Effects of Financialization of Energy Markets on International Capital Flows in Emerging Economies

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Abstract

This paper analyzes the effects of energy prices on capital flows in emerging market economies (EMEs) by examining economic factors behind energy price fluctuations. Adopting Kilian's identification strategy for VAR, we decompose the crude oil price changes into three structural shock factors—the supply factor, the real-economy demand factor and the price change specific to the crude oil market—and conduct a panel estimation including those structural factors as explanatory variables. We find that the effects of price changes specific to the crude oil market have been strong after 1990, in the sample period examined in this paper. Estimating the same regressions for individual countries' data, we also find that price changes specific to the crude oil market have had clear positive effects on capital inflows into emerging countries heavily dependent on imports for crude oil supply, rather than oil-exporting ones. This finding is inconsistent with the interpretation by previous studies that the positive correlation between capital inflows into emerging countries and energy prices is due to the prevalence of resource-exporting countries among emerging countries.

1. Introduction

Since the middle of the 2000s, commodity futures have become important items in the menu of international portfolio investment, next to foreign equities and bonds. Such a change in the global investment environment is often called the "financialization of commodity markets" (Ikeo and Ohno eds. 2014; Cheng and Xiong 2014). At the same time, volatilities of commodity futures have increased. The prices of several commodities such as energy, metals, and some of agricultural products also experienced a cycle of sharp rise and decline in tandem with the financial market during the period from 2007 to 2009, around the collapse of Lehman Brothers in the Fall 2008.

Given the increased importance of commodities as the subject of international portfolio investment, economists start to pay attentions to the impact of commodity price fluctuations to the international capital flow of emerging market economies (EMEs). However, commodity price change depends on supply/demand factors for the commodities themselves as well as a result of a speculative "bubble" in commodity markets. So, examining a concrete mech-

anism how commodity prices affect international capital movement is an important research question. This point is more apparent when we think about energy prices, particularly oil price fluctuation for which there already exist many studies on both demand/supply factors and speculative activities in the oil market (e.g. Hamilton 1983, 1996, 2011; Kilian 2009; Juvenal and Peterella 2015).

In this paper, we focus on the crude oil prices and analyze economic shocks or "structural shocks" behind their price fluctuations, to examine the influence of the "financialization of energy" on emerging countries' international capital flows. In Section II, first, we estimate the equation for the determinants of international capital flows including crude oil prices for panel data of emerging countries, using the same data set and a simplified specification from the existing study. Then, we estimate the same equation for the individual countries' data to investigate the capital flow of which country is more responsive to changes in oil prices. In Section III, we estimate the structural VAR model and use the estimation results to construct the series of structural shocks constituting crude oil price fluctuations. By using these structural shocks as explanatory variables, the equations for economic determinants of international capital flows are estimated to examine concrete mechanisms by which oil price fluctuations influence international capital flows. Section IV is a summary of the paper.

II. Impacts of Energy Prices on International Capital Flows of EMEs

The purpose of this paper is to investigate the influence of energy prices on capital flow of emerging countries, by analyzing the factors causing the fluctuation of energy prices themselves. In this section, we start our discussion with the study of Clark et. al. (2016) and use their work as the benchmark of our analyses. Clark et.al. use the panel data of 19 emerging economies to estimate the following equation for private net capital inflow to emerging countries with fixed effects:

$$\begin{aligned} Flow_{i,t} = {} & \underset{[0.084]}{0.182^{**}}\, GrowthDif_{i,t} + \underset{[0.023]}{0.069^{***}}\, \Delta Commodity_t \\ & - \underset{[0.330]}{0.554}\, \Delta USPolicy_t + \underset{[0.076]}{0.105}\, RateDif_{i,t} \\ & - \underset{[0.029]}{0.019}\, \Delta VIX_t - \underset{[0.212]}{0.492^{***}}\, EMBIG_{i,t} \\ & + \underset{[0.003]}{0.004}\, EMBIG_{i,t}^2 + \underset{[0.049]}{0.252^{***}}\, Flow_{i,t-1} \\ & R^2 = 0.386 \end{aligned} \tag{1}$$

Asterisks indicate that the estimation parameters are statistically significant at 10% level (*), at 5% level (**), and at 1% level (***).

