Determinants of Foreign Capital Inflows:[*]

Evidence from Resource-Rich Countries

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【Abstract】

Many studies have shown that natural-resource abundant economies tend to grow at a slower pace despite the potentially beneficial impact of natural resource wealth on economic prosperity (the "natural resource curse"). The recent boom in commodity prices has brought about the increase in foreign capital inflows into resource-rich countries, which might amplify the business cycle fluctuations.

This study investigates the determinants of the foreign capital flows into resource-rich countries, focusing on the effect of institutional quality and soundness of macroeconomic policies. This paper shows that progress of democratization promotes the acceptance of FDI in resource-rich countries with a high income level but cause withdrawal of foreign companies in low-income resource-rich countries. This paper also shows that the prevalence of corruption facilitates FDI in low-income resource-rich countries while reduction of corruption brings about increased FDI in high-income resource-rich countries. The progress of democratization might result in reduced FDI if dictatorship administration allows more room for collusion with foreign-based companies, or if progress of democratization makes the checking system more complex to improve the transparency.

As for the effect of foreign exchange regime, it is verified that countries allowing foreign exchange rate flexibility and those with parallel foreign exchange practices decrease FDI and receive more capital inflow aiming at capital gain from the appreciated currency.

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1. Introduction

Recent studies have shown that natural-resource abundant economies tend to grow at a slower pace despite the potentially beneficial impact of natural resource wealth on economic prosperity (Sachs and Warner (1995), Papyrakis and Gerlagh (2003), Murshed (2004), etc.). van der Ploeg (2006) surveys the literature on the "natural resource curse", and discusses the various economic and political elements put forward to explain the often disappointing experiences of resource-rich economies, such as the Dutch disease, volatile world commodity prices, etc. Among several focuses, van der Ploeg (2006) particularly stresses the effect of institutional quality on economic growth.

The recent boom in commodity prices has brought about the increase in foreign capital inflows into resource-rich countries. In the research area of cross-border capital flows, institutional quality is one of the highlighted research issues. Many resource-rich countries have been in a vulnerable economic state in boom-bust commodity price cycles. Whether the ebb and flow of foreign capital inflows caused by commodity prices cycles might amplify the business cycle fluctuations has to be examined to obtain a better understanding of vulnerability of resource-rich counties.

This paper investigates determinants of foreign capital inflows for resource-rich countries. In particular, the effect of institutional quality on foreign capital inflows has been put in focus.

The effects of capital inflow on the economic development of developing countries include not only the total amount of capital inflow, but also the compositions of such inflow. Foreign direct investment (FDI), for instance, is more likely than speculative short-term debt to help stabilize the economic growth of the country accepting the capital. Unlike short-term loans, capital inflow through FDI is not a type of funding for which immediate withdrawal would occur in quick response to changes in economic emergency. Because of this, dependence on FDI contributes to establishing a robust economy which resists speculative attacks. FDI furthermore leads to the accumulation of tangible as well as intangible assets through transfer of production technology and management expertise, and entry to trade networks, etc. This is expected to contribute strongly to improvement of productivity in the domestic economy. Conversely, the higher the weight of short-term foreign capital inflows, the more vulnerable it is to a crisis.[1]

Existing studies of foreign capital inflow include, first, those of Calvo, Leiderman and Reinhart (1993), Jeanneau and Micu (2002), and Ferrucci, Herzberg, Soussa and Taylor (2004), which adopted a push-pull approach distinguishing between the external (push) and internal/regional (pull) fundamentals. External factors are those deemed to be outside the control of a borrowing country such as lenders' GDP cycle, global equity returns, etc. In some cases, the degree of international

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[1] Surveys of the relations between the abolition of capital regulations and economic growth include those of Prasad and Rajan (2008) and Obstfeld (2009).

liquidity and the level of risk aversion of investors are examined as push factors.[23] Internal factors are those specific to debtor countries, including local economic growth, local financial asset returns and price stability.

