

THE IMPACT OF ASYMMETRIC INFORMATION ON FOREIGN PORTFOLIO INVESTMENT FLOWS

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ABSTRACT

This paper aims to explore the relationship of asymmetric information as the determinant factor of capital flows specifically on Foreign Portfolio Investment (FPI). Using large numbers of companies we analyse the information asymmetry based on stock market microstructure. Asymmetric Information in this study is measured by two liquidity ratios namely Amivest and Proportional Spread. Fixed effect model has been implemented for panel data for period of 2000 - 2011 with 8 countries consist of selected ASEAN+3. By adding control variables such as GDP, Market Capitalization, Inflation and few more, the result indicates that Asymmetric Information based on Proportional Spread significantly affects FPI. Therefore, this paper is intended to make a contribution to literatures on the scope of relationship of FPI with Asymmetric Information through measurement with market microstructure.

Keywords: *Asymmetric Information, Foreign Portfolio Investment, Market Microstructure*

1. Introduction

The composition of capital flows plays a big role in determining the economies. Different forms of capital flow will contribute different impacts toward the economic structures. The stability implications of international capital markets and of host countries would be different for both FDI and FPI (Goldstein, Razin, & Tong, 2010). Therefore, different amounts of information to international investors are conveyed by different levels of equity (Neumann, 1999). Among other forms of capital flows, FDI is more sensitive to information whereas FPI is likely associated with firm-level information in the host economy (Hashimoto & Wacker, 2012). Meanwhile, FPI has become an important part of the world economy and a significant source of funds to support investment for developed and developing countries (Chi-chi & Linus, 2013). While Itay, & Razin (2005) in their analysis of FDI and FPI model explain that FPI is more prone to developed economies instead of developing economies. This situation is due to less profitability for the project in developed economies where the production cost is high and thus makes it less beneficial to incur the fixed cost associated with FDI. In addition, high transparency in developed economies

lead to FPI efficiency. Duasa, & Kassim (2009) mention that the main pull factor in attracting FPI flow into the country is economic performance.

International capital flows are responsive to asymmetric information (Neumann, 1999). Information asymmetry is one of the important factors in capital flows where the capital immobility is affected (Gordon & Bovenberg, 1996). A country with a higher level of asymmetric information about investment productivity invites more FDI relative to FPI since the marginal benefits from private information are larger (Kirabaeva & Razin, 2009). Asymmetric information can be define as when one party have superior information compared to the other party. This situation usually happen when the seller have better information that the buyer. It also may happen when buyer have better information than seller as well. This adverse selection may effect harmful situation to the party which possess lack of information.(Azimah Abdollah, Aisyah Abd Rahman, 2015). Asymmetric Information is a proxy of the transparency of the firm. We expect that foreign investor tend to invest in the firm that have high transparency instead of low transparency. Transparency lead more information and mitigate the liquidity risk from the investor side.

Research on asymmetric information as a determinant factor of capital flows through macroeconomic approach have been discuss by using different method and indices such as opacity index (Goldstein et al., 2010), gravity model (Faruqee, Li, & Yan, 2004), (Portes & Rey, 2005) and using IMF's Special Data Dissemination Standard (Hashimoto & Wacker, 2012). Traditional macroeconomic approach will explain long-run movements and extreme situations such as liquidity crisis and financial economic failure. Other consequence that are not been discussed in the macroeconomic studies are the determinant factor of the spread between bid and ask, the importance of information in capturing the order flow to forecast the rate of the future, the trading volume effect, instability of price setting and spatial location of agents, and the important of private information in order to determine the price and spread (Laurini, Furlani, & Portugal, 2008). Unlike the macroeconomic approach to measure asymmetric information, we choose market microstructure to look on the asymmetric information side. Thus, in market microstructure we analysis the informational intraday and liquidity ratio based everyday trades on bid-ask spread. A number of study shown that an increased in transparency will also increase the better liquidity. Boehmer, Saar & Yu (2005) reveal that higher transparency will encourage investor to participate because some aspects of liquidity are directly being seen in price.

This paper aims to analyses the relationship of asymmetric information as the determinant factor of capital flows specifically on foreign portfolio investment (FPI). We choose panel data consist of 8 countries combination of developed and developing nation for period 2000-2011. Using intraday data at firm level we first find the asymmetric information based on two liquidity ratio measure called Amivest and Proportional Spread. Next, we examine the relationship of asymmetric information together with other macroeconomic variables and study the impact towards FPI as a capital flow.

