which is negative. The value can be interpreted that the RISK variable has a negative effect on the capital structure (DER). The probability value of the RISK variable is 0.4355, ie ≥ 0.05 , then the RISK variable has no significant effect on the capital structure (DER) at the 5% significance level.

c. Determination coefficient analysis

The coefficient of determination (R²) is a value (value of proportion) that measures how much the ability of the independent variables used in the regression equation, in explaining the variation of the dependent variable. The value of coefficient of determination ranges between 0 and 1. The value of the coefficient of determination R² is small (close to zero) means the ability of the independent variables together in explaining the variation of bound variables is very limited. The value of the coefficient of determination R² approaching one means the independent variables provide almost all the information needed to predict the variation of the dependent variable. Based on Table 3.6, note that the value of Adjusted R-Squared is -0.016390. The value is interpreted by TAN and RISK, by not being able to influence / explain the level of capital structure simultaneously by -1.63%.

4. DISCUSSION

a. Influence of asset structure (TAN) to capital structure

Companies that have large amounts of fixed assets, especially those that produce products that consumers need, are convincing enough to use long-term debt (Weston & Copeland, 2010).

Based on the research of TAN variables, the results obtained partially have negative and not significant effect on DER. The negative effect of TAN on DER indicates that the higher the value of the firm's asset structure, the lower its capital structure value. Although the company has large fixed assets that can be used as debt guarantees, but in the capital structure of the use of debt certainly raises a high risk that will impact on the survival of the company itself. This is in line with Pecking Order Theory which states that companies must rely more on their own capital and avoid the use of debt or other external sources to meet their funding needs if the company is large enough and able to fund its operations through internal capital.

The Asset Structure (TAN) has a probability value of $0.5260 \geq 0.05$. This shows that the asset structure (TAN) has no significant effect on capital structure (DER). No significant asset structure in this study means that the company does not have fixed assets because the results of this study indicate that the structure of assets in the company does not affect the funding of manufacturing companies such food and beverage sub-sector. The results of this study are in line with research conducted by Seftianne and Handayani (2011), that TAN has a negative and insignificant effect on DER.

b. Influence of business risk (RISK) to capital structure

The business risk is the uncertainty of the income stream due to the nature of the business done by the company (Reilly and Brown, 2012). In this research, RISK variable obtained by result partially have negative and not significant influence to capital structure (DER). This shows that the higher the business risk, the company's capital structure will be lower.

According to Gitman (2009), business risk is a risk from the company when it is unable to cover its operational costs and is affected by the stability of revenue and expenses. Companies with high business risks tend to avoid using debt financing compared to firms with low business risk. Less debt usage is the way to avoiding the possibility of bankruptcy in companies with high business risk.

Risiko bisnis (RISK) memiliki nilai probabilitas sebesar $0.4355 \geq 0.05$. Hal ini menunjukkan bahwa risiko bisnis (RISK) tidak berpengaruh secara signifikan terhadap struktur modal (DER). Business risk not significant in this study because the measurement of business risk indicators is difficult to measure or determine exactly, and agency theory mentions that managers tend to dislike risks because of the uncertainty in it and there are self-serving human nature assumptions. The results of this study are in line with research conducted by Forte, et al. (2013), that the RISK has a negative and insignificant effect on DER.

5. CONCLUSIONS AND RECOMMENDATIONS

This study aims to examine the effect of TAN and RISK on DER on food and beverage manufacturing companies in Indonesia Stock Exchange. Where after the selection of panel data model then selected model of panel data random effect model (REM). From the results of testing REM model, the researchers take the following conclusions:

1. The Asset Structure (TAN) has a negative and insignificant effect on the capital structure of the food and beverage manufacturing companies listed on the Indonesia Stock Exchange.
2. Business Risk (RISK) has a negative and insignificant effect on the capital structure of food and beverage manufacturing companies listed on the Indonesia Stock Exchange.
3. TAN and RISK simultaneously have no significant effect on the DER variable in food and beverage manufacturing companies listed in Indonesia Stock Exchange.

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ID092 – The Influence of Advertisement and Brand Image on Purchase Decision of Acer Notebook at Pt. Logikreasi Utama Medan

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Abstract

This study aims to analyze the influence of advertisement and brand image on purchase decision of Acer notebook at PT Logikreasi Utama Medan partially and simultaneously. The research method used is descriptive quantitative research method. The population in this study is all consumers buy Acer Notebook at PT Logikreasi Utama Medan taken from the year 2016 from January to December amounted to 4,340 people and research sample 98 people with Slovin formula. Data analysis technique is done by using validity and reliability test, classical assumption test, multiple linear regression analysis and hypothesis testing. The results show that, advertisement and brand image partially have an effect on purchasing decision. Simultaneously, advertisement and brand image have effect on purchasing decisions. The value of determination coefficient of 90.2% while the remaining 9.8% can be explained by other variables not examined in this study such as promotion and distribution. Conclusion states that advertisement and brand image partially and simultaneously have an effect on purchase decision of Acer notebook at PT Logikreasi Utama Medan.

Keywords: advertisement; brand image; purchase decision

1. INTRODUCTION

Nowadays, technology grows rapidly. The competition among computer product companies such as Acer, Toshiba, Panasonic, Asus are very straight in Indonesia. Every company competes by creating new innovations on the products to attract the consumers.

A company has to anticipate the competitive economy growth by innovating the accurate strategies in order to keep the company exists and to reach the goals of the company.

Considerations are taken by the consumers before purchasing a product, for example, by the advertisement and brand image of a product that advertised. If the strategies of the marketing of the product are done well, the consumers will be sure to purchase.

Advertising is every forms of displaying non personal and promotion of idea, good, or service by certain sponsor which requires payment. An effective advertising is able to make the consumers purchase the goods and services advertised. By advertisement, the consumers are convinced to purchase the product.

Besides advertisement, other marketing activity which has role to influence the product is brand image. Brand image is as the type of association of the consumers in remembering a certain brand. Brand image managed well will produce positive consequences, such as raising the comprehension on the aspects of consumers' behavior in purchasing decision,

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convincing the consumers on the product and raising the sustainability of competitive excellence.

Based on the pre-survey done by the researcher at PT. Logikreasi Utama Medan, it is found sales decision cases as in Table 1.