Dependent variable $Flow_{i,t}$ is net international capital inflow to country i at period t,

standardized by country *i*'s GDP. $GrowthDif_{i,t}$ is the difference of GDP growth rates between country *i* and the United States. Presumption here is that if the economic growth of the country is relatively higher than that of developed countries, international capital inflow will increase. $\Delta Commodity_{i,t}$ is the growth rate of IMF's commodity price index and its increase is expected to stimulate capital inflows since many of EMEs in their sample are commodity exporters. Explanatory variables also include $\Delta USPolicy_t$ and $RateDif_{i,t}$. The former is the interest rate change of US policy rate and the latter is the interest rate differential between the US and country *i*. These variables are included to examine the impact of US monetary policy on the capital flow of emerging countries. Next two variables are risk indicators of the international financial market. ΔVIX is the change in the CBOE volatility index or the so-called "Investor Fear Gauge." $EMBIG_{i,t}$ is the spread between country *i*' interest rate and JP Morgan's global interest rate average. In addition to these variables, the estimated equation includes the lagged dependent variable and the square term of $EMBIG_{i,t}$.

The estimation results of equation (1) imply that the difference between country *i*'s the GDP growth rate and US growth rate as well as the rise in commodity prices will increase capital inflow into emerging countries. On the other hand, the increase of the spread between country *i*'s interest rate and global average, $EMBIG_{i,t}$, which reflects the rise of country specific risk, has a negative impact on international capital inflow.

II-1. Impacts of Energy Prices on Capital Flow of EMEs: Panel Data

Our main focus here is economic interpretation of the estimation results of equation (1). Clark et al. argue that "*We include the variable since the majority of the EMEs in our sample are commodity exporters*". However, this explanation contains some ambiguities. First, since they are conducting panel estimates, even though the rise in commodity prices has a positive influence on the inflow of capital into emerging countries as a whole, it is not so obvious that such empirical results are caused by the impacts to commodity exporting countries. For more clear evidence, we have to look into the data of individual countries. Secondly, some particular countries in their sample, namely South Korea, China, Russia and India, have very different characteristics from typical EMEs. Their empirical results might change, if we consider a more homogenous country group (s).

Third, it is not clear by what kind of mechanism the rise in commodity price has a positive influence on capital inflow. For example, if commodity prices rise, depending on whether they are due to demand side factors or the supply/production side factors, the impact of commodity prices on other economic variables would vary greatly. However, it is not realistic to examine the demand/supply factors behind the price fluctuation of every single individual commodity in detail. So, in this paper, we concentrate on the price fluctuations of oil, because it is the most important commodity and for which there are already many existing studies. We come back to this issue in section III.

For the first step, we exclude some countries and use the crude oil price instead of the commodity price index, to re-estimate the equation (1). More specifically, we exclude South

Korea, China, Russia and India, as well as all Eastern European countries from the sample of Clark et. al. (2016). As a result, the sample size declines from nineteen to nine countries. Remaining sample countries consist of Latin American countries (Chile, Mexico, Brazil, Colombia), Southeast Asian countries (Philippines, Thailand, Indonesia), South Africa, and Turkey. Then, we estimate the following equation:

$$Flow_{i,t} = \beta_1 \cdot GrowthDif_{i,t} + \beta_2 \cdot OilPrice_t + \beta_3 \cdot VIX_t + \rho \cdot Flow_{i,t-1} + \theta_i + \epsilon_{i,t} \quad (2)$$

All variables used for the estimation here are the same as Clark et. al. (2016) unless otherwise mentioned in the following. First, the series of crude oil price indices is used instead of the commodity price index and the estimation model uses the price level instead of the change, or the rate of change. Also, US monetary policy variable and the interest rate differential between individual countries and global average is also excluded from explanatory variables. We include *VIX* itself, not the first difference, in the estimation, since the result is slightly more significant with the level variable. Estimated results in the above formulation are shown in the first column of Table 1 (*oil price*).

