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The Effect of Foreign Direct Investment in Indonesia

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Abstract

Determinants of Foreign Direct Investment (FDI) inflows and its relationship with economic development and the degree of economic openness (trade) in Indonesia were examined using VAR model during observation period of 1970–2009. The main finding of this paper is that FDI inflows are affected by the degree of economic openness rather than economic performance (GDP per capita). Descriptive analysis on the relationship between FDI and other factors such as political stability, average minimum wage per sector, and corruption perception index were also carried out and I concluded that those variables to some extents influenced the FDI inflows.

Key words: foreign direct investment (FDI), capital mobility, economic openness, liberalization
JEL classifications: F2 (international factor movement), F4 (macroeconomic aspects of international trade and finance)

1. Introduction

Many countries in the world have promoted freer capital mobility by opening up their economies in order to gain economic benefits such as higher economic growth, creating more job opportunities to the people and accessing capital from abroad to attain competitive advantage. The forms of international resource movement can be in the form of portfolio investment and direct investment. Portfolio investments are more liquid since they are financial assets such as bonds, stocks (less that 10% ownership of a firm), and other kinds of financial asset in national currency that can flow into a country easily and quickly as well as go out when unfavorable situation takes place. Financial crises during the last decade have proven that portfolio investment is subject to be the source of economic destabilization, it increases volatility of returns in the domestic markets of especially emerging markets. That is because the main motive of portfolio investment is risk diversification; investors need to rebalance their international portfolio of financial assets once a shock in a country takes place that increases their risk and then move the capital to other countries that are safer while at the same time maintaining their target of rate of returns.

More integrated capital markets make the situation more complex, since a crisis in a country may affect other countries. It creates more difficult tasks for international fund manager in attaining risk diversification objective. On the other hand, foreign direct investment (FDI) is regarded as more stable and longer-term one since it involves the decision of acquiring physical assets or a firm, establishing production facilities, or developing supply chain network. An open economy that want to attract FDI usually provides incentives such as favorable tax treatment, more relax capital control that gov-

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ern the profit remittance, simpler procedures or bureaucracy or greater availability of infrastructure. Horizontal integration and vertical integration are the other motives for companies investing abroad, besides avoiding import tariffs imposed by host country. These motives become more prominent as many countries have reduced or even removed tariffs barrier as a result of free trade agreements.

However, there are still discussions over the determinant factors of FDI and its relationship to economic growth. In the classic textbook of international economics, Salvatore (2011, p. 403) shows that the inflow of FDI to the USA had fluctuated according to the economic conditions. It seems to be cyclical, rising during period of high growth and falling during period of recession or slow growth. That fact has raised questions on whether FDI really contributed to economic growth or it affected on the opposite direction. Other recent researches on developing countries also show that FDI has positive contribution to economic growth (Ciburiene (2010), Ekanayake and Ledgerwood (2010), Hailu (2010), OIadipo (2010), Constant and Yaoxing (2010)). Meanwhile, Žilinskė (2010) found a mixed result that FDI has both positive and negative effects to developing economies. In ASEAN countries, third-country effects and regional integration are significant determinants of FDI (Uttama and Peridy, 2009).

Political stability is also believed to be an important determinant of FDI inflows. Study of Kim (2010) found interesting results. He found that countries with high level of corruption of government and low level of democracy have higher FDI inflows. The findings propose caveats that FDI may be the source of bribery or corruption practices of government officials and if that is the case then FDI contribution to the people's welfare must be the continuous subject of research.

Indonesia as one of the prominent economies in ASEAN is in the middle of international capital movements. Indonesia is the fourth largest country in terms of population after China, India, and USA. With regards to the demographic structure and stronger households' purchasing power, Indonesia is a labor-surplus country as well as a vast potential market. Another feature of Indonesia is that it becomes one of the largest democratic countries, in which although in the earlier period its political circumstances were volatile, the recent development shows that Indonesia is capable to resolve the political turmoil to sustain its economic development as well as to play a greater role in International context. As a member of G20, the role that Indonesia plays in global economy is increasingly recognized. Previously Indonesia contributed to the establishment of APEC (Asia Pacific Economic Cooperation), which in February 1994 in Bogor, Indonesia, set the Bogor Goals of "free and open trade and investment in the Asia-Pacific by 2010 for developed economies and 2020 for developing economies." The commitment to an open economy continues by supporting AFTA (ASEAN Free Trade Agreement) in 1992, which then developed into ACFTA (ASEAN-China Free Trade Agreement) that became effective in 2010. However, the economic performance of Indonesia after 1970 has been colored by economic and political upheaval as well as turmoil. Until 1996, on average the economy grew more than 5% and even reached almost 7% in 1995. Financial crises that

started in Thailand in 1996 has contagious effect to Indonesia, created not only economic turmoil but also political catastrophe that made the recovery take the longest period compared with other Asian countries affected by the crisis. The economic crisis has developed into multidimensional crises thereafter. Moreover, after many believed that the economy has recovered in 2005, not long after then Indonesian economy was affected by subprime-mortgage crisis in US. The dynamics of economic and political conditions in Indonesia makes the researches on factors determining FDI, trade, and economic growth became more complex and different results from the previous studies are expected. This is the main motive of writing this paper.