Table 1. The Sales of Acer notebook at PT Logikreasi Utama Medan at 2013 – 2016

Year	Sales (unit)	Difference / deviation (%)
2013	5.453	-
2014	5.185	(4,91)
2015	4.817	(7,10)
2016	4.340	(9,90)

Source: PT. Logikreasi Utama Medan, 2017

The table shows that the reduction of purchasing Acer notebook occurs in 2013-2016. The reductions of the purchasing are 1.113 units or 20,41% since 2013 were alleged because of the bad intensity of advertisement and brand image.

Based on post-survey done by the researcher, it is found that advertising matters can be seen at the comparative data on the sales between Acer notebook to Asus from year 2013 to 2016. Table 2. the comparative sales between Acer notebook to Asus at PT. Logikreasi Utama Medan in the year 2013-2016.

Table 2: The sales of Acer notebook and Asus Notebook

Year	Acer notebook sales (unit)	Asus notebook sales (unit)
2013	5.453	7.617
2014	5.185	7.842
2015	4.817	8.468
2016	4.340	8.771

Source: PT Logikreasi Utama Medan, 2017

Table 2 shows that the sales of Acer notebook decrease and Asus notebook increases every year since 2013 to 2016. Alleged that advertisement model PT. Logikreasi Utama Medan in marketing Acer notebook is in common model and less attractive compared with the marketing model of the brand by other company. It is alleged that the advertisement on TV media by PT. Logikreasi Utama Medan is unable to convince the consumers.

Pre-survey shows that the case of brand image can be seen at the lack of popularity of Acer notebook at PT. Logikreasi Utama Medan than Asus notebook. Low specifications of Acer notebook than other brands and also uninteresting design of the notebook also become the reasons why the consumers choose other brands.

1.1 Problem statement

1. Does advertisement influence the purchase decision of Acer notebook at PT. Logikreasi Utama Medan?
2. Does brand image influence the purchase decision of the product at the company?
3. Do advertisement and brand image influence the purchase decision of of the product at the company?

1.2 Aims of research

1. To analyse the influence of advertisement on the purchase decision of Acer notebook at PT. Logikreasi Utama Medan.
2. To analyse the influence of brand image on the purchase decision of the product at the company.
3. To analyse the influence of advertisement and brand image on the purchase decision of the product at the company.

2. LITERATURE REVIEW

2.1 Purchase decision

According to Sangadji and Sopiah (2013), purchase decision is a behavior that is based on the will created when the consumer consciously chooses one of alternative acts exist. Meanwhile, Assauri (2013) states that purchase decision is a decision making process in purchase which includes the determination of purchasing or not and the decision obtained by the previous activities.

According to Assauri (2013), consumers' behavior and purchase relate to the process of the product to be purchased in purchase process. Theory of consumer's behavior in purchasing is based on the consideration of economy condition, which states that someone should purchase is a result of economy counting rationally, so that they will purchase those which give the best advantage, appropriate to the desire of the consumer and also to the cost relatively.

Kotler and Keller (2009) say that five steps faced by consumers in purchase decision making are problem identification, information seeking, alternative evaluation, purchase decision, and behavior after purchase. There are four purchase behaviours of the consumers in purchase decision making:

1. Complex buying behavior
2. Dissonance – Reducing buyer Behavior
3. Habitual buying behavior
4. Variety seeking buying behavior.

The indicators of purchase decision treated by the researcher are the awareness of need, desire to test, the stability on the quality of a product, and the conviction to purchase a product.

2.2 Advertisement

According to Hasan (2013), advertisement is one of company's efforts in displaying or conveying non personal promotion message to convince the consumers purchase the product (idea, good, or service) financed by sponsor identified. Moreover, Mursid (2014) says that advertisement is a supply activity to a group of society directly and verbally, by the view (in news form) of idea, good or service.

Assauri (2013) states that advertisement can be differed to many types, based on its use. Based on the media used to communicate the news or information to the receiver, advertisement is differed as follow.

1. Printed advertisement, advertisement form at daily newspapers or magazines.
2. Electronic advertisement, in radio and tv show.
3. Outdoor advertisement, in the form of billboard or poster
4. Speciality advertisement, include every kind of present or gift given freely such as pen, calendar, etc, which is relatively cheap in price and usually the name of company given on.
5. Direct mail, in the form of printing product sent directly to the consumers by post office.
6. Transit advertisement, buletin, poster, sign and sticker in or out of the public transportation and stations.

According to Setiadi (2013), advertisement media that can be used are television, radio, newspaper, magazine and out of society media. Hasan (2013) says that advertisement indicators in this research are language, picture, message, and color.

2.3 Brand image

According to Mawara (2013) brand image is primary value of marketing and brand has been a crucial element contributed to the successful of a marketing organization. Meanwhile, according to Mandagie (2014), brand image is thing perceived by customer about a brand.

A good brand can support the successful of a product. So that, a brand must have characteristics as stated by Kotler and Keller (2009) as follow:

1. Brand must be able to function preciously for the company.
2. Brand must be able to manage inventory records and accountancy records.
3. Brand name must have registration number and legal protection.

According to Sunyoto (2014), basiccally brand naming created by four functions: identity function, identity of a product and the company can be known from brand. It is caused that brand label must display important information; quality function, a brand can show about the quality of a product. Well-known brand shows the quality of the product good. Consumers will not repeat purchasing on bad quality products; loyalty function, a company succeeds getting costumers if the identity clear, the quality good, and the consumers repeat purchasing; image function, it is compulsory for the company to keep its product image good by brand. For example, Honda motorbike, Honda motorbike company always innovates its product variants.

According to Sunyoto (2014), the indicators of a brand image are show image of a product, create modern impression, have its own identity, and portray product quality.

2.4 Theoretical framework

Purchase decision is the customer formed preference by brand which creates the aim to purchase the product of loved brand. Purchase decisions in this research are influenced by advertisement and brand image.

Advertisement is a supply activity to a group of society directly or verbally, by view (in news form) about a idea, product, or service. Advertisement is a must for company management. The higher intensity of advertisement, the higher the trust of consumer to purchase the product.

Brand image is the thing perceived about a brand by the customers. Making the consumers well know the brand is good for the brand image be more positive. The higher brand image, the higher the trust of consumers to purchase the product.

Based on the explanation about, the relation between product quality, advertisement, and price to the purchase decision can be seen at the theoretical framework below.