Table 1. Determinants of Crude Oil Prices and Net Capital Inflows in EMEs: Panel Regression (Fixed Effect Model)

Dependent Variable: *Flow(t)*

	Oil Price	Historical
GrowthDif	0.229	0.238**
	(0.249)	(0.263)
OilPrice	0.002***	—
	(0.000)	—
VIX (level)	−0.003*	−0.003
	(0.002)	(0.002)
Flow(t-1)	0.320***	0.318***
	(0.032)	(0.032)
Structural shocks		
Osupply (x100)	—	0.154
	—	(0.316)
Demand (x100)	—	0.151**
	—	(0.060)
Oprice (x100)	—	0.166***
	—	(0.041)
R^2	0.26	0.26

Source: IMF Primary Commodity Prices (https://www.imf.org/external/np/res/commod/index.aspx)

According to the estimation results, higher oil price clearly promotes capital inflows,

consistent with the result of Clark et. al. (2016) using the commodity price index. On the other hand, the difference in the GDP growth rate does not have a statistically significant influence on capital inflow, while *VIX* has a significant negative impact. These two results are different from ones obtained by Clark et. al. However, the insignificance of *VIX* in Clark et. al. (2016) can be caused by the strong correlation between the level of EMBIG and *VIX*. Since our specification in Table 1 does not include EMBIG, it is misleading to draw a strong conclusion about the influence of *VIX* in our estimation results here.

II-2. The Impact of Energy Prices on Capital Flows of EMEs: Individual Countries

Next, we look at the nine countries one by one. The first group in the sample are Mexico and Colombia (Group 1) which are oil producing countries and major oil exporters too. On the other hand, while Brazil, Indonesia and the Philippines are also oil producing countries, their domestic demand for oil has increased because of economic development and industrialization. Their oil supply capacities are not enough to cover domestic demands so that they are not major exporters and become net importers time to time (Group 2). Finally, there are countries such as Chile, Turkey, Thailand, and South Africa with very limited or no domestic oil production, thus depend heavily on imports for their oil supplies (Group 3).

The estimation results for nine individual countries are reported in the first column in Table 2 ("oil price"). In theory, oil price is expected to have a positive influence on the capital inflow of oil producing/exporting countries. However, among actual estimation results for Group 1, oil price is significantly positive only for Colombia's capital inflow. Explanato-

Table 2. Determinants of Crude Oil Prices and Net Capital Inflows in EMEs: Regressions for Individual Country Data

Group 1: Oil producing countries / Major exporters

	Columbia		**Mexico**	
	Oil Price	Historical	Oil Price	Historical
GrowthDif	−0.854	−0.902	0.433	0.393
	(1.010)	(0.982)	(1.074)	(1.039)
OilPrice	0.002***	−	0.000	−
	(0.000)	−	(0.001)	−
VIX (level)	−0.004*	−0.003	−0.005	−0.002
	(0.002)	(0.003)	(0.008)	(0.006)
Flow(t-1)	0.480***	0.460***	−0.070	−0.141
	(0.121)	(0.119)	(0.119)	(0.109)
Structural shocks				
Osupply (x100)	−	0.002	−	0.441
	−	(0.645)	−	(0.861)
Demand (x100)	−	0.219**	−	−0.358***
	−	(0.104)	−	(0.136)
Oprice (x100)	−	0.244***	−	0.270***
	−	(0.566)	−	(0.090)
R^2	0.57	0.58	0.01	0.07
Sample	2001Q2−2017Q2		1990Q2−2017Q2	

Table 2 (continued)

Group 2: Oil producing countries / Minor exporters & Net importers

	Brazil		Indonnesia		Philippines	
	Oil Price	Historical	Oil Price	Historical	Oil Price	Historical
GrowthDif	−0.780**	−2.963	−0.392	−0.647	0.055*	0.081**
	(2.205)	(3.130)	(0.399)	(0.541)	(0.029)	(0.037)
OilPrice	0.0029	−	0.001**	−	−0.016***	−
	(0.001)	−	(0.000)	−	(0.006)	−
VIX (level)	−0.006	−0.012	−0.007**	−0.008***	0.000	0.000
	(0.006)	(0.009)	(0.003)	(0.003)	(0.001)	(0.001)
Flow(t-1)	0.393**	0.402**	0.362***	0.363***	0.104*	0.078
	(0.177)	(0.167)	(0.061)	(0.060)	(0.054)	(0.061)
Structural shocks						
Osupply (x100)	−	1.904	−	0.533	−	−0.061
	−	(1.568)	−	(0.531)	−	(0.099)
Demand (x100)	−	0.447*	−	0.065	−	−0.027
	−	(0.247)	−	(0.077)	−	(0.017)
Oprice (x100)	−	−0.014	−	0.055	−	−0.008
	−	(0.168)	−	(0.050)	−	(0.009)
R^2	0.39	0.42	0.26	0.27	0.11	0.12
Sample	1997Q2−2017Q2		1991Q2−2017Q2		1990Q2−2017Q2	