The paper proceeds as follow, section 2 review related studies. Section 3 narrate the methodology and data that has been used in this studies. Section 4 present the empirical result and finding and section 5 concludes the paper.

2. Literature Review

Based on C. Reinhart and L. Leiderman (1994) capital inflows are defined as the increase in net international indebtedness of the private and the public sectors during a given period of time, and are measured-albeit imprecisely-by the surplus in the capital account of the balance of payments. Therefore, except for errors and omissions, the capital

account surplus equals the excess of expenditure over income (which, in turn, is equal to the gap between national investment and national saving) plus the change in official holdings of international reserves. Thus, increases in capital inflows can be identified with larger current account deficits and/or reserve accumulation. Kirabaeva and Razin (2010) categorized capital flows into the following types: foreign direct investment (FDI), foreign portfolio investment (FPI), and debt. FDI and FPI are capital flows that have equity-like features are presumed to be more stable and less prone to reversal.

Recent literatures have emphasize on Asymmetric Information in their studies of FPI. Kirabaeva and Razin (2009) classify informational asymmetry and pattern of risk sharing among investors to be the most significant factors determining the nature and volume of different capital flows across borders. Verrecchia (2001) indicate that information Asymmetry leads to the inefficient allocation of investment resources, adverse selection, insider trading, and other negative outcomes In times of crisis, transparency may be lower, and thus the share of FDI will be larger and the differences in withdrawal rates between FPI and FDI will be larger as well (Itay & Razin, 2005). Faruqee et al. (2004) on his studies shows that financial market size and information asymmetry play a big role in determining international portfolio choice and home bias. Jiang and Kim (2004) assume foreign investors prefer equity shares of firms with lower information asymmetry. While Christian Leuz, Karl V. Lins, (2006) find that foreign investor are more likely to allocate fewer shares in countries with lack investor protection and disclosure standards. They state that this effect is more noticeable for opaque firms, which support the general view that foreign investment decision is based on information asymmetries and monitoring costs

Based on most microstructure model of asymmetric information assume that agents which have been informed better use their informational advantage to gain more profit from trading (Bharath, Pasquariello, & Wu, 2009). According to Næs (2006) the themes in the microstructure literature divide naturally into three: (i) the actual transaction process, (ii) the effects of market structure and trading rules on the transaction process, and (iii) the transaction process's implications for fundamental economic decisions. This subdivision also largely reflects the chronological development of this research field. Market microstructure is a very wide range of topic to be discussed, therefore Madhavan (2000) focus on four major segments on market microstructure. Firstly, price formation and price discovery which related is to determinant the cost of trading. Secondly is about market structure and design which refer to relation of price formation and trading rules. Thirdly, information disclosure which refer to the transparency of the market participant to detect the information about trading process. Lastly, informational issues arising from the interface of market microstructure with other areas such as corporate financing, asset pricing and international finance.

Instead of asymmetric information as a determinant of capital inflows, there are several factors that might affect capital inflows as well. Based on previous literature, six factors have been selected for this study Firstly, considering Gross Domestic Product (GDP), previous studies have captured GDP as one of the determinant factor in capital flows. Ali and Guo (2005); Jadhav (2012), in their studies explain that GDP have a significant effect on determinant of capital flows. Therefore, it is expected that foreign investor tend to be part of the nation growth since the economy output increasing in size. (Singhania & Gupta, 2011). Secondly, Official Exchange Rate, Appreciation of currency of the host country is an additional avenue of gaining returns for foreign investors.