The composition of capital inflow is thought to be related to not only fundamentals but also policies and institutional quality. Montiel and Reinhart (1999) find that the composition of capital flows, not the volume of short-term and portfolio inflows, is altered by capital controls. They also reveal that the speculative capital inflow might conceivably increase under a floating exchange regime, while countries in which exchange rates are more stable are therefore expected to show larger growth in FDI, which is unlikely to be withdrawn in response to changes in economic conditions. Carlson and Hernandez (2002) reported countries that adopt floating exchange rates tend to attract a higher share of their inflows in short-term debt, while countries with fixed exchange rates tend to attract more FDI. Ahmed, Arezki and Funke (2005) also suggest exchange rate volatility deters FDI, while they find that changes in capital controls are expected to have an impact on both the volume and composition of capital inflows, in contrast to Montiel and Reinhart (1999).

According to the impossible trinity, the deregulation of capital controls while maintaining a fixed exchange regime would result in abandoning monetary-policy autonomy or aggravated speculative attacks leading to currency crisis. The possibility that liberalization of international capital transactions induces a financial crisis as a result of a sharp increase in the capital inflow that causes increased domestic demand, soaring asset prices, and larger debts has been pointed out in the past (McKinnon and Pill (1996), etc.). Resource-rich countries carry the risk of a financial crisis as a result of a resource boom and its collapse. The extent of the effect of this is presumably related to how open the capital market is and how flexibly the exchange rates are allowed to move. When a resource boom encourages the flow of foreign capital into the resource-rich country, an attempt to maintain a fixed exchange rate would involve a foreign exchange intervention. If sterilization of the intervention is incomplete, then the foreign capital inflow might engender an increase in the domestic liquidity and asset price bubbles that can amplify the business cycle fluctuations.[4] It has been long pointed out that the Dutch Disease, a phenomenon in which overvaluation of a

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[2] Other factors such as international liquidity may have influenced the acceptance of foreign capital by resource-exporting countries. This will be a subject of future analyses. Ohno (2008) verified the effects of international liquidity on stock markets and foreign exchange markets in Asia and the U.S.

[3] Stabilization of commodity prices and foreign exchange rates is related to the soundness of the macroeconomic policy of the countries accepting the capital and, in some cases, is included in the subjects of analysis as a pull factor. Stability of commodity prices and foreign exchange rates can also be the proxy variables of governance infrastructure described later.

[4] Rodrik (2008) presented the relations between currency undervaluation and economic growth and suggested the possibility of economic growth through export promotion measures. Exchange rates manipulation by countries having an extremely large amount of foreign-currency reserves such as China and oil-producing countries is sometimes criticized; however, abolition of capital regulations while controlling the exchange fluctuations might result in a loss of monetary policy autonomy and hinder stabilization of the domestic economy.

resource-rich country's currency causes the manufacturing sector to lose competitiveness, might occur when the country employs a floating exchange rate regime and a rise in resource prices brings about a speculative capital flow into the country.

A growing number of literature in recent years has paid attention to the effect of institution quality on cross-border capital flows. Alfaro, Kalemlin-Ozcan and Volosovych (2008) show that institutional quality is the leading causal variable explaining the Lucas Paradox, discussed in Lucas (1990) which focuses on the puzzle that capital does not flow from developed countries to developing countries, as opposed to classical economic theory. Globerman and Shapiro (2002) reveal that governance infrastructure as well as human capital and environmental stability is an important determinant of both FDI inflows and outflows. In response to China's acceptance of a large amount of foreign direct investment, Fan, Morck, Xu and Yeung (2009) examined the effects of governance factors on foreign direct investment. They reported that, although development of legal systems would contribute to an increase in the acceptance of FDI, no results had indicated that reduction of corruption would contribute to an increase in the acceptance of FDI. Meanwhile, Ahmed, Arezki and Funke (2005) obtained the result that building a legal system would facilitate the increase in inflow of not only FDI but also securities investment. Wei and Wu (2001) find that poor public governance is associated with a higher loan-to-FDI ratio which has been identified as being associated with a higher incidence of a currency crisis.