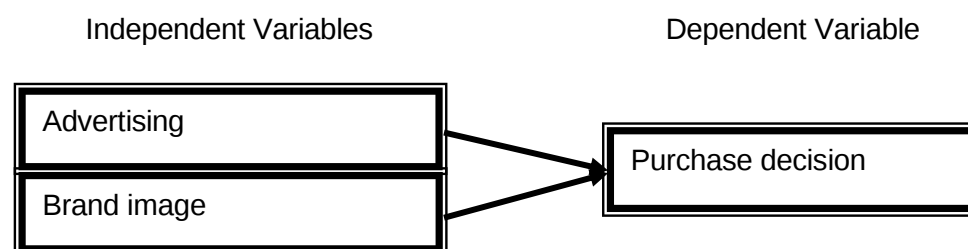


Figure 1. Theoretical framework

2.5 Hypothesis

Hypothesis is temporary answer to be proven the realibility by the research. The hypotheses of this research are as follow.

According to Wibawa (2016), advertisement influences positively to the purchase decision on motor bike in Singaraja. Consumers' needs stated that advertisement can give additional value on brand by influencing the perception of consumers on the product and by advertisement starred by celebrity can increase the trust on a product and increase the purchase decision. This is also confirmed by the research result of Mawara (2013), Edbert (2014), Mandagie

(2014), Arshad (2014) and Sivanesan (2014), which state that advertisement influences the purchase decision.

H₁: Advertisement influences the purchase decision of Acer notebook at PT. Logikreasi Utama Medan.

According to Wibawa (2016), brand image positively and significantly influences the purchase decision on Motor bike at Singaraja. The purchase decision stated that creating the impression to be a basic characteristic in modern marketing, that is, by paying more attention and creating strong brand. The implication shows that product brand creates image of the product in the brain of the consumers about purchase decision. This is also confirmed by the research result of Mawara (2013), Edbert (2014), Mandagie (2014), Arshad (2014) and Sivanesan (2014), which state that brand image influences the purchase decision.

H₂: Brand image influences the purchase decision of Acer notebook at PT. Logikreasi Utama Medan.

A product advertised and has good brand image is one of consumers' interest to purchase the product. It means that the better advertisement and brand image of a product, the higher trust of consumers to purchase the product.

H₃: advertisement and brand image influence the purchase decision of Acer nootebook at PT. Logikreasi Utama Medan.

3. RESEARCH METHOD

3.1 Method used

This research uses descriptive quantitative method with countable and measurable numbers in analysis method. This method is to calculate the enormity of the influence quantitatively from the conversion of one or more other phenomenon using statistical analysis tool.

3.2 Research operational variable.

Research variable is an attribute of a group of object researched which has variation between one to the other in the group. The variables of this research are divided into two:

3.2.1 Bound variable

Purchase decision is the consumer forms preference to the brand which convinces to purchase the loved brand.

3.2.2 Homoscedastisity variable

Homoscedastisity variables in this research are advertisement and brand image.

3.3 Population and sample

The population of this research is all consumers which bought Acer notebook at PT Logikreasi Utama Medan in January 2016 to December 2016 amount 4.340 consumers.

Sampling techniques used is incidental sampling technique. Sugiono (2012) state that incidental sampling technique is sampling determination technique based on accidental, that is, anyone coincidentally meets the researchers can be the sample in consideration that the consumer is appropriate to be data source.

For more than 100 consumers as the population of this research, the formula used is by using Slovin formula and margin error about 10% (for population more than 1000 persons)

$$n = \frac{N}{1 + Ne^2}$$

Note:

n=sample

N=population

e= margin error (10%)

Sample obtained is:

$$n = \frac{4.340}{1 + 4.340(0,1)^2} 97,74 \text{ (rounded up 98)}$$

Then, sample of this research is 98 customers.

3.4 Validity and reliability tests

According to Sugiyono (2012), validity test done to measure the validity of data obtained after research by questionnaire. Questionnaire is valid if T_{count} higher than 0,30. Reliability test is used to show that the questionnaire give the consistency in measuring the same phenomenon. A questionnaire becomes reliable if it has reliability or alpha 0,60 or more.

3.5 Data analysis technique

3.5.1 Classical assumption test

Classical assumption test can be done to get the representative result for regression model used.

3.5.1(a) Normality test

Normality test aims to find out that the distribution of data follows or closes to the normal distribution or not. Normality test is done by using Kolmogrov Smirnov approach.

3.5.1(b) Heteroscedastisity test

Heteroscedistisity test of the varians of independent variable is the constancy to every certain value of free variables (homoscedastisity). In this research, the heteroscedastisity can be seen by Glejser test.

3.5.1(c) Multicolinearity test

Multicolinearity means that the existence of perfect linear relationship among some or all variables explain of regression model.

3.5.2 Multiple linear regression analysis

Multiple Linear Regression Analysis is an analysis to measure the influence among more than one free variables to bound variables. The equation of multiple linear regressin analysis is

$$Y = a + b_1X_1 + b_2X_2 + e$$

Note:

Y= purchase decision

a=constancy

e=standar error

X_1 = advertisement

X_2 =brand image

b_i =regression coefficient

3.5.3 Hypothesis test

3.5.3(a) T-test (Partial test)

T-test is a test to find out the significance of the influence of free variable to bound variable individually and to consider that other bound variable constant.

3.5.3(b) F-test (Simultaneous test)

F-test is used to test the influence of free variable simultaneously to bound variable.

3.5.3(c) Determination coefficient (R_2)

Determination coefficient (R_2) aimed to find out the best accuracy level in regression analysis. It is shown by the value of determination coefficient between 0 (zero) to 1 (one). Because the free variables of this research are more than two, the determination coefficient used is *Adjusted R Square*.

4. RESULT AND ANALYSIS**4.1 Multiple linear regression analysis**

Based on the SPSS output, the equation of multiple linear regression analysis of this research is

$$Y = 1,818 + 0,517 X_1 + 0,429 X_2$$

Based on the equation above, the portrayals are as follow:

1. The constants (a)=1,818, showing constants value, if the advertisement (X_1) and Brand Image (X_2) are to be 0, the purchase decision 1,818.
2. Advertisement coefficient (X_1) 0,517, which means that advertisement variable (X_1) influences positively to the purchase decision, in other words, if advertisement (X_1) is increased for one unit, the purchase decision will increased 0,517 unit. Positive coefficient means that that is why the purchase decision of Acer notebook at PT. Logikreasi Utama Medan increases.
3. Brand image coefficient (X_2) 0,429, which means that brand image (X_2) variable has positive influence to purchase decision, on the other words, if brand image (X_1) is increased for one unit, the purchase decision will increase 0.429 unit. Positive coefficient means that there is positive relation between brand image variable to purchase decision, that is why the purchase decision of Acer notebook at PT. Logikreasi Utama Medan increases.