2. Theoretical Background

Foreign direct investment as a form of international resource movements become more intensified when more and more countries agree to open their economy so that resources can be moved freely across borders. Unlike portfolio investment, i.e. one in financial assets, direct investment involves rigorous analysis such as feasibility studies etc. by international and multinational companies since it deals with long-term decision. Once the decision was made, it would be very difficult to withdraw the invested capital in the near future. Therefore, the study of FDI inflows to the receiving economy must involve factors in the current states and the previous states (lagged variables) using relatively long observation period.

One of the basic theories that explain the international resource movement is Heckscher-Ohlin (H-O) model, in which it explains the motive of investing in other country in search for higher returns. In the two-nation model, H-O model described that returns on capital are originally higher in the nation having the lower overall capital-labor ratio. That basic model seems appropriate to describe the movement of capital from developed countries to developing or less developed countries. However, in the real world, developing countries are not only regarded as receiving countries of foreign investment but they are also doing investment abroad although the amount of outward FDI and portfolio investment of developing countries are still much lower than those of developed countries. Analysis of FDI inflows thus cannot just relying on differences in capital-labor ratio only that measure the stage of economic development of a country but also other factors that reflect the other motive of international investment, that is risk diversification. A country would be more likely to be a receiving country of international investment if it is an open economy so that foreign investors would be able to diversify their investment by investing in an economy that welcome them. As a consequence, a measure of economic openness is one of important variables to be considered in this paper. The other variable that is relevant is the economic growth per capita since it reflects the economic development stage of a country that simultaneously has relationship with the inflows of FDI.

Buch and Pierdzioch (2001) studied the determinant of Gross Capital Flow as an effort to measure the degree of economic integration. They used gross capital inflows instead of net capital flows (saving-investment correlation) since that approach will not only analyze capital market integration (portfolio investment) but

also the real capital mobility that may also reflects the degree of portfolio diversification. The model used by Buch et al. (2001) is motivated by model of Golub (1990). The explanatory variables are country size (log population), the state of development (log of GDP per capita) and the degree of openness (volume of trade relative to GDP). In that paper, it is found that FDI inflows are affected by trade (total export and import) to GDP ratio and GDP per capita.

As the results of study by Kim (2010), non-economic factors such as political stability, the degree of democracy, favorability of regulations to foreign investment may be also important in determining the inflows of capital to an economy.

3. Data and Methods

In this paper, the objective is to describe the relationship among FDI inflows, economic growth, and economic openness. The other variables such as the labor wage and corruption perception index are reviewed briefly through simple descriptive statistic analysis because of the lack data availability for longer period.

The variables used in econometric model are FDI inflows as the percentage of GDP (FDI/GDP), log GDP per capita (Log GDP/capita), and trade (total export and import) to GDP ratio (Trade/GDP). Unlike in Buch et al., variable log population is not included in the analysis since in this paper the object of analysis is only one country while in Buch et al. they study European countries, in which comparing the economic size among the countries become relevant.

The data of FDI inflows is obtained from UNCTAD Statistic database and the other economic data are obtained from IMF Statistics. The data are in annual basis from 1970 to 2009. The dynamic time series analysis is used to investigate the interplay among those three variables.

In determining the appropriate econometric model, Augmented Dickey-Fuller (ADF) univariate unit root test was applied to test the stationarity of the time series data. The unit root test for these three variables is shown on Table 1. The result on Table 1 shows that the three time series data in level have unit roots but the test on their first difference shows that the data are stationary. Cointegration test using data in level has been performed (not presented here), although it is found that at least one coin-

Table 1 Unit Root Test for FDI/GDP, Log GDP/Capita, and Trade/GDP

Series	Series Form	Included in Equation	Lag Length	ADF t-statistic	Prob.
FDI/GDP	Level	intercept	1	–2.442764	0.1373
FDI/GDP	1st Diff.	none	1	–4.417891	0.0001*
Log GDP/Cap	Level	intercept & trend	1	–3.223390	0.0952
Log GDP/Cap	1st Diff.	none	1	–3.405824	0.0012*
Trade/GDP	Level	intercept	1	–1.804621	0.3727
Trade/GDP	1st Diff.	none	1	–7.128459	0.0000*

Null hypothesis is series has unit root and (*) indicates that the null hypothesis is rejected at 1% significant level.
Lag length is determined based on Akaike Information Criterion (AIC).

tegration equation exists but the vector error correction model (VECM) is not stable, and therefore vector autoregression (VAR) using data in first difference is more appropriate for the analysis.

In order to specify the lag order of VAR model, information criteria are used as presented on Table 2. Although based on Schwars information criterion (SC) and Hannan-Quinn information criterion no lag model is chosen but considering that the effect of one variable to another in this study may need time to take effect and based on Akaike information criterion (AIC), the 3rd order VAR seems more appropriate to be applied.

Based on lag order selection criteria, the model is formulated as follows:

$$y_t = \mu + \Gamma_1 y_{t-1} + \Gamma_2 y_{t-2} + \Gamma_3 y_{t-3} + \varepsilon_t \qquad (1)$$

where y_t = [*D(FDI/GDP) D(Log GDP/Cap) D(Trade/GDP)*]' and *D* indicates that the respective variables are in their first-order difference form, μ is vector of constant terms and Γ_p is a matrix of coefficients of regression with p = [1 3].