Some resource-rich countries have a high rate of accepting capital through short-term funding. This might be related to factors such as underdeveloped legal systems for economic trade and inadequate domestic governance infrastructure. Inadequacy in the political mechanism of checking resource income would prevent appropriate allocation of resource rents. In contrast, as pointed out by Manzano and Rigobon (2001), Talvi and Vegh (2000), Collier (2007) and others, fiscal expenditures that increase during a resource price boom might cause debt-overhang problem due to a successive fall in prices leading to economic stagnation.

Collier (2009) states that although democracy was adopted in many developing countries, the situation might be aggravated due to a lack of accountability and immature democracy. Several countries introducing democratization are included also in the sample analyzed in this study.

This study will investigate the determinants of the foreign capital flows into resource-rich countries. Determinants of foreign capital inflow to be considered include not only fundamentals but also policy variables and indicators of institutional quality. The forms of foreign capital flowing into resource-rich countries include FDI such as acquisition of the rights of management of resource-related companies through share purchase and acquisition of interests in oil fields and mines, and providing loans to resource-related companies. This study analyzes the factors affecting each type of foreign capital. Because a resource boom tends to encourage the economic growth of the resource-rich countries, foreign capital might flow not only into the resource sector, but into

some other sectors as well. This study therefore addresses the entire inflow of foreign capital of the resource-rich countries in its analyses.

This article is structured as follows: Chapter 2 provides an overview of the current conditions of the resource-exporting countries. Chapter 3 describes the data and the method of analysis, and Chapter 4 presents the results of the empirical analysis. Subsequently, the final section states the conclusions.

2. Data

Data used in this study is collected from IMF, *International Financial Statistics* (*IFS*), the World Bank, *World Development Indicators* (*WDI*), WTO, *International Trade Statistics*, Thomson Reuter, *Datastream*, and ISI Emerging Markets, *CEIC Global Database*. As indicators of political risks, *Polity IV Project: Political Regime Characteristics and Transitions* and the PRS Group's *International Country Risk Guide (ICRG)* will be used. The period of estimation is 1985–2007, of which annual data will be used. A commodity-rich country in this study is defined as a country whose average share of commodity-related product exports relative to total exports for the period from 1980 to 2008 is more than 10%. The countries to be analyzed include Algeria, Angola, Argentina, Armenia, Australia, Azerbaijan, Bahrain, Bolivia, Botswana, Brazil, Brunei, Bulgaria, Cameroon, Canada, Chile, Colombia, the Democratic Republic of the Congo, the Republic of the Congo, Côte d'Ivoire, Croatia, Ecuador, Egypt, Gabon, Georgia, Greece, Guinea, Indonesia, Iran, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kuwait, Kyrgyzstan, Libya, Macedonia, Malaysia, Mexico, Mongolia, Morocco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Papua New Guinea, Peru, Poland, Qatar, Romania, Russia, Saudi Arabia, Senegal, Sierra Leone, South Africa, Sudan, Suriname, Syria, Tadzhikistan, Togo, Trinidad and Tobago, Tunisia, Turkmenistan, Ukraine, the U.A.E., Venezuela, Vietnam, Yemen, Zambia, and Zimbabwe. Because, however, the variables used for the estimation are not available for all of these countries, the sample sizes of the cross-sections vary depending on the number of explanatory variables added to the estimation. The data availability also differs among countries, making the panel analysis unbalanced.

This study will identify what factors affect the flow of foreign capital into resource-rich countries. Many countries to be analyzed have a small proportion of capital accepted through securities investment. The analysis in this study therefore uses data on FDI and *other investment* (OI) from IMF's *Balance of Payments Statistics*. The countries examined in the analyses include those with a mono-cultural economy dominated more than 90% by resource exports and others whose key industry has shifted from the resource sector to the manufacturing sector through the process of economic development.