Group 3: Countries with limited domestic oil production / Major importers

	Chile		South Africa		Thailand		Turkey	
	Oil Price	Historical	Oil Price	Historical	Oil Price	Historical	Oil Price	Historical
GrowthDif	−0.616	2.885	3.934**	4.646***	0.772***	0.610**	1.022	0.879
	(2.972)	(2.710)	(1.784)	(1.408)	(0.275)	(0.246)	(0.697)	(0.668)
OilPrice	0.003**	−	0.003***	−	−0.001***	−	0.005***	−
	(0.002)	−	(0.001)	−	(0.000)	−	(0.001)	−
VIX (level)	0.018	0.038**	−0.004	−0.003	−0.001	−0.003	−0.001	−0.014***
	(0.013)	(0.013)	(0.006)	(0.005)	(0.002)	(0.002)	(0.005)	(0.005)
Flow(t-1)	0.162*	0.043	0.207**	0.091	0.421**	0.375***	0.193**	0.184**
	(0.090)	(0.101)	(0.098)	(0.092)	(0.129)	(0.142)	(0.085)	(0.088)
Structural shocks								
Osupply (x100)	−	−1.981	−	−2.258***	−	0.386	−	0.313
	−	(1.824)	−	(0.654)	−	(0.260)	−	(0.797)
Demand (x100)	−	−0.270	−	0.694***	−	−0.017	−	0.762***
	−	(0.345)	−	(0.164)	−	(0.049)	−	(0.179)
Oprice (x100)	−	1.088***	−	0.286***	−	−0.093***	−	0.272***
	−	(0.320)	−	(0.091)	−	(0.049)	−	(0.102)
R^2	0.13	0.23	0.39	0.44	0.50	0.52	0.52	0.54
Sample	1990Q2−2017Q2		1990Q2−2017Q2		1990Q2−2017Q2		1990Q2−2017Q2	

ry performance of the estimation for Mexico is extremely low, with R^2 being 0.01. It is difficult to derive any clear conclusion from the result for Mexico here. Among the three countries in Group 2, only for Indonesia, oil prices have a clear positive impact on capital inflow.

For countries in Group 3, in which there is very limited domestic oil production and

which heavily rely on oil imports, the theoretical model implies that oil price increase has a negative impact on their capital inflows. However, in the estimation results in Table 2, crude oil prices have a negative influence only on Thailand's capital inflows. For the other three countries, Chile, South Africa and Turkey, the impact of the oil price increase is actually positive and statistically significant. Estimation results for Thailand here are not fully reliable because of potential structural change due to the Asian currency crisis in 1997 since it is the country where the crisis had started. Though it is not presented here due to the limitation of space, the sub-sample estimation for Thailand using only the data from 2000s and 2010s reveals crude oil prices have a positive and statistically significant effect on its international capital inflow.

In summary, the crude oil price clearly has a positive influence on capital inflow for oil importing countries, but not for oil exporting countries. These results are very different from the theoretical prediction. Therefore, some economic mechanism different from the conventional explanation for EMEs suggested in Clark et. al. (2016) is working.

III. Structural Shocks and International Capital Flow in EMEs

Following the empirical results in Section II, we look into the concrete mechanism by which the price of crude oil affects capital inflow. We do this by decomposing the changes in crude oil price into the influences of structural shocks. More specifically, Lutz Kilian's identification strategy (Kilian 2009, Kilian and Lee 2014) is used to calculate three structural shocks behind oil price fluctuations, namely oil supply shocks, global demand shocks, and oil-market specific price shocks. These three structural shock series are used to investigate how oil price affects the capital inflows to EMEs.