The use of VAR model above will be used to provide additional analysis; Granger causality test, Impulse response function (IRF) and Variance Decomposition. The Granges causality test is defined by Granger (1969) and Sims (1972) as a test of whether a lagged value of a variable, let say x_{t-1}, have explanatory power in a regression of a dependent variable, y_t, on its lagged value (y_{t-1}) and x_t. In this paper the aim of the test is mainly to examine whether FDI inflows contributed to the economic growth and trade or on the contrary that FDI inflows requires economic growth and trade. If the last statement is the case, then it means that it is more likely the motive of FDI is dominated by the search for higher return and safer place to invest, although sequentially FDI may contribute to the growth of the economy and promoting trade (more open economy) thereafter.

The Granger causality test is performed based on *Wald* statistic that is distributed according to χ^2-distribution. Greene (2008, p. 697) criticizes the use of *Wald* statistic in which its critical value is based on χ^2-distribution rather than *F*-distribution as the test statistic

Table 2 VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	–21.17806	NA	0.000832	1.422239	1.556918*	1.468168*
1	–16.84307	7.649979	0.001099	1.696651	2.235367	1.880369
2	–11.37165	8.689905	0.001372	1.904215	2.846967	2.225720
3	7.130671	26.12092*	0.000813*	1.345255*	2.692043	1.804548
4	14.64857	9.286812	0.000951	1.432437	3.183263	2.029519
5	21.55611	7.313870	0.001211	1.555523	3.710385	2.290393

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

may be a bit optimistic and does not account for the fact that the asymptotic covariance matrix is estimated using a finite sample. However, he mentioned that *Wald* test or its transformation to an approximate *F* statistic should be more generally applicable and usable. Moreover, the sample size in this study is not so large (39 observations) so that the use of χ^2-distribution should be appropriate and the resulted critical value will converge to its transformed value in *F*-statistic.

The Impulse Response Function (IRF) is used to identify the effect of a shock (innovation) on a variable to the other variable over time, whether after the shock the affected variable will respond to it and then return to the equilibrium or the response is persistent (never achieve the equilibrium again). Meanwhile, Variance Decomposition is a technique to decompose the variance of a variable whether it can be explained by the variance of the other variable.

Before arriving at the discussion on the result from econometric model, descriptive analysis is performed to analyze the relationship between FDI and other variables not included in the model. This is done because some data such as corruption perception index, average minimum wage, FDI in sectoral data, are not sufficiently available to perform time series analysis.

4. Descriptive Analysis

FDI inflows in Indonesia since 1970 till 2009 are varied. Its dynamism seems to follow the economic performance and global economic condition. Figure 1 shows that although FDI is a kind of long-term investment that should be not liquid and not easy to be withdrawn, but the volatility of FDI inflows are coincides with economic and political shocks. The shaded areas on Figure 1 represent economic crises and political turbulence both domestic and international.

For about 15 years since 1980 the FDI inflows in Indonesia were rather stable, positive and increasing. But, from 1998 till 2000 Indonesia experienced negative FDI inflows (disinvestment). This period is characterized by political

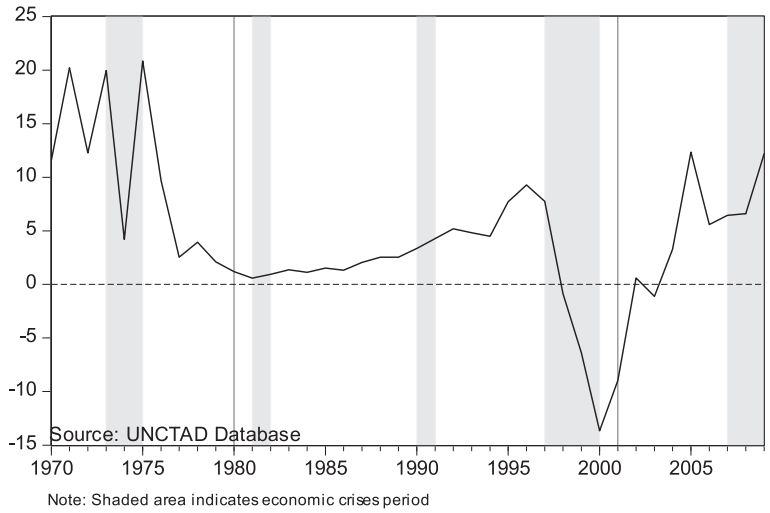

Figure 1 FDI Inflows as Percentage of GDP 1970–2009

unrest following economic crises triggered by currency crises in Thailand in the mid 1996.

In 1998 the Soeharto's administration that had been ruling for 32 years was collapse and created unprecedented uncertainty in almost any economic and social dimensions of the people. Coupled with the economic crises, the new administration under Habibie was unable to regain the people's trust. And in 2002 Indonesia even lost one of its provinces, East Timor. The province became an independent country (Timor Leste) through a referendum held in 1999.

This situation has grinded investors trust on the prospect of Indonesian economy, and had increased the country risk that led many foreign companies to leave Indonesia or to move to other countries. Although the situation was a little bit resolved in 2000 after President Abdurahman Wahid was elected, the new administration was politically unstable, because the president came from a political party that was a minority in the parliament. And the president could not keep the power balance inside the parliament that was in euphoria of democracy after more than 30 years of repression in the Soeharto era. President Wahid was then impeached by the parliament in the mid 2001 and replaced by the former vice president, Megawati. The general election for parliament representatives and the first direct election of president were held in 2004, which heated up the political situation again and resulted in the negative FDI inflows. The negative FDI inflows in 2004 were caused by the investors' precautionary action in anticipating the uncertainty that might result from the series of election. However, the uncertainty was resolved after all the general election was successfully done and the new president was elected and FDI inflows came back to the former level.