4.2 Hypothesis test**4.2.1. T-test (Partial test)**

Based on the SPSS output, it can be seen that t_{count} value for advertisement variable is 10.130 and t_{table} value 1.985, $t_{\text{count}} > t_{\text{table}}$ ($10.130 > 1.985$) and significant value ($0.000 < 0.05$). So, it can be concluded that first hypotheses is accepted. It means that advertisement positively and significantly influences the purchase decision of Acer notebook at PT. Logikreasi Utama Medan. The t_{count} value of advertisement variable is 8.537 and t_{table} 1.985, then $t_{\text{count}} > t_{\text{table}}$ ($8.537 > 1.985$) dan significant values ($0.000 < 0.05$). it can be concluded that the second hypotheses is accepted which means that brand image positively and significantly influences the purchase decision of Acer Notebook at PT Logikreasi Utama Medan.

4.2.2. F-test (Simultaneous test)

SPSS output shows that the result of t_{count} at column F is 435.995 with significance value 0.000. based on the criteria of hypotheses test, if $F_{\text{count}} > F_{\text{table}}$ or ($435.995 > 2.74$) and significance value ($0.000 < 0.05$), it means that the third hypothesis is accepted. Stated that advertisement and brand image positively and significantly influences the purchase decision of Acer Notebook at PT Logikreasi Utama Medan.

4.2.3. Determination coefficient (R^2)

SPSS output shows that determination coefficient value in column R Square is 0.902 which means that 90.2% of the variable of purchase decision can be explained by the advertisement

and brand image variables. Whereas, the rest 9.8% are the other variables such as promotion and distribution which are not tested.

5. DISCUSSION

The result of t-test shows that hypotheses 1 is accepted which means that advertisement positively and significantly influences the purchase decision of Acer notebook at PT. Logikreasi Utama Medan because $T_{count} > t_{table}$ ($10.130 > 1.985$), and significance value ($0.000 < 0.05$). Advertisement coefficient (X_1) is 0.517 which means that the variable positively influence the purchase decision. In other words, if advertisement increases for one unit, the purchase decision will increase about 0.517 unit. Positive coefficient means that the positive relation between advertisement to purchase decision exists. The more increasing advertisement, the more the purchase decision of Acer notebook at PT. Logikreasi Utama Medan. The result of questionnaires show that advertisement positively influences the purchase decision because the advertisement language of Acer notebook are real and can be easily understood. The language used convinces the consumers to have more knowing about the product. The advertisement image of Acer notebook is more interesting and attractive compared with Samsung or Asus, so that the consumers convince to purchase the product. On the other side, the result of questionnaires show that messages in the advertisement do not negatively influence the purchase decision of the consumers. The color of Acer notebook is not vary and less attractive that make no impression for the consumers. It can be seen at the score obtained above. Advertisement variable is the most dominant variable in influencing the purchase decision because the variable has the most regression coefficient value than brand image variable. The results of this research shows the consistence with the result of research done by Wibawa (2016), Mawara (2013), Edbert(2014), Mandagie (2014), Arshad (2014) and Sivanesan (2014) on the advertisement variable influences the purchase decision.

T-test shows that hypotheses 2 accepted which means that brand image positively and significantly influences the purchase decision of Acer notebook at PT. Logikreasi Utama Medan for $t_{count} > t_{table}$ ($8.537 > 1.985$) and the significance value ($0.000 < 0.05$). Brand image coefficient (X_2) 0.429 which means that the variable positively influences the purchase decision. In other words, the purchase decision will increase for 0.429 unit if brand image is increased per one unit. Positive coefficient means that positive relation between brand image to the purchase decision exist. The more increasing brand image, the more purchase decision of Acer notebook at company. Questionnaires show that brand image positively influences the purchase decision because its already famous, the consumers are common with the product, the quality and design of the product interesting, the more specification than its competitors, and it has modernity on technology. The questionnaires shows that brand image has negative influence on the purchase decision because the modern impression of the notebook cannot increase the purchase decision. Its design, color and innovation are not interesting for the consumers. It can be seen by the score obtained above. The results of this research shows the consistence with the result of research done by Wibawa (2016), Mawara (2013), Edbert(2014), Mandagie (2014), Arshad (2014) and Sivanesan (2014) on the brand image influences the purchase decision.

F-test shows that hypotheses 3 accepted which means that advertisement and brand image positively and significantly influence the purchase decision of Acer notebook at PT Logikreasi Utama Medan because $F_{count} > F_{table}$ or $4.35.995 > 2.74$ and significance value $0.000 > 0.05$. The result is appropriate with the hypotheses that the more advertisement and brand image, the more purchase decision on the product. The reasons for the consumers choose the product are as needed, as convinced that the product best, as wanted, and as habitual factors. It is strengthened by determination coefficient of R value 0.902, which means that 90.2% of purchase decision variable can be illustrated by advertisement and brand image variables.

whereas, the rest, 9.8% can be defined by other variables such as promotion and distribution which are not tested in this research.

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

1. The advertisement coefficient (X_1) 0.517 means that the variable positively influences the purchase decision or, in other words, if the advertisement increases per one unit, the purchase decision will increase 0.517 unit.
2. Brand image coefficient (X_2) 0.429 means that the variable positively influences the purchase decision, or in other words, if brand image increases per one unit, the purchase decision will also increase 0.429 unit.
3. Partially, advertisement influences the purchase decision of Acer notebook at PT Logikreasi Utama medan for $t_{\text{count}} > t_{\text{table}}$ or $10.130 > 1.985$ and significance value $0.000 < 0.05$.
4. Partially, brand image influences the purchase decision of Acer notebook at PT Logikreasi Utama medan for $t_{\text{count}} > t_{\text{table}}$ or $8.537 > 1.985$ and significance value $0.000 < 0.05$.
5. Simultaneously, advertisement and brand image influence the purchase decision of Acer notebook at PT Logikreasi Utama medan for $t_{\text{count}} > t_{\text{table}}$ or $435,995 > 2.74$ and significance value $0.000 < 0.05$.
6. Determination coefficient 0.902 means that 90.2% of the purchase decision variable can be illustrated by advertisement and brand image variables. The rest, 9.8% can be defined by other variables such as promotion and distribution which are not tested in this research.