III-1. Estimation of Structural Shock behind Oil Price Fluctuation

Kilian (2009) estimated the VAR model using monthly data of three variables $Z_t = (z_t^{prod}, z_t^{rea}, z_t^{rpo})'$ where z_t^{prod} is the growth rate of global oil production, z_t^{rea} is the index of global real economic activity, z_t^{rpo} is the real oil price. He makes identification assumptions that the residuals from the equations in VAR system e_t are related with three structural shocks, namely oil supply shocks $\epsilon_t^{osupply}$, global demand shocks ϵ_t^{demand}, oil market specific price fluctuations ϵ_t^{oprice} in the following manner:

$$A_0 Z_t = \alpha + \sum_{i=1}^{12} A_i Z_{t-i} + \epsilon_t$$

$$e_t = A_0^{-1} \epsilon_t$$

$$\begin{pmatrix} e_t^{prod} \\ e_t^{rea} \\ e_t^{rpo} \end{pmatrix} = \begin{bmatrix} a_{11} & 0 & 0 \\ a_{21} & a_{22} & 0 \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \begin{pmatrix} \epsilon_t^{osupply} \\ \epsilon_t^{demand} \\ \epsilon_t^{oprice} \end{pmatrix}$$

Kilian's identification strategy implies that (i) the oil supply shock is not affected by the other two structural shocks in the same month, (ii) the global demand shock is affected by the oil supply shock within the same month, but it is not affected by the price fluctuation shock specific to the crude oil market, (iii) oil market specific price fluctuations are affected by the other two shocks. Therefore, oil market specific price fluctuations ϵ_t^{oprice} here are actually the residuals which cannot be explained by the other two shocks. Kilian himself provides a very careful interpretation about ϵ_t^{oprice}, but it should be considered as a speculative component of oil price fluctuations.

The data used in estimating VAR includes the index of global real economic activity (obtained from Lutz Kilian's web page), global oil production (from the web page of US Energy Information Administration), and IMF's oil price index discussed in Section II. Since IMF's crude oil price data can only go back to 1980, we first estimate the 12-month lag VAR using the monthly data from 1980. The estimated VAR system is used to tabulate the monthly series of structure shocks employing Kilian's identification strategy. Then we perform historical decomposition to break down crude oil price fluctuation into three structural shock factors. Finally, by taking a three-month average, the quarterly data of three structural components of oil price fluctuation ($Osupply_t$, $Demand_t$, $Oprice_t$) are calculated.

Figure 1 plots oil price movement from the first quarter of 1990 to the second quarter of 2017. Figure 2 is three components of crude oil price's fluctuation caused by structural shocks. Since the baseline predicted value is not included in Figure 2, the sum of three components does not exactly match to the original crude oil price series. But, the bar graph in Figure 2 is almost equal to the crude oil price in Figure 1. Since the correlation between two series is 0.998, we ignore the difference between these two series in the following discus-