The story told us that although FDI is a kind of long-term investment and should be illiquid, the innovation in technology, financial system, and more open economy has proven that FDI becomes less illiquid and easily move out from a country with economic and political instability. That is to say, country risk is nowadays an important determinant of FDI inflows.

The relationship between FDI and economic growth as shown in Figure 2 seems to be positive. However, there is a cyclical trend as follows. When FDI fueled economic growth (when FDI stock line is below the GDP line) and when it commands economic growth as it's prerequisite to flow in (when the FDI stock line is above the GDP line). This brief analysis will be verified again through more rigorous econometric model on the next section, yet Figure 2 provides an instant notion that indeed FDI and economic development moved in almost the same direction.

Figure 3 depicts the relationship between FDI stock and value of international trade (export and import) and it is discernable from the figure that the relationship is positive although it is worth mentioning a caveat in interpreting this figure. The changes of FDI stock are seemingly in line with the changes of GDP (Figure 1), and therefore one should not draw a conclusion that FDI stock that drive the export and import activities based on the positive correlation among them alone, since the domestic investment and other factors (household consumption, government spending, global economic condition, non-economic factors such as

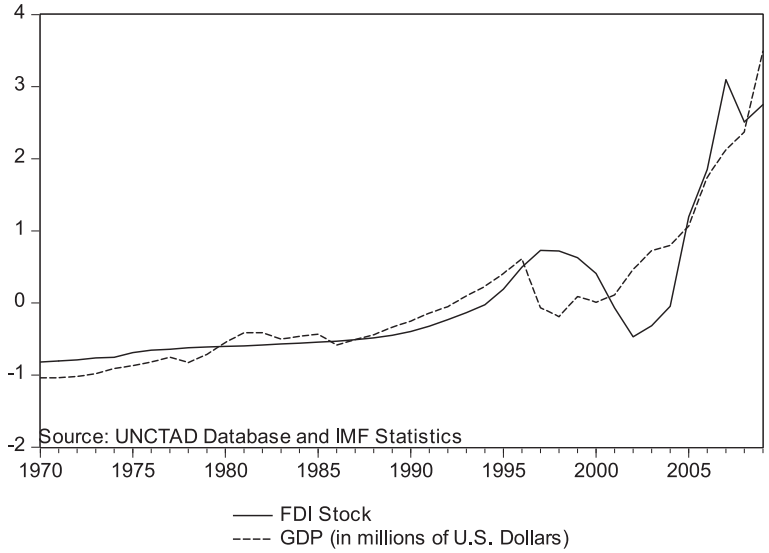

Figure 2 Normalized Data of FDI Stock and GDP 1970–2009

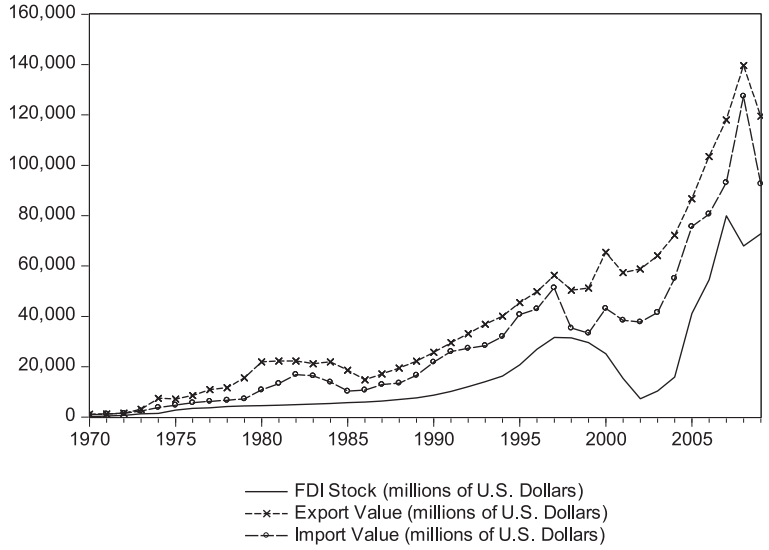

Figure 3 The Effect of FDI on Trade

politic, etc.) might also contribute to the growth. This can be verified through the analysis of variance decomposition to measure how much is variance of economic growth can be explained by FDI. Meanwhile, Figure 4 shows that the employment is continuously increasing while FDI stock is volatile. This indicates that the relationship between FDI and employment is weak. This is not consistent with one of motives of FDI receiving country in attracting FDI that is creating jobs. However, it does not necessarily mean FDIs in Indonesia cannot absorb the abundant labor force (albeit unskilled labor might still be dominant), but we may say that FDIs' contribution in reducing unemployment is still minor.

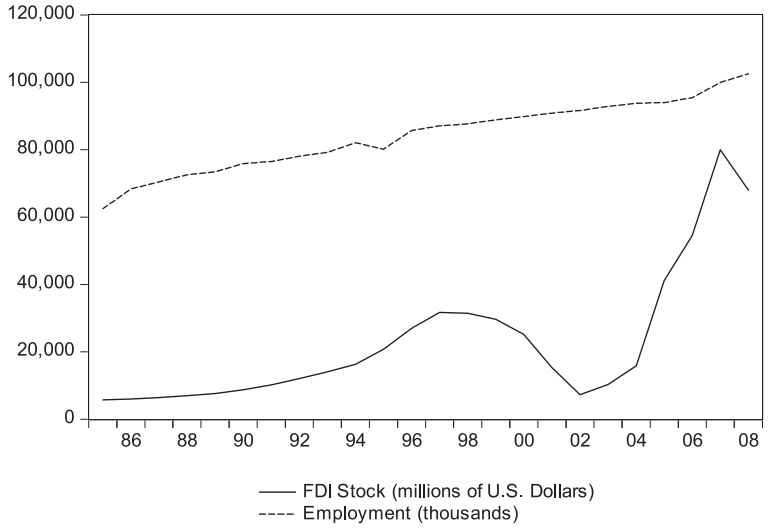

Figure 4 FDI and Employment 1985–2008

Table 3 might provide explanation to the weak relationship between FDI and employment. With regard to the level of technology adoption, it is common for developing countries to maintain labor-intensive industries in primary or secondary sector.