6.2 Recommendations

1. For advertisement, the management of the company can increase the message in Acer notebook advertisement to convince the consumers' decision on using the type and color of Acer notebook at the advertisement of PT Logikreasi Utama Medan. The types and colors must be more vary than the other brands on the same kinds of product.
2. For brand image, the management of the company can increase more the impression of the consumers of Acer notebook by increasing modern impression of the product. Acer notebook must always innovate the product to convince the consumers using the product. Its own style, design and characteristics must be more interesting than other brand at the same product to increase the purchase decision.
3. Further research must provide the other factors such as promotion and distribution in purchasing decision that can be used in the process of selling a product.

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**ID093 – The Impact of Profitability and Firm Size to Capital Structure on Insurance
Company in Indonesia Stock Exchange**

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Abstract

This study aims to determine the effect of Return on Assets (ROA) and Firm Size (SIZE) to Capital Structure (DAR) on insurance companies in the Indonesian Stock Exchange. This research is associative research and the type of data used is quantitative data. The data used were obtained from the company's financial statements have been audited on the Indonesian Stock Exchange during the study period. The analytical method used is descriptive analysis and multiple linear regression. The populations of this research are insurance companies period 2013-2016, which amounted to 13 companies. The sample in this study amounted to 11 companies. The results of this study showed that simultaneous, ROA and SIZE simultaneously, significantly influence the capital structure (DAR) on insurance companies in Indonesia Stock Exchange 2013-2016 period. Partially, variable ROA negative effect and not significant to DAR, SIZE negative and significant to capital structure (DAR) on insurance companies in Indonesia Stock Exchange.

Keywords: return on asset; firm size; capital structure

1. INTRODUCTION

Over the past few years, the development of insurance in Indonesia has shown quite good progress. Insurance companies are showing growth in their businesses, which is getting more and more customers that using insurance services in their lives. Now on, there are 132 insurance companies registered in the Otoritas Jasa Keuangan (OJK) including 76 general insurance companies, 50 life insurance companies, 6 reinsurance companies, 3 compulsory insurance companies, and 2 social insurance companies (www.ojk.go.id).

Being one of the countries with the largest population, of course Indonesia becomes a potential market for the development of insurance business. This is seen from the wealth of insurance companies for the last four years are always experiencing growth. In this whole of condition, the insurance industry is required to compete tightly, not only with local insurance but with foreign insurance companies. To anticipate the competition and to grow the trust of insurance companies, the companies are required to make changes in improving the quality of service to their products. To make such change, the managers of insurance companies are required to be able to read the existing situation in order to run its functions properly and maximize the value of the company.

One of the important decisions that financial managers must take to achieving the goal for maximize the corporate value is to make funding decisions. Decision of capital structure, is a financial decision related to the composition of debt, preferred stock and common stock that must be used by the company (Martono and Harjito, 2013: 256).

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Profitability is one of the factors that influence the capital structure in the company. Firms with high profitability tend to use relatively small debt, because high retained earnings are sufficient to finance how much the company's funding needs. Firm size is a scale to describe the size of a company, where the size of the company is an indicator of the company's ability to fill its funding needs. Large companies are considered easier to obtain additional funds in the capital market than the small companies, because large companies have easier access and it means large companies have greater flexibility as well.

1.1 Problem statement of the study

This study takes a sample of insurance companies listed on the Indonesian Stock Exchange, because there is a problem that is being faced by insurance companies listed on the Indonesian Stock Exchange. The problem is the high level of debt owned by these insurance companies. This reflects that the dependency of insurance companies listed on the Indonesian Stock Exchange to outsiders is very large. If this situation persists and not immediately fixed, it will be dangerous for the survival of the company. With the high level of debt owned by the company, it will cause the capital structure, so it will be decline the value of the company in the eyes of investors.

1.2 Literature review

1.2.1 Capital Structure

Capital structure is a combination of debt and equity used to finance corporate activity. According to Rodoni and Ali (2010), the capital structure is also known as the decision to choose the source of financing where the funds obtained are a combination of sources derived from long-term funds consisting of two the main source, which is from inside and outside the company.

1.2.1(a) Capital structure theories

Modigliani and Miller (MM) theory

Franco Modigliani and Merton Miller theory that helps us understand how taxes and financial distress affect a company's capital structure decision. The assumptions of their model are unrealistic, but they help us work through the effects of the capital structure decision:

- Investors have homogeneous expectations regarding future cash flows.
- Bonds and stocks trade in perfect markets.
- Investors can borrow and lend at the same rate.
- There are no agency costs.
- Investment and financing decisions are independent of one another.

The pecking order theory

The pecking order theory suggests that firms have a particular preference order for capital used to finance their businesses (Myers, 1984). Owing to the preference of information asymmetries between the firm and potential financiers, the relative costs of finance vary between the financing choices. Where the funds provider is the firm's retained earnings, meaning more information than new equity holders, the new equity holders will expect a higher rate of return on capital invested resulting in the new equity finance being more costly to the firm than using existing internal funds. Thus, the firm will prefer retained earnings financing to debt, short-term debt over long-term debt and debt over equity (Amidu, 2007). According to Myers (1984), the capital structure of a firm reflects the accumulation of past financial requirement. Myers (1984) summarized the pecking order of corporate financing as;

- i. Firms adapt dividend policy to investment opportunities.
- ii. Firms prefer to finance investment opportunities with internally generated funds first; then external financial capital will be sought.
- iii. When external financing is needed, the firm will first choose to issue debt securities; issuing equity-type securities will be done last.

- iv. As more external financing is required to fund projects with positive net present values, the financing pecking order will be followed. This means a preference towards more risky debts, then to convertibles, preferred equity and common stock as the last preference.

Trade-off theory

The static trade-off theory of the capital structure suggests that a firm's optimal capital structure is determined by three main competing factors, that is, the tax-shield benefits associated with debt use, bankruptcy cost (costs of financial distress) and agency cost.

Taxes: Interest payments are tax-deductible before arriving at the taxable profit while payments associated with equity such as dividends are not tax-deductible. Therefore, this tax effect encourages debt use by the firm as more debt increases the after-tax proceeds to the owners (Modigliani & Miller, 1963). According to this theory, the optimal capital structure is achieved when the marginal present value of the tax shield on additional debt is equal to the marginal present value of the costs of financial distress on additional debt (Bauer, 2004).