Although the IMF's *Balance of Payments Statistics* do not provide data on capital inflow by industry, data on sectoral FDI for some countries is obtainable from *CEIC*. Accordingly, this study

uses data on FDI and OI for all sectors obtained from the IMF's *Balance of Payments Statistics* and the data on FDI in the commodity sector extracted from *CEIC*. The foreign capital inflow is the amount obtained by subtracting the portion of the assets of a resource-rich country sold by nonresidents from the assets acquired by nonresidents. OI include trade credit, loans, deposits, and other financial transactions. In most countries, loans constitute a large part of *other investment*. This study has used the data on the short-term transactions of *other investment* to determine whether a tendency exists by which speculative capital inflows increase in countries whose governance infrastructure is immature and exchange rate flexibility is allowed.

The study employs the following factors as the determinants of foreign capital flow into resource-rich countries. First, the real GDP growth rates of the countries analyzed and the world will be used. An increase in the real GDP growth rate of the countries analyzed results in a rise in the demand for borrowing in those countries, and future economic growth and reduced risk of default can be expected, thereby most likely adding the capital provided to these countries.[5] Higher world economic growth is also expected to bring more foreign capital into the resource-rich countries by raising the demand for resources. Furthermore, this study uses the growth rate of an international commodity price index as a world factor. The S&P-GSCI Commodity Index was selected for use as the international commodity price index.[6] An increase in international commodity prices is also expected to promote a larger capital flow into resource-rich countries. Correlation between the growth rate of world real GDP and that of the international commodity price index is high and might cause problems of multicollinearity. Therefore, either one of them has been selected as the world factor to be used for the estimation.

Countries with abundant natural resources can be a prospective field of investment for foreign resource companies and foreign financial institutions. The incentives for foreign-based companies to invest in resource development in resource-rich countries are to acquire resources for their own

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[5] Whereas Fan, Morck, Xu and Yeung (2008) used the real GDP growth rate per capita, income disparities in some resource-rich countries are large and a considerable part of the population remains most impoverished despite a high level of economic growth brought about by resource booms. This study has adopted the real GDP growth rate rather than the real GDP growth rate per capita to investigate whether foreign capital will be invested in countries whose economy is growing even with the presence of income disparities. Estimation using the real GDP growth rate per capita, however, tended to produce similar results.

[6] S&P-GSCI Commodity Index is a composite price index of a variety of energy products and mineral products. Although some of the prices of the products included in the index reveal to be highly correlated, other products do not necessarily show a high correlation. For instance, the coefficient of correlation between the international prices of gold and silver measured in terms of month-on-month rate of change was 0.68, although the coefficient of correlation between the international prices of energy products and silver was approximately 0.2. In some countries among the subjects of the analysis, the percentage of export of a single resource product is higher than 90%. In some other resource-exporting countries, on the other hand, the amounts of several minerals mined rank high in the world. In the case of the latter, the international prices of multiple products must be added to the explanatory variables; however, no data on the percentage of export of each product are available. Consequently, this study has used a comprehensive index of commodities.

countries and to sell resources in global marketplaces. In this connection, this study uses the percentages of export of resource-related products based on data obtained from the WTO's *International Trade Statistics*.[78]

As an indicator of the soundness of macroeconomic policies of resource-rich countries, the study uses the standard deviation of the changes in the CPI. As indicators of foreign exchange volatility, the study uses the standard deviation of the rate of changes in US dollar-to-yen exchange rates and the Reinhart and Rogoff's (2004) re-classification of historical exchange rate arrangements.[9] Investors most likely include residents in the euro and yen zones in addition to those in the US dollar zone, and euro-denominated foreign capital is likely to be accepted largely in, for example, North African countries including the former CFA franc zone. The correlation between the standard deviation of the rate of changes in US dollar-to-yen exchange rate and that of the euro-to-yen exchange rate is extremely high, however, causing the problem of multicollinearity. This study therefore incorporates the indicator of the foreign exchange regime of Reinhart and Rogoff (2004).[10] This indicator is designed such that the larger the number of the indicator, the more acceptable the exchange fluctuation is which the value 15 indicates the prevalence of multiple exchange rates (see Table 1). Reinhart and Rogoff (2003) pointed out that amount of FDI in Sub-Saharan African countries is extremely small in comparison to that in other regions, reflecting higher probability of hyperinflation and currency crashes than in other emerging countries. It also states that many countries in the region are in the state dual and multiple exchange rate practices are in place, which is attributable to a high probability of war and the prevalence of corruption. In this study, the effect of the parallel exchange rate practices is separated using a dummy variable.