Figure 1. Oil Price Fluctuations

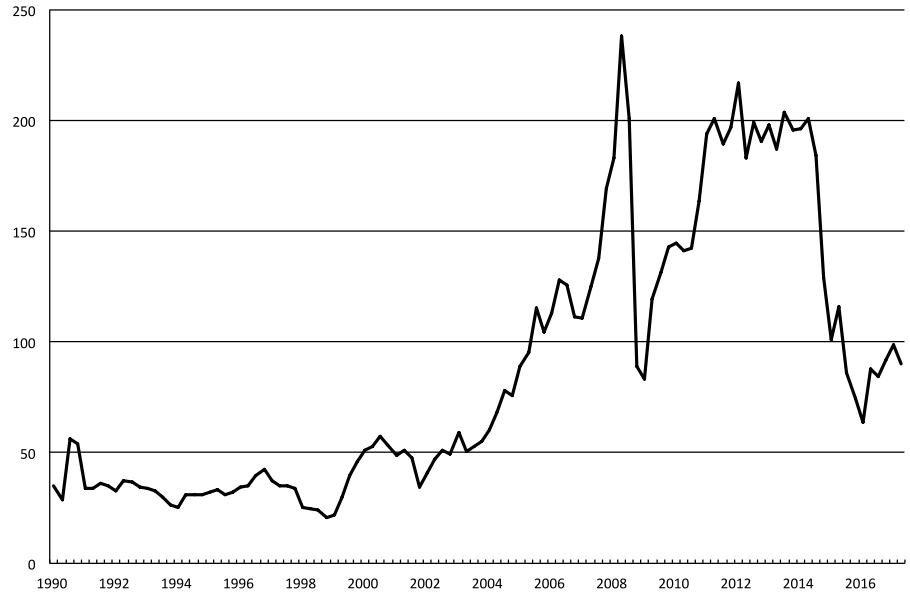
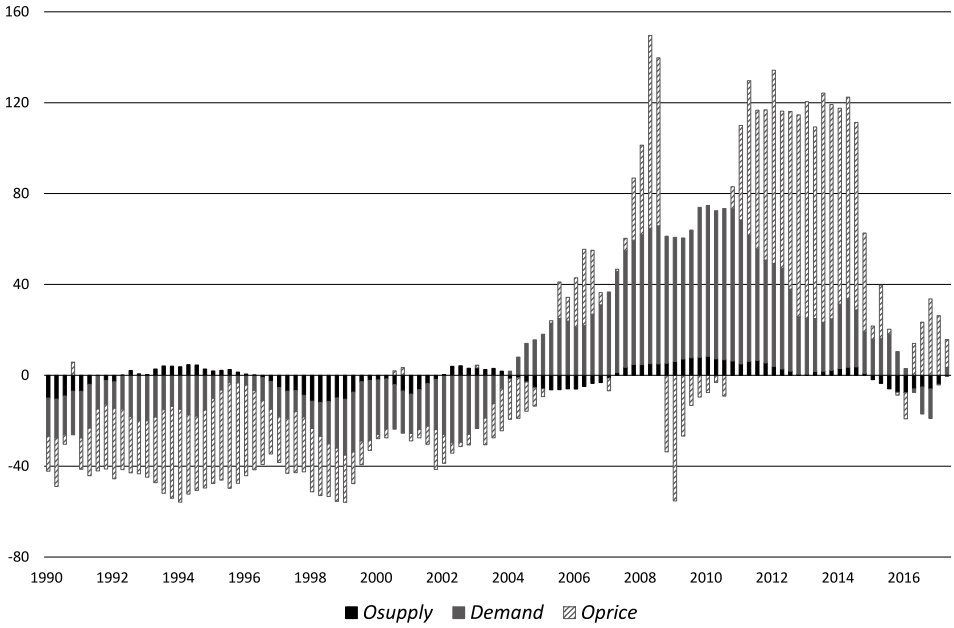


Figure 2. Historical Decomposition of Oil Price Fluctuations



sion.

From the results of the historical decomposition in Figure 2, several points should be noted about the fluctuation of the oil price since the 1990s. First, the quantitative impact of supply-side factors is extremely limited throughout this sample period. This is not surprising because our sample period does not include the historical episodes of large oil price movements caused by supply-side factors such as First and Second Oil Shocks. Second, global demand factors have continuously and positively influenced crude oil price for the decade from 2004 to 2014. Third, since the middle of the 2000s, the influence of oil-market specific price shocks to the crude oil price has grown. In particular, from around 2005 to right before the onset of US financial crisis in the fall of 2008, oil-market specific price shocks cause a sharp increase in the rise of crude oil price. During the period immediately after the collapse of Lehman Brothers, they create a strong negative impact. Then, for the three-year period from 2011 to 2014, the demand factor affects oil prices positively, and causing a significant increase.

The larger role of $Oprice_t$ in oil price fluctuation in recent years can be considered as a result of the "financialization" of energy prices. However, as argued above, what we call "oil-market specific price shocks" are basically residuals that cannot be explained by other structural shocks, so that we have to be very careful about the interpretation of this series.

III-2. Structural Shocks and International Capital Flows in EMEs: Panel Data

We decompose the crude oil price into three components related to corresponding struc-

tural shocks in section III-1 and use them to estimate the equation for capital inflows using the panel data of emerging countries (equation (3)). The results are shown in the second column of Table 1 (*historical*). Since the sum of three structural shock series is equal to the crude oil price by construction, if the decomposition does not have a significant economic meaning, the performance of the estimation results in the first row and in the second row of Table 1 will not be different. In fact, R^2 of both panel estimates are the same at 0.26.

On the other hand, examining the effects of the three structural shock factors separately, we find some interesting results. The global demand shock and the oil market specific price shock clearly have positive influences on the inflow of capital into emerging countries at the 5% and 1% level, respectively, while the influence of crude oil supply shock is totally insignificant. Estimation results using individual country data in section II-2 suggest that oil price increase actually induces capital inflows to EMEs and the panel estimation using structural shocks confirm this point.

Supply shocks have no impact on EMEs' capital inflow. However, as discussed in section III-1, there is no significant event of oil price change due to supply shock in our sample period. If we extend the sample period dating back to the entire 1970s or if there is a large supply shock happening in the future, estimation result might be different from the one presented here.