Bankruptcy costs: are the cost directly and indirectly incurred when the perceived probability that the firm will default on financing is greater than zero. One of the bankruptcy costs is liquidation cost, which represents the loss of value as a result of liquidating the net assets of the firm. This liquidation cost reduces the proceeds to the lender, should the firm default on finance payment and become insolvent. Given the reduced proceeds, financiers will adjust their cost of finance to firms in order to incorporate this potential loss of value. Firms will therefore incur high finance cost due to the potential liquidation costs (Cessar & Homes, 2003). Examples of indirect cost include loss of customer goodwill and loss of employees to competitors.

The signaling theory

This is as a result of information asymmetries, in that managers are in possession of all the relevant information concerning the firm's future prospect, information that investors lack. Investors therefore depend on information supplied to them by the managers. Ross (1977) assumes that managers know the true distribution of firm returns, but investors do not. He argues that investors interpret larger levels of leverage as a signal of higher quality. Leverage means managers have contractual promise to honor their obligation by paying interest and principal when due, failure of which could lead to bankruptcy and the managers losing their jobs. Equity, however, is a residual claim and therefore managers have more discretion in the payment of dividend. Therefore, high leverage in a firm's capital structure is seen as a signal of high future cash flows and the confidence that managers have in the firm.

1.2.2 Agency cost

The use of debt in capital structure of the firm also leads to agency cost. Agency cost arises as a result of the relationships between shareholders and managers and those between debt holders and shareholders (Jensen & Meckling, 1976). According to Harris & Raviv (1990), the conflict between shareholders and managers arises because shareholders hold the entire residual claim and consequently managers do not capture the entire gain from the profit enhancing activities but they do bear the entire cost of these activities. Separation of ownership and control may result in managers exerting insufficient work, indulging in perquisites, choosing inputs and outputs that suit their own preferences (Abor & Biekpe, 2005). The conflict between debt-holders and shareholders is caused by moral hazard (Abor & Biekpe, 2005). The conflict arises because equity-holders have an incentive to invest sub-optimally in very risky projects (Jensen & Meckling, 1976). This is because equity-holders stand the greater chance of benefiting massively if the investment yield good result. However, in the unlikely event of the investment failing, debt-holders bear the majority of the consequences (Brander & Lewis, 1986) Jensen & Meckling (1976), defined agency costs as

the sum of the monitoring expenditures by the principal, bonding costs by the agent and a residual loss.

1.2.3 Profitability

Profitability is the ability of a company to earn a profit within a certain period (Prawironegoro, 2006: 55). Profitability ratio is a ratio that measures the company's ability to generate profits at the level of sales, assets, and capital. Profitability assessment is required by the firm to determine how well business activities are carried out to achieve the company's strategic objectives, eliminate those that interfere with company productivity, and present timely information for continuous improvement. Profitability assessment is done by using profitability ratio.

1.2.4 Firm size

Company size describes the size of a company. The determination of the size of the firm can be determined based on total sales, total assets, average sales rate, and average total assets (Seftianne & Handayani, 2011). The size of the firm shows the amount of experience and growth capability that indicates the ability and level of risk in managing stockholder investments to increase investor prosperity (Haryanto, 2014). The size of the company also determines the level of investor confidence (Pangemanan & Mawikere, 2011).

Capital structure can be determined by several factors including profitability and firm size factors. The conceptual framework in this study is as follows.

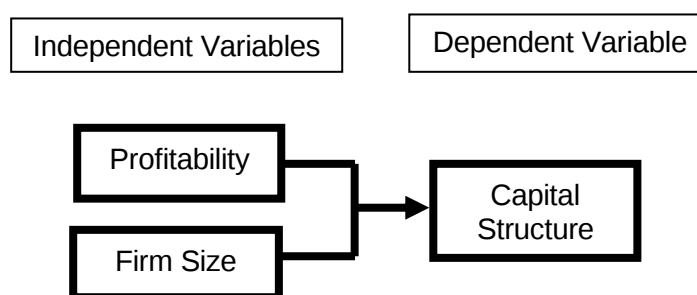


Figure 1: Theoretical framework

There are some previous studies that relevant with this research:

Irvan (2016) entitled "The Impact of Profitability and Liquidity to Capital Structure on Insurance Company in Indonesian Stock Exchange Period 2012-2014". The result of this study stated that there is an insignificant relationship between capital structure with profitability and firm size.

Andrayani and Sudirman (2014) entitled "The Effect of Sales Growth, Firm Size, and Tangibility Assets of Capital Structure on Insurance Companies Listed in Indonesian Stock Exchange". The result of this study showed that sales growth positive effect and significant to capital structure, firm size negative and significant to capital structure, and tangibility assets negative and signifikan to capital structure.

Shala, et al. (2014) entitled "The Factors That Determine The Capital Structure Among Insurance Companies In Kosovo-Empirical Analysis". The result showed that size, liquidity, life, tangible assets, and growth are positive effect to capital structure.

Tornyeva (2013) entitled "Determinants of Capital Structure of Insurance Companies in Ghana". The result of this study showed that size, growth, tangibility, and tax are positively correlated with capital structure. Furthermore, risk and profitability are negatively correlated with capital structure.

Najjar and Petrov (2011) entitled “ Capital Structure of Insurance Company In Bahrain”. The result showed that tangibility assets, size, and liquidity are significantly to capital structure. Furthermore, profitability and growth are not statistically significant to capital structure.

2. METHOD AND MATERIAL

The populations of this research are insurance companies period 2013-2016, which amounted to 13 companies. The sample in this study amounted to 11 insurance companies. This research is associative research and the type of data used is quantitative data. The data used were obtained from the company's financial statements have been audited on the Indonesian Stock Exchange during the study period. The analytical method used is descriptive analysis and multiple linear regression.

2.1 Data collection method

Data collection method in this research is done with two stages. The first stage is done through literature study that is looking for journals, previous research and books related to the problem under study. The second stage is to study the documentation, which is collecting financial statements of each insurance company listed on the Indonesia Stock Exchange (BEI) in 2013 until 2016. Secondary data collection obtained from the internet media by downloading on the site www.idx.co.id to obtain data about financial report needed in research.

3. ANALYSIS AND RESULTS

3.1 Descriptive analysis

Table 3.1 summarizes the descriptive statistics for the dependent and the various explanatory variables.