This study also uses indicators of market openness and financial development. The situations of capital controls implemented in each country can be learned from the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) issued by the IMF. Examples of an analysis

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[7] The production data of the resource sector include, for instance, GDP statistics and production indices. The countries for which GDP statistics by industry are available, however, are few. Regarding production indices, although energy data are available for many countries in the analysis, data for the production indices for all resources including minerals and other resources are available only for a limited number of countries.

[8] Sakaguchi (2010), Sato (2010), and Horii (2010) respectively provided overviews of the oil policies of Venezuela, Indonesia, and China. All of these countries are facing the necessity of developing new oil fields with poor development conditions attributable to a decrease in the recoverable reserves of the existing major oil fields. Under such circumstances, the types of policies that the government adopts to attract foreign capital are likely to affect foreign direct investment in the resource sector to a considerable degree. Investigation by using data of the estimated amount of national resource deposits, if the fully reliable data is available for countries to be analyzed, should be implemented to check robustness.

[9] Although the official exchange system of each country has been reported by the IMF, the *de-jure* exchange regime and *de-facto* exchange regime differ, which has been pointed out in the past. Indicators of the de-facto exchange arrangements proposed by Reinhart and Rogoff (2004) can be downloaded from Reinhart and Ilzetzki (2009).

[10] Effective exchange rate is not usable because of unabailability of publicly released data for many countries to be analyzed.

that has used a dummy variable of market openness based on AREAER include Grill and Milesi-Ferretti (1995).[11] This dichotomous measure of capital controls, however, cannot measure the intensity of capital controls. Any removal of restrictions on current account transactions and the requirement of the surrender of export proceeds implemented in advance would reduce the effectiveness of capital controls despite their continuity. Consequently, this study uses KAOPEN, the indicator of market openness proposed by Chinn and Ito (2008), which measures the extent and intensity of capital controls.

As an indicator of the level of financial market development, this study uses the amount of lending in the private sector as a percentage of GDP. Presence of a developed financial market in the resource-rich countries helps foreign investors seize their investment opportunities more efficiently, conceivably promoting foreign capital inflow. However, the availability of a developed domestic financial market might cause a decline in the reliance on foreign capital, particularly in those countries with excess savings. This study will review the effects of domestic credit as a percentage of GDP on foreign capital inflow to determine which scenario is supported.[12] Although potential indicators of the financial market development include market capitalization and stock trading volume aside from domestic credit, the domestic credit as a percentage of GDP has been adopted because many countries analyzed in this study lack a developed securities market and the data availability is limited.

The following variables are used as the factors of governance infrastructure. First, the Polity IV database is used as an indicator of democratization. Collier and Rohner (2008) investigated the relation between the progress of democratization and political turmoil such as riots, assassinations and coups d'état and reported that a nonlinear relation exists between democratization and political risks, in which the direct effect of democratization worsens the situation, once the income level has risen, democratization has the effect of restraining political turmoil. As in Collier and Rohner (2008), this study selects the item called Polity 2 in Polity IV and examines what effects the progress of democratization has on capital flows into resource-rich countries. Another indicator of democratization called "democratic accountability" is available from the PRS Group's International Country Risk Guide (ICRG). Other items in the ICRG "called investment profile" and "corruption" will also be used. Investment Profile is presumably an assessment of factors affecting the risk to

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[11] In addition, interest parity and ICAPM can also be used for an analysis of market openness. Even if the validity of the interest parity or international asset price determination model is rejected, however, whether the cause is the closedness of the market or misspecification of the background theory setting cannot be identified.