However exchange rate also is expected to have negative impact on portfolio flows because it represent the volatility where a higher degree of uncertainty in the returns received by foreign investor in terms of his home currency. (Garg & Dua, 2014). Thirdly, Real Interest Rate can be define as a cost of borrowing money, cash, credit, bonds, stocks, mortgage government borrowing. Before recession, interest rate will reach a peak and after that fall just after the recession. The increase of interest rate is a signal of expansion of the economy and when the interest rate begin to rise it is going further and faster, that will indicate the onset of inflation. In developing countries, portfolio flows are extremely sensitive to interest differentials. Capital are be likely to flow into countries with high interest rate due to dissimilarities between the current interest rates in international markets. (Kurt & Gungor, 2013) Our fifth factor is Stock Market Capitalization. Lower degrees of information asymmetry tend to have larger market capitalization stocks(Sun, 2014). According to Qian and Steiner (2012); R. Al-Khouri (2015) that stock market capitalization and institutional quality are significant in their study on other factors related to portfolio equity investment, a larger domestic stock market and better domestic institutional quality increase portfolio equity investment relative to FDI. Last but not least, we choose Trade Openness as the factor affecting FPI. This control variable has been supported by the study of (Goldstein et al., 2010) where capital flows have been controlled by trade openness. The increase in trade openness is an indicator for a growth on exported market, lower trading cost and greater competitiveness (Neumann, 2006).

3. Data and Methodology

In this study, we are using 8 countries of selected ASEAN+3 consist of Malaysia, Indonesia, Thailand, Singapore, Philippines, China, South Korea and Japan for the period of 2000-2011. Below Table 1 shows the variables that we used, data sources and indicator for the model.

Table 1: Variables Sources and Indicators

Variable	Data Sources	Indicator	
Foreign Portfolio Investment (FPI)	International Monetary Fund (IMF)	Capital Inflows	Dependant Variable
Proportional Spread (PS)	Data Stream (stock data)	Asymmetric Information	Independent Variable
Amivest	Data Stream (stock data)	Asymmetric Information	
Gross Domestic Product (GDP)	World Bank	Economic growth	
Market Capitalization (MC)	World Bank	Financial market development	
Official Exchange Rate (OER)	World Bank	Macroeconomic stability	
Real Interest Rate (RIR)	World Bank	Macroeconomic stability	
Inflation (INF)	World Bank	Macroeconomic stability	
Trade Openness (TO)	World Bank	Economic growth	

The models of equation are as follows:

$$FPI_{i,t} = AMIVEST_{i,t} + GDP_{i,t} + MC_{i,t} + OER_{i,t} + RIR_{i,t} + INF_{i,t} + TO_{i,t}$$

(Model 1)

$$FPI_{i,t} = PS_{i,t} + GDP_{i,t} + MC + OER_{i,t} + RIR_{i,t} + INF_{i,t} + TO_{i,t}$$

(Model 2)

3.1 Asymmetric Information Measurement

Asymmetric Information can be measure by various way. This study will focus on two type of measurement namely Proportional Spread and Amivest. In order to get the value for both asymmetric information we have to calculate through the formula below.

Amivest

Amivest is originally developed from Amivest Corporation as a liquidity measure. The liquidity ratio has been used in a few market microstructure research studies. (Muscarella & Piwovar, 2001) This measurement capture adverse selection through market liquidity which is proposed by Kerry Cooper, Groth & Avera (1985). They follow Amihud approach using percentage price change and volume to measure price impact. Amivest ratio also known as one of liquidity ratio and measure price impact. It can be define as asset turnover over daily absolute percentage stock return. Since the liquidity ratio is undefined for zero return, days with zero return are excluded. The model can be express as below:

$$LR_{it} = \frac{Tn_{i,t}}{|r_{i,t}|}$$

A larger value of Amivest ratio suggests higher market liquidity and subsequently lower price movement.

Proportional Spread

According to (Farid Habibi Tanha, Hawati Janor, Mojtaba Jahanbazi, 2015), Proportional Spread Measure can be define as a difference between ask and bid prices quoted in the marketplace over the average price of the bid and ask. The spread measure can be calculate easily due to availability of data but it is limited only in short time period. Higher proportional spread indicate the liquidity decrease at the same time higher asymmetric information will be.

$$Proportional\ Spread = \frac{Ask\ Price_{i,t} - Bid\ Price_{i,t}}{(Ask\ Price_{i,t} + Bid\ Price_{i,t})/2}$$

Ask Price = highest trading price during a day

Bid Price = lowest trading price during a day

4. Empirical Results and Findings

We perform Likelihood Ratio Test to check whether the data is pooled or panel. While Hausman Test has been used in order to choose the model are fixed effect or random effects. Using white period robust model, the result obtained are as follows:

Table 2: The Empirical Result of Model 1 and 2

Variable	Model 1 (Amivest)		Model 2 (Proportional Spread)	
	Coefficient	P-value	Coefficient	P-value
C	-23.913	0.000**	-22.325	0.000**
Asymmetric Information (Amivest/Proportional Spread)	0.004	0.956	-4.732	0.036**
GDP	1.44	0.000*	1.533	0.000*
MC	0.852	0.000*	0.795	0.000*
OER	0.000	0.000*	0.000	0.000**
RIR	-0.002	0.369	-0.001	0.885
INF	-0.016	0.174	0.003	0.814
TO	-0.001	0.517	-0.002	0.427
R-squared	0.976		0.978	
Adjusted R-Squared	0.972		0.974	
Normality Test	Jarque Bera	P Value	Jarque Bera	P Value
	4.26	0.12 - N	3.87	0.14 -N
	Chi Square	P Value	Chi Square	P Value
Hausman Test	90.971	0.000* - F	94.256	0.000* - F
Likelihood Test	72.276	0.000* - P	135.218	0.000* - P

* confidence level at 1%
** confidence level at 5%
** confidence level at 10%

N mean Normality of residual is accepted
P means Panel Data form is accepted
F means Fixed Effect is accepted

Table 2 displays the result of two model of determinant of FPI Model 1 and 2 have different result on the variable of asymmetric information. Model 1 present contradicted with what we expect where Amivest would give effect to the FPI. However, the result shows that Asymmetric Information which is measured by Amivest show insignificantly to FPI. Unlike model 1, model 2 indicate that proportional spread captured the asymmetric information are significant to FPI with P-value less than 0.05. Asymmetric Information in Model 2 indicate that asymmetric information having a negative relationship towards FPI. In this case, an increase in proportional spread will reduces 4.732 units in FPI. Our

second model result's on determine asymmetric information as a determinant of FPI is consistent with study of Kirabaeva and Razin (2009).

As for macroeconomic variable for both model indicates that three of the variable which are GDP, market capitalization and official exchange rate are statically significant to FPI. Thus the increase in GDP, market capitalization and official exchange rate will increase the FPI. The result is consistent with the analysis of (Jadhav, 2012) in their studies explain that GDP have a significant effect on determinant of capital flows. Therefore, it is expected that foreign investor tend to be part of the nation growth since the economy output increasing in size. Meanwhile, according to (R. Al-Khouri, 2015) and (Qian & Steiner, 2012) a larger domestic stock market increase portfolio equity investment relative to FDI. Followed by that, our result on OER is consistent with Hous and Uni (1998) which shows exchange rate effect the capital flows. Three other variables are not significant and shows negative relationship to FPI except for inflation with a positive sign toward FPI.

This both model is present by the best specification based on Likelihood Ratio Test and Hausman Test. The Likelihood Ratio Test is used to determine whether the data set is pooled or panel. The result indicate that P-Value is less than 0.05 which mean the null hypothesis is rejected and the model is panel form. Followed by that we used Hausman Test to check whether the model is fixed effect or random. Since the P-Value is less than 0.05 the applying of random effect is rejected and thus the fixed effect model is the best specification to be choose.

5. Conclusion

In this paper, we present the relationship between asymmetric information toward FPI. Based on the result, we examine the panel data from 8 countries for a period of 2011 to 2011. We first analysed asymmetric information based on two measurement called Amivest and Proportional Spread. The result indicates that Amivest is not significant to FPI, however proportional spread show it it significantly to FPI and give the best result as we expected earlier. We expect negative relationship between asymmetric information and FPI. As we discuss before, asymmetric information contribute the risk in investment at the same time decrease FPI rate in future. Asymmetric Information is also associated with liquidity which present the lower liquidity in one firm, a higher asymmetric information would be. Thus, this transparency issue is one of the factor that should be consider from the foreign investor side in order to mitigate the risk that might happen. Decision that has been made by foreign investor directly determine the composition of capital flows itself. From this studies we can conclude that the lower asymmetric information will attract more foreign investor to invest in one country. To ensure the robustness of the model the factor affecting FPI, we add six macroeconomic control variable. Out of six, GDP, Market Capitalization and Official Exchange Rate are affecting FPI as well.

We would suggest future research to add another component of capitals flows such as debt to examine the effect of asymmetric information toward capital flows. Thus, this paper contribute literature on scope of relationship asymmetric information towards FPI.

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