Table 3.1: Descriptive summary statistic

	DAR	ROA	SIZE
Mean	0.523062	0.055593	14.33888
Maximum	0.841000	0.096401	17.11630
Minimum	0.168852	0.016404	12.21648
Std. Dev.	0.179471	0.023147	1.417755
Observations	44	44	44

Source: Hasil Penelitian, 2018 (Data Diolah)

Variable Capital Structure (DAR) with 44 observation data has an average value of 0.523062, the minimum value of 0.168852 is owned by Paninvest Tbk. in 2016, this is because the company has a very small amount of debt while the total assets are very large. Maximum value of 0.841000 is owned by Dayin Mitra Tbk. in 2014, this is because the company has a total debt that is much larger than the total assets. This causes the company's capital structure (DAR) is quite high. The standard deviation of the firm's DAR is 0.179471.

Variable profitability (ROA) with 44 observation data has an average of 0.055593. The minimum value of 0.016404 is owned by the insurance company Kresna Mitra Tbk. in 2015, this is due to the company's ability to use its assets to generate profits is still very low, where in 2015 the value of net profit insurance company Kresna Mitra Tbk. very low compared to the previous year. The low value of ROA owned by insurance company Kresna Mitra Tbk. in 2015 led to the use of debt insurance company Kresna Mitra Tbk. in 2015 also increased compared to the previous year. This causes the value of DAR Insurance company Kresna Mitra Tbk. in 2015 is quite high at 0.59712. The maximum value of 0.096401 is owned by the Indonesian Reinsurance Company Tbk. in 2013, this is due to the increase in the company's ability to use its assets for the company's operations in generating profits that can be seen in 2013 the net

profit value of the company Reasuransi Indonesia Tbk. much increased compared to the previous year. Companies with high net income are encouraged to expand their company's value to increase and grow. On the other hand, high dividend payout to shareholders can certainly reduce the value of retained earnings of the company. Thus, companies are deemed necessary to seek external sources of funding to finance the expansion of the enterprise and increase the capital of the company, for that in funding decisions the company will rely on debt. This causes the DAR value of the Indonesian Reinsurance Company Tbk. in the year 2013 has a high value of 0.62273. The standard deviation of the company's ROA is 0.023147.

Variable Firm Size (SIZE) with 44 observation data has an average value of 14.33888, minimum value of 12.21648 is owned by Insurance Company Jasa Tania Tbk. in 2013 due to the Insurance Company Jasa Tania Tbk. has the least total asset proportion compared to other insurance companies, although in 2013 the Insurance Company Jasa Tania Tbk. experienced an increase in total assets over the previous year. However, the value of DAR Insurance Company Jasa Tania Tbk. in 2013 is quite high. Therefore it can be concluded that in 2013 Insurance Company Jasa Tania Tbk. using large amounts of debt to invest in assets to generate profits. Maximum value of 17.11630 owned by the company Paninvest Tbk. in 2016, where the total assets of the company has the highest value compared to other insurance companies. Companies that have a large total assets are considered capable of generating a large profit as well. Companies that have high returns certainly rely more on their own capital and avoid the use of debt or other external sources to meet their funding needs. So the company will avoid the risk of bankruptcy if the debt is low. This led to the company's 2016 Paninvest Tbk. has the lowest DAR value of 0.16885 compared to previous years. The standard deviation of SIZE is 1.417755.

3.2 Selection of panel data regression model

Chow test

In determining the model estimation between Common Effect Model (CEM) and Fixed Effect Model (FEM) can be done with Chow test.

Tabel 3.2: Result Chow test

Redundant Fixed Effects Tests
Pool: POOL01
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	36.642085	(10,31)	0.0000
Cross-section Chi-square	112.244377	10	0.0000

Source: Hasil Penelitian, 2018 (Data Diolah)

Based on the results of the Chow test in Table 3.2, it is known that the probability value is 0.0000. The probability value < 0.05 , then H_0 is rejected and H_1 is accepted, in other words the estimation model used is FEM or Fixed Effect Model.

Hausman test

In determining the model estimation between Random Effect Model (REM) and Fixed Effect Model (FEM) can be done with Hausman Test.

Tabel 3.3: Result Hausman test

Correlated Random Effects - Hausman Test
Pool: POOL01

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.112701	2	0.3477

Source: Hasil Penelitian, 2018 (Data Diolah)

Based on the results of the Hausman test in Table 3.3, it is known that the probability value is 0.3477. Because probability value $> 0,05$, then H_0 is accepted and H_1 is rejected or in other words estimation model used is REM or Random Effect Model.

Lagrange test

In determining model estimation between Common Effect Model (CEM) and Random Effect Model (REM) can be done with Lagrange Multiplier Test. However, because the Chow test obtained Fixed Effect Model and Hausman test has been obtained Random Effect Model then no need to be done again Lagrange Multiplier Test.

3.3 Multiple regression analysis

Multiple linear regression analysis of panel data model is used to determine the influence between ROA (X_1) and SIZE (X_2) variables against DAR (Y) on insurance companies listed in Indonesian Stock Exchange. Multiple regression test of panel data model is done to find the relation between independent variable and dependent variable. Regression results can be seen in Table 3.4 below:

Table 3.4: Result multiple linear regression test

Dependent Variable: DAR

Method: Panel EGLS (Cross-section random effects)

Date: 03/21/18 Time: 00:20

Sample: 2013 2016

Periods included: 4

Cross-sections included: 11

Total panel (balanced) observations: 44

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.639293	0.287756	5.696823	0.0000
ROA	-0.355194	0.372563	-0.953380	0.3460
SIZE	-0.076469	0.019859	-3.850671	0.0004

Source: Hasil Penelitian, 2018 (Data Diolah)

Based on data processing in Table 3.4, it yields multiple linear regression equations of panel data model, as follows:

$$Y = 1,639293 - 0.355194X_1 - 0,076469X_2 + e$$

The equation can be described as follows:

Constant of 1.639293 means by considering the independent variable, then the level of capital structure of 1.639293.

The ROA coefficient is -0.355194 means that each addition to the ROA variable of 1 unit, assuming other variables are considered constant, will decrease the level of capital structure of 0.355194.

SIZE coefficient is equal to -0.076469 means that every addition to SIZE of 1 unit, assuming other variables are considered constant, will decrease the level of capital structure as big as 0.076469.