The statistical data in Table 3 shows that total value of FDI realization in both primary and secondary sector is still below the value of FDI realization in tertiary sector. Moreover, the largest proportion of FDI in tertiary sector is in communication industry, which is not export-oriented industry but its existence is to serve a huge domestic market, especially for mobile communication services.

The two main players in mobile communication services in Indonesia are Telkomsel and Indosat which occupy more than 70% of total market share.

Temasek Group, a state holding company of Singapore, owns about half of the ownership of these two companies through its subsidiaries (Singtel and STT)[1].

The largest value of FDI in secondary sector is in metal, machinery, and electronics industries. These industries are known as labor-intensive industries. Manufacturing facilities of multinational companies (MNCs) and original equipment manufacturers (OEM) are types of companies in these sectors. They are usually motivated by the availability of cheap labor in order to keep the production cost at the low level.

Data gathered by HRCentro (Table 4) show that manufacturing industry is industry among the lowest minimum wage payers. During the new order era[2], the government promoted the political stability to attract foreign investment and to maintain economic growth by means of union busting, etc. The government only allowed and recognized one labor union that was more favorable to company's interests rather than protecting the labor rights (including wage negotiation between labor and company). Formally, this practice ended when the government lifted up the regulation when the Law no. 21/2001 was enacted soon after the ratification of the International Labor

Table 3 Foreign Direct Investment 2005–2008

No.	Sector	2005		2006		2007		2008	
		P	I	P	I	P	I	P	I
I	Primary Sector	44.0	402.3	39.0	533.0	62.0	599.3	55.0	335.7
1	Food Crops & Plantation	17	171.5	13	351.9	16	219.1	10	147.4
2	Livestock	3	52.8	7	18.8	7	45.7	1	4.5
3	Forestry	2	118.8	1	31	0	0	0	0
4	Fishery	7	5.8	5	32.8	5	24.7	3	2.4
5	Mining	15	53.4	13	98.5	34	309.8	41	181.4
II	Secondary Sector	335.0	3,500.6	363.0	3,619.2	390.0	4,697.0	495.0	4,515.4
6	Food Industry	46	603.2	45	354.4	53	704.1	42	491.4
7	Textile Industry	31	71.1	61	424	63	131.7	67	210.2
8	Leather Goods & Footwear Industry	6	47.8	11	51.8	10	95.9	20	145.8
9	Wood Industry	18	75.5	18	58.9	17	127.9	19	119.5
10	Paper & Printing Industry	6	9.9	16	747	11	672.5	15	294.7
11	Chemical & Pharmaceutical Industry	41	1,152.9	32	264.6	32	1,611.7	42	627.8
12	Rubber & Plastic Industry	27	392.6	33	112.7	36	157.9	50	271.6
13	Non Metallic Mineral Industry	11	66.2	7	94.8	6	27.8	11	266.4
14	Metal, Machinery & Electronic Industry	87	521.8	86	955.2	99	714.1	141	1,281.4
15	Medical, Precision, Optical Instrument, Watches & Clock Industry	2	3.1	1	0.2	1	10.9	7	15.7
16	Motor Vehicle & Other Transportation Equipment Industry	31	360.6	28	438.5	38	412.3	47	756.2
17	Other Industry	29	195.9	25	117.1	24	30.2	34	34.7
III	Tertiary Sector	528.0	5,008.1	467.0	1,839.5	530.0	5,045.1	588.0	10,020.6
18	Electricity, Gas & Water Supply	2	68.7	3	105.3	3	119.3	4	26.9
19	Construction	35	921.9	18	144.2	16	448.2	21	426.7
20	Trade & Repair	261	383.6	266	434.3	312	482.9	375	582.2
21	Hotel & Restaurant	33	180.3	31	111.2	22	136.4	22	156.9
22	Transport, Storage & Communication	53	2,946.8	37	646.9	43	3,305.2	35	8,529.9
23	Real Estate, Industrial Estate & Business Activities	5	208.3	16	254	8	64.5	19	174.9
24	Other Services	139	298.5	96	143.6	126	488.6	112	123.1
	TOTAL	907.0	8,911.0	869.0	5,991.7	982.0	10,341.4	1,138.0	14,871.7

Source: Ministry of Industry of Republic of Indonesia
Note: P: Total of issued Permanent Licenses, I: Value of Direct Investment Realization in Millions of U.S. Dollars

Organization (ILO) 1987 Convention.

Moreover, Indonesia is still among the lowest rank countries in the corruption perception index (Table 5). It indicates that the economic development and FDI are not strong enough to improve corporate governance and business competition. These facts are in line with the findings of Kim (2010).