III-3. Structural Shocks and International Capital Flows in EMEs: Individual Countries

The results of estimating the capital inflows to EMEs using individual country data and three structural shock are shown in the second columns of Table 2.

Among counties in Group 1, for Colombia, there is no clear improvement by using three structural shocks instead of oil prices (R^2 increase: $0.57 \rightarrow 0.58$). Among the three structural shock shocks, the effect of supply shocks on capital inflow is insignificant. On the other hand, both global demand shocks and oil market specific price shocks have significant positive impacts. In the estimation results for Mexico, demand shocks negatively affect capital inflow and oil market specific price shocks positively affect capital inflow. Though both effects are statistically significant, Mexico's R^2 is still extremely low so that it is rather difficult to draw any clear conclusion from the results here. For the three countries in Group 2 that are producing crude oil domestically, but also importing oil time to time, no improvement is observed by using three structural shock shocks. Also, the coefficients of structural shocks are statistically insignificant except for demand shocks in the equation for Brazil being significant at the 10% level.

For Group 3, which is heavily dependent on oil imports, clear improvements of performance are observed. R^2s of the equations for Chile and for South Africa have increased by 10 percentage points and 5 percentage points, respectively. For Chile, only oil market specific price shocks have significant influence on capital inflow, while the other two shocks are insignificant. For South Africa, while supply shocks affect negatively the economy, the de-

mand shocks and oil market specific price shocks have positive and statistically significant influences. For Turkey, the performance improvement by using three structural shocks is fairly limited. But, like the case of Colombia, demand shocks and oil market specific price shocks have statistically significant and positive influences. Finally, for Thailand, oil market specific price shocks have negative impact on capital inflow. However, as discussed in section II-2, it is very likely that there is a structural change in net capital inflow to Thailand, in the latter half of the 1990s when the Asian currency crisis hit. So, providing a sensible economic interpretation to the estimation result for Thailand is rather difficult.

The main conclusions from the analyses of individual country data are as follows. First, as in the estimation results for individual countries using oil price itself as an explanatory variable, there is significant heterogeneity in the estimation results using the structural shocks. Second, among the three structural shocks, only global demand shocks and oil market specific price shocks have statistically significant effects to capital inflows to emerging countries. Third, it is rather surprising to find that the latter have more significant impact on capital inflows to net oil importers rather than oil exporters. Therefore, the mechanism by which crude oil price influences capital inflows of emerging countries must be quite different from that assumed in Clark et. al. (2016).

IV. Conclusion

In this paper, we analyze the influence of oil prices on international capital flows in emerging market economies (EMEs), by decomposing the fluctuations of oil price to the components causes by structural shocks. We employ Lutz Kilian's identification strategy to obtain three structural shocks series, namely supply shocks, global demand shocks, and oil market specific price shocks. For the sample in this paper, while the influence of supply shocks has been extremely limited, the influences of demand shocks and oil market specific price shocks play much greater roles. Estimation results using individual country data reveal that oil market specific price shocks positively affect capital inflows to oil importing EMEs, but to oil exporting EMEs. This is a very different conclusion compared with the discussion in previous studies which presume oil prices have a positive correlation with capital inflows because many EMEs are oil exporters.

The consensus of existing literature on recent behavior of oil prices is that the demand factor has been a major force behind the increasing trend of oil price since the early 2000s (Kilian and Lee 2014; Juvenal and Petrella 2015), though speculative components are also important in explaining sharp appreciation and decline in the period surrounding the global financial crisis in 2008 (Singleton 2014). The decomposition of oil price in this paper employs the empirical framework of Kilian, so our conclusion on oil price movement is inevitably the same as Kilian's. However, the result that speculative components in oil prices, or "oil market specific price shocks" in our terminology, positively affect the capital inflow into emerging countries, particularly the inflows to oil importers, instead of oil exporters are new findings.

If we accept the interpretation that the increased role of oil market specific price shocks since the middle of the 2000s is the evidence of the "financialization" of crude oil prices, the results of this paper suggest there is a strong tie between "financialization" and capital inflows to EMEs. By saying "strong ties", we simply imply a contemporaneous positive correlation, not a causality relationship. In future research, a concrete mechanism or behaviors of investors producing such positive correlation should be investigated.

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