3.4 Classic assumption test

The classical assumption test is performed when the selected model is the Common Effect Model (CEM) or Fixed Effect Model (FEM). If the selected model is Random Effect Model (REM) then it is not necessary to test the classical assumption because the equations that meet the classical assumption are only equations using Generalized Least Square (GLS)

method. In eviews estimation model using GLS method only REM, while FEM and CEM using Ordinary Least Square (OLS). Therefore, because this research uses Random Effect Model (REM) then it is not necessary to do classical assumption test (Gujarati and Porter, 2012).

3.5 Hypothesis testing

On hypothesis testing, simultaneous significance of regression coefficient (F test), significance test of individual partial regression coefficient (t test) and coefficient of determination analysis.

Tabel 3.5: The statistical value of F Test, t Test, and Coefficient of Determination

Dependent Variable: DAR				
Method: Panel EGLS (Cross-section random effects)				
Date: 03/21/18 Time: 00:20				
Sample: 2013 2016				
Periods included: 4				
Cross-sections included: 11				
Total panel (balanced) observations: 44				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.639293	0.287756	5.696823	0.0000
ROA	-0.355194	0.372563	-0.953380	0.3460
SIZE	-0.076469	0.019859	-3.850671	0.0004
Effects Specification			S.D.	Rho
Cross-section random			0.117175	0.9173
Idiosyncratic random			0.035180	0.0827
Weighted Statistics				
R-squared	0.276698	Mean dependent var		0.077651
Adjusted R-squared	0.241415	S.D. dependent var		0.040447
S.E. of regression	0.035228	Sum squared resid		0.050883
F-statistic	7.842242	Durbin-Watson stat		1.397310
Prob(F-statistic)	0.001306			
Unweighted Statistics				
R-squared	0.613404	Mean dependent var		0.523062
Sum squared resid	0.535441	Durbin-Watson stat		0.132786

Sumber: Hasil Penelitian, 2018 (Data Diolah)

Significance effect test simultaneously (Test F)

According to Table 3.5, the probability value of F (Prob (F-statistic) test is 0.001306. Because the probability value 0.001306 is smaller than the level of significance 0.05, then H_0 is rejected and H_1 is accepted. It can be concluded simultaneously Profitability (ROA) and Company Size (SIZE) have significant effect on Capital Structure (DAR) on insurance companies listed in Indonesia Stock Exchange.

Partial effect significance test (t test)

The coefficient value of the independent variable ROA is -0.355194, which is negative. The value can be interpreted that profitability (ROA) variable has negative effect to capital structure (DAR). The probability value of the profitability variable (ROA) is 0.3460 $\geq$ 0.05, the profitability variable (ROA) has no significant effect on the capital structure (DAR) at the 5% significance level.

The coefficient value of the firm size variable (SIZE) is -0.076469, which is negative. The value can be interpreted that the firm size variable (SIZE) has a negative effect on the capital structure (DAR). The probability value of firm size variable (SIZE) is $0.0004 < 0,05$, this indicates that firm size has a strong influence on capital structure on insurance company.

Analysis of coefficient determination

From the table above, the value of Adjusted R-Squared is 0.241415. The value can be interpreted that Profitability (ROA) and Company Size (SIZE) can influence or explain the level of capital structure simultaneously or together equal to 24,14%, so as 75,86% are influenced by other factors not described in this study.

4. DISCUSSION

Effect of profitability (ROA) on capital structure (DAR)

In this research found the result that Return on Asset (ROA) have negative effect to capital structure (DAR) at insurance company listed in Indonesian Stock Exchange. The negative effect of ROA to DAR indicates that the higher the value of profitability, the value of its capital structure will be lower. High Return on Assets (ROA) reflects the efficient level of insurance companies in using assets to generate high returns for the insurer itself as well as for shareholders. Pecking Order Theory states that managers prefer to use the first financing of retained earnings and then debt. In other words, insurance companies will tend to use as many internal funding sources as possible before using debt. This is because insurance companies want to develop their companies with high profitability potential but avoid or reduce the risk of debt by reducing funding from debt and increasing funding sources according to pecking order theory, by using retained earnings from the accumulated profit of the previous year. On the other hand, insurance companies with low profitability will face the difficulties and require external funds such as debt, because the fixed costs incurred in the insurance company will continue to run, so the insurance company will need additional external funds to cover those costs. Thus, it can be concluded that profitability variables have a negative effect on capital structure on insurance companies listed on the Indonesian Stock Exchange.

Effect of company size (SIZE) on capital structure (DAR)

Large companies will find it easier to obtain loans than small ones. Therefore, investors will be more speculated for large companies with large returns (Solechan, 2009). This shows that firm size has a positive effect on capital structure. However, in this study shows that firm size (SIZE) has a negative effect on the capital structure (DAR) on insurance companies listed on the Indonesian Stock Exchange. The results of this study indicate that the larger the size of insurance companies, the insurance companies will need more funds to fill their operational activities. Pecking Order Theory states that companies are more likely to choose funding that comes from internal rather than external. The use of internal funds takes precedence over the use of external sources of funds. This is because internal funding does not require capital costs. The theory explains that business actors will start their business by using personal capital rather than loan capital because loan capital will be the second alternative. Insurance companies that have a large asset are considered capable of generating a large profit as well. Companies that have high returns certainly rely more on their own capital and avoid the use of debt or other external sources to meet their funding needs. So the insurance company will avoid the risk of bankruptcy if the debt is low.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This study aims to see the effect of ROA and SIZE against DAR on insurance companies listed on the Indonesia Stock Exchange. Where after the selection of panel data model then

selected model panel data Random Effect Model (REM). From the results of testing REM model, the researchers take the following conclusions:

1. Return On Assets (ROA) has a negative and insignificant effect on the capital structure of insurance companies listed on the Indonesia Stock Exchange.
2. Company size (SIZE) has a negative and significant effect on the capital structure of insurance companies listed on the Indonesia Stock Exchange.

5.2 Recommendations

Based on the results of this research, researchers try to give suggestions and enter for the company, investors and further research as follows:

1. For prospective investors, is expected to be more selective again in choosing a company that will be a place to invest. One of the considerations that can be taken from this research is to pay attention to the size of the company (SIZE) because this research states that variables affect the optimization of capital structure which certainly affects the value of the company.
2. For further research, it is advisable to use more independent variables beyond profitability (ROA), firm size (SIZE), asset structure (FAR), and business risk (RISK). Subsequent research is also suggested to conduct research company with more diverse characteristics, thus the results obtained can be represented to be concluded by comparing from each sector companies listed on the Indonesia Stock Exchange, and further research is also expected to conduct research by using time series data up to date / latest, so the results will also be more accurate.

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