Data as of the second quarter of 2010 show that Singapore is the largest investors through

Table 4 Average Regional Minimum Wage (IDR per month)

Sector	2010	2009
Non-sector	844,864.50	819,015.19
Food	918,833.33	NA
Manufacture	941,400.00	NA
Trading/Services	971,054.00	NA
Others	1,027,944.50	971,624.00
Textile/Garment	1,044,875.00	735,900.00
Mining	1,098,744.33	905,199.00
Automotive	1,300,000.00	NA
Oil & Gas	1,319,000.00	1,298,000.00
Property/Real Estate	1,328,000.00	NA
Insurance	1,357,000.00	NA

Source: HRCentro

Table 5 Indonesia Corruption Perception Index

Year	Rank	Score
2001	88	1.9
2002	96	1.9
2003	122	1.9
2004	133	2.0
2005	137	2.2
2006	130	2.4
2007	143	2.3
2008	126	2.6
2009	111	2.8
2010	110	2.8

Source: Transparancy International

FDI in Indonesia with US$ 1.6 billion investment value and 156 licenses. The amount accounts for 41% of total direct investment in Indonesia. Singapore is already the largest investors in Indonesia for the last 5 years. However, Singapore investment in Indonesia is concentrated on Batam, Bintan and Karimun island which are nearby area of Singapore, thus geographic proximity is a prominent factor that determines the FDI.

The next largest source of FDI inflows are Hong Kong, United States of America, Japan, and Netherland with the value of investment realization in 2010 of US$ 0.8 billions, US$ 0.3 billions, US$ 0.2 billions and US$ 0.2 respectively. The other countries invested as much as US$ 0.8 billions. These data indicate that trade liberalization including the free trade agreement in regional area such as AFTA did not significantly increase capital mobility in the form of FDI, it is more likely that such liberalization ease the formation of portfolio investments or expansion of market for international or global products rather than FDI.

5. Vector Autoregression (VAR) Results

The estimated parameters of VAR model are presented on Table 7. Using annual data from 1970 to 2009, I got 39 observations for each variable, yet the use of 3rd lag order in the model made the number of observation is adjusted to 36 observations. The goodness of fit as measured by R^2 for *D(FDI/GDP)*, *D(Log GDP/Cap)* and, *D(Trade/GDP)* are more than 30% and the *adjusted* R^2 are more than 11%. The variance of lagged variables simultaneously can explain the variation of *D(FDI/GDP)*, while for *D(Log GDP/Cap)* and *D(Trade/GDP)*, the respective variables statistically has no power to explain their variation as shown by the *F statistic*. Thus, the model will be more able to explain the determinant factors of FDI inflows rather than GDP and Trade, in which it is the objective of this paper. However, it should be noted that in VAR model, the parameters in one equation

Table 7 VAR Estimation

Standard errors in ( ) & t-statistics in [ ]

	D (FDI/GDP)	D (Log GDP/Cap)	D (Trade/GDP)
D (FDI/GDP(–1))	–0.423988***	0.004410**	–0.002360
	(0.15870)	(0.00251)	(0.00314)
	[–2.67166]	[1.75388]	[–0.75054]
D (FDI/GDP(–2))	–0.059071	–0.001063	0.000157
	(0.17160)	(0.00272)	(0.00340)
	[–0.34423]	[–0.39093]	[0.04614]
D (FDI/GDP(–3))	–0.239246*	–0.004851**	0.006454**
	(0.15032)	(0.00238)	(0.00298)
	[–1.59153]	[–2.03667]	[2.16713]
D (Log GDP/Cap(–1))	3.626539	0.455958**	–0.066344
	(13.2240)	(0.20954)	(0.26199)
	[0.27424]	[2.17596]	[–0.25323]
D (Log GDP/Cap(–2))	15.69421	–0.145698	0.030713
	(14.5414)	(0.23042)	(0.28809)
	[1.07928]	[–0.63232]	[0.10661]
D (Log GDP/Cap(–3))	–13.88929	0.000373	0.013285
	(13.4107)	(0.21250)	(0.26569)
	[–1.03569]	[0.00176]	[0.05000]
D (Trade/GDP(–1))	–20.79100**	0.326008**	–0.385811
	(12.0662)	(0.19120)	(0.23906)
	[–1.72308]	[1.70509]	[–1.61390]
D (Trade/GDP(–2))	–10.79528	0.201720	–0.407691
	(12.5165)	(0.19833)	(0.24798)
	[–0.86249]	[1.01708]	[–1.64407]
D (Trade/GDP(–3))	–48.22805***	–0.077575	0.236502
	(11.7292)	(0.18586)	(0.23238)
	[–4.11180]	[–0.41739]	[1.01774]
μ	0.374405	0.018039	0.015836
	(1.10855)	(0.01757)	(0.02196)
	[0.33774]	[1.02696]	[0.72105]
R-squared	0.511094	0.344883	0.414276
Adj. R-squared	0.341857	0.118111	0.211525
F-statistic	3.019992	1.520838	2.043278
Akaike AIC	6.165787	–2.123930	–1.677147
Schwarz SC	6.605653	–1.684064	–1.237281
Akaike information criterion		1.957067	
Schwarz criterion		3.276666	

* significant at 10%
** significant at 5%
*** significant at 1%

resulted from the interaction with the other equations in the model.

Stability test on the model (not presented here) has been performed and there are no roots of characteristic polynomial exceeding unity. It indicates that the model is stable and further analysis on the parameters can be done.

Table 7 shows that FDI inflow is affected

by first and third lag-order of *Trade/GDP* but unexpectedly in negative sign. It shows that the involvement of Indonesia in promoting trade liberalization by joining WTO, APEC, AFTA had proven Indonesia as a more open economy and, the degree of openness has positive contribution to the economic development as it is shown by positive coefficient of *D(Trade/GDP(-1))* on *D(GDP/Cap)*, but unfortunately the trade and investment liberalization in the Asian region and the world has made Indonesia less attractive for foreign investors, mainly due to its political instability in the last decade that makes Indonesia take longer time to recover from Asian economic crises. However, a simultaneous relationship between FDI inflows and GDP per capita in the model is not found.

Granger Causality Test presented on Table

Table 8 VAR Granger Causality Test

Dependent variable: D(FDI/GDP)			
Independent variable	Chi-sq	df	Prob.
D (Log GDP/CAP)	2.210843	3	0.5298
D (TRADE/GDP)	17.04494	3	0.0007
All	19.62952	6	0.0032

Dependent variable: D(Log GDP/CAP)			
Independent variable	Chi-sq	df	Prob.
D (FDI/GDP)	6.892569	3	0.0754
D (TRADE/GDP)	4.871385	3	0.1815
All	10.27995	6	0.1133

Dependent variable: D(TRADE/GDP)			
Independent variable	Chi-sq	df	Prob.
D (FDI/GDP)	5.395625	3	0.1450
D (Log GDP/CAP)	0.073160	3	0.9949
All	5.808379	6	0.4450

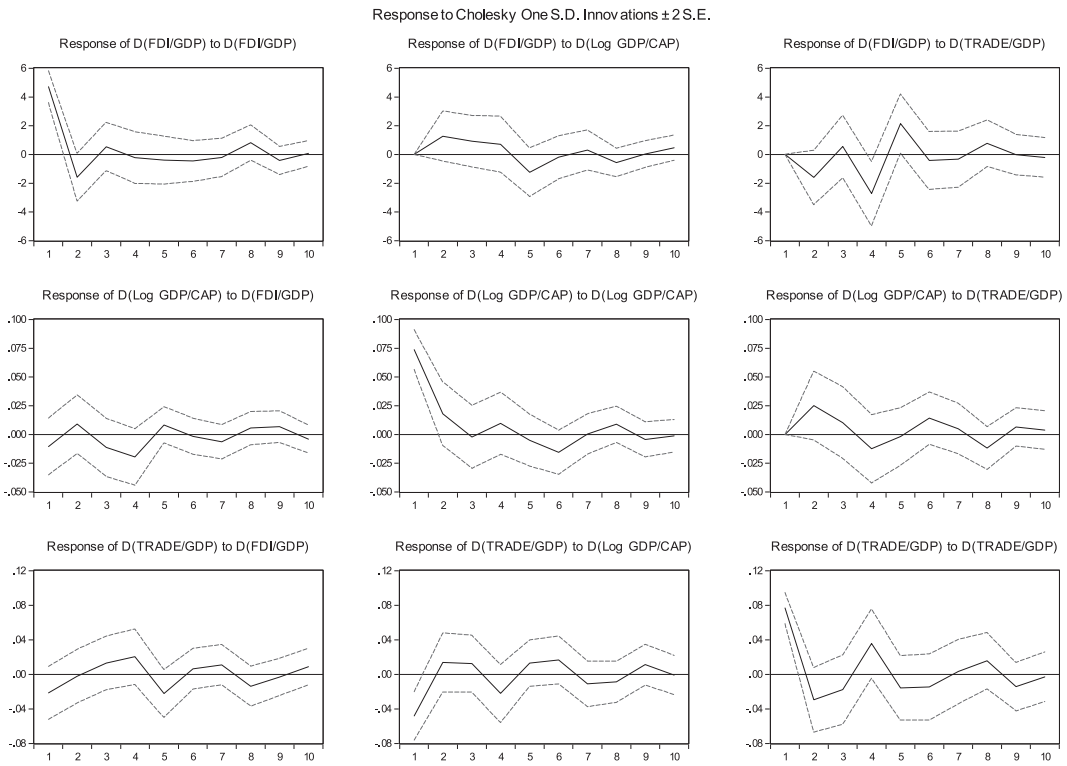

Figure 5 Impulse Response Function of FDI, Trade and GDP

8 confirms such result as GDP per capita does not Granger cause FDI and vice versa (at 5% significance level). It may indicate that Indonesia is more likely to be the production base for FDIs of both export oriented and domestic oriented foreign companies as a result of deregulation in investment and commitment to the free trade, yet contribution of FDI to the economy is still minor.

In line with the above analysis, analysis on Impulse Response Function (IRF) presented in Figure 5 shows that FDI Inflows is more affected by a shock in Trade to GDP ratio. It takes about five years after a shock in Trade/GDP when FDI inflows will turn back to its equilibrium state, while a shock in FDI inflows itself will be adjusted quickly in the following year.

This result may indicate that FDI inflow is more affected by global economic factors that determine international trade rather than domestic factors only (i.e. economic growth). Variance decomposition analysis in Figure 6 shows that about 34% of variance of FDI/GDP can be explained by variance of Trade/GDP, meanwhile variance of GDP per capital is only able to explain 10% of FDI/GDP variance.

The competition in attracting FDI among the emerging countries becomes intensified in the last decade. With this respect, Indonesia should still continue its struggle in inviting FDI that is more resilient to the economic shock, albeit it is more vulnerable to the global economic shocks recently. Improvements in investment regulation, infrastructures and adoption of good governance principles become more and

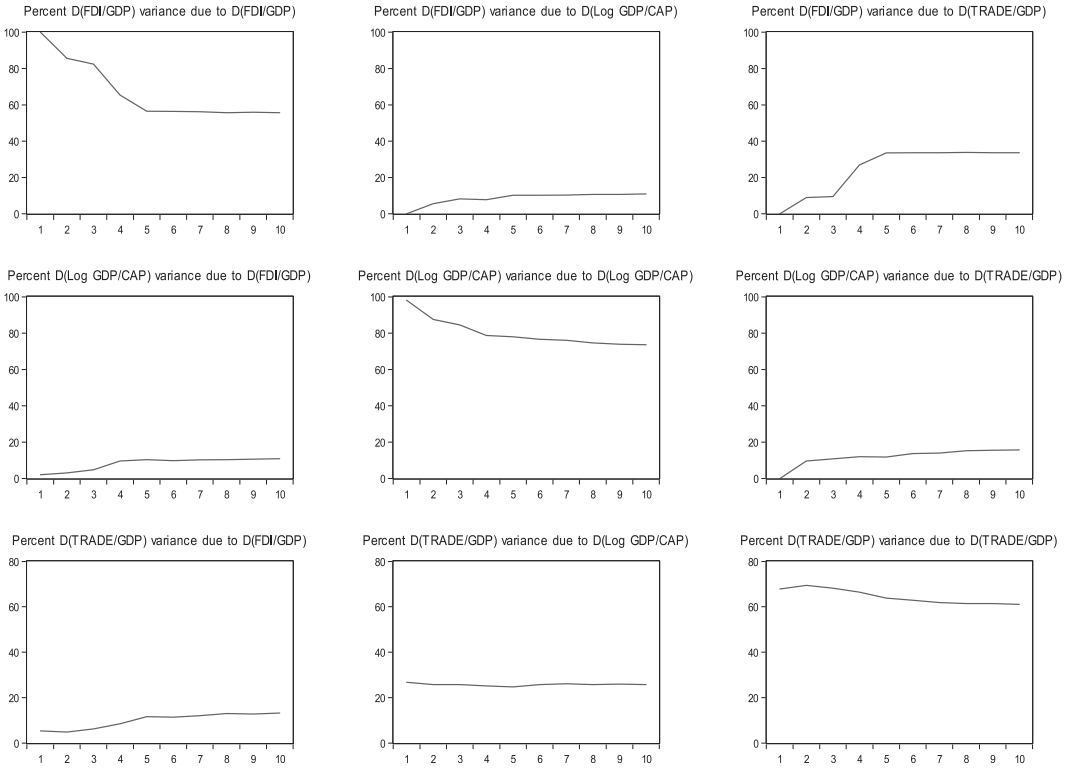

Figure 6 Variance Decomposition of FDI, Trade, and GDP

more important to win the competition. FDI should not only be targeted for sectors that provide more jobs but also for export oriented and more value added industries so that the contribution to economic development may be increased. Moreover, cheap labor is no longer an effective campaign to attract FDI, and even the global market nowadays pays more attention to the environmental issues and protection of labor rights in which more environmental friendly products and no sweats products are welcome, and therefore tackling these issues should be part of strategy in inviting more FDIs.

6. Conclusions

As a result of innovation in technology, more integrated and open economies in the world, FDI is no longer too sticky and illiquid as perceived in the past; it is more flexible, movable and become more responsive to shocks in economic and non-economic factors such as political and social conditions. The following findings support those arguments. First, both VAR analysis and descriptive statistic analysis found that FDI inflows in Indonesia were very dynamic. Descriptive statistic analysis shows that FDI in Indonesia is highly affected by non-economic factors, mainly by political condition. Meanwhile, findings in VAR analysis show that FDI is more resilient to the domestic economic shocks, yet more responsive to shock in international trade. Second, FDI contribution to the economic development and social welfare is still not significant yet.

The insignificant effect of FDI on Indonesian economy may be attributed to some factors: (1) sectors in which the FDI flows in is still dominated by tertiary sector which is non-labor-intensive and domestic market oriented industries, (2) the amount of FDI stock is not large enough to fuel up the economy, this may be caused by economic shocks and political instability that interrupted FDI inflows during the last 10 years, and (3) poor regulations in promoting good corporate governance and poor performance in eradicating corruption practices has made Indonesia less attractive to foreign investors. In international investors' perspective, Indonesia is often characterized as a high cost economy because of its inefficiency, lack of infrastructure, and corruption practices.

To be more attractive for FDI to come in, such policies as improvements in investment policies, infrastructure, regulations on business competition, and law enforcement to reduce the uncertainty are needed. FDI is still a potential source of resources to push the economic growth and to signify its effect to the economy, FDI should be aimed more at value added and export oriented industries, not just industries that their objective is to serve the huge domestic market as their market expansion base.

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Notes

1) The Commission for the Supervision of Business Competition (KPPU) of Republic of Indonesia penalized Telkomsel and Indosat in 2007 due to infringement of the Law no. 5/1999 on the Prohibition of Monopoly Practices and Unfair Business Competition. Temasek, a state-owned holding company of Singapore, held majority of the two companies' shares that after the verdict was forced to release one of them. These two companies were also alleged for

practicing cartel in text services.

2) New order era is a political term created under Soeharto's administration that refers to the start of the administration to signify the changes of economic and political de1velopment strategy in 1970s to 1997.

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