[12] The level of the financial market development should be measured based on whether an exhaustive financial supervisory is implemented, whether financial institutions maintain sophisticated risk management systems, or the competitiveness of financial services, rather than domestic credit or money supply as a percentage of GDP; however, no data exist that can be used for empirical analyses. This study, therefore, has used the amount of fund brokerage in terms of the size of the real economy as the indicator of the level of maturity of the financial market.

investment, such as contract viability, expropriation, profits repatriation and payment delays; the higher the value, the better the investment environment. "Corruption" is an indicator of collusion between the public and private sectors such as favoritism to people with personal connections and unclear political donations from companies. The analyses of foreign capital inflow performed using the ICRG indicator of governance infrastructure include those presented by Ahmed, Arezki and Funke (2005), Nabamita and Sanjukta (2010), and Fan, Morck, Xu and Yeung (2009).

Sakaguchi (2010) gives a general description of the petroleum policy of Venezuela and states that the dictatorship government granted concessions to foreign petroleum companies in a near freehand manner. Therefore, there was a clear picture in which the dictatorship government and the foreign petroleum companies colluded and exclusively shared the petroleum income. Resource-exporting countries other than Venezuela, whose government relies largely on resources for its income, might be in a similar situation. Meanwhile, President Chávez, who took office in 1999, implemented a strong resource nationalism policy. Subsequent investment activities in the petroleum sector, however, have been sluggish. Considering that the percentage of export of resource-related commodities of Venezuela has been approximately 90% and FDI and export are closely related, a significant portion of FDI in Venezuela is likely to be invested in the resource sector. As indicated in figure 1, however, foreign direct investment in Venezuela has declined substantially since 2000.[13] Democratization of Venezuela has been slow, as evident both in Polity IV and Democratic Accountability of ICRG. Assuming the case of Venezuela after the inauguration of President Chávez, a slowdown of democratization results in a decrease in FDI.

Sato (2010) describes the progress of democratization and a shift to a market economy in Indonesia after the collapse of the Suharto administration and states that complex checking functions were demanded to improve the transparency of the governance system. The cost of negotiations with the government incurred by companies grew substantially. Data on FDI in the resource sector of Indonesia were available only for the period after the Asian financial crisis, which prevents a comparison with the period prior to the collapse of the Suharto administration. The year-on-year growth of FDI in the resource sector was approximately 21%, on average, during 1998–2009, which is nearly equivalent to the year-on-year growth of approximately 22% in the total amount of FDI. According to Sato (2010), the investors in the petroleum sector have shifted from major international companies to those such as petroleum companies of China.

Figure 2 indicates a substantial increase in the FDI in Sudan since around 2003. Although there is no sectoral FDI data available for Sudan, a large part of total FDI is highly likely to be made in the resource sector, considering that the percentage of export in the resource-related sector in Sudan has been approximately 80%. Meanwhile, the progress of democratization in Sudan, where Chinese

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[13] Meanwhile, the capital inflow through Other Investments rose sharply in 2007. According to the description of Sakaguchi (2010), this is likely a result of borrowing from overseas financial institutions by state-owned Petróleos de Venezuela, S.A.

petroleum companies are making active investments, is not clear. Polity IV and ICRG suggest different conditions of Sudan's democratization since 2003 (Graph 18).[141516]

The discussion presented up to this point suggests that the effect of progress of democratization on FDI might be both positive and negative. The progress of democratization might result in reduced FDI if dictatorship administration allows more room for collusion with foreign-based companies, or if progress of democratization makes the checking system more complex to improve the transparency. Conversely, if the environment for fair trade resulting from the progress of democratization and shift to a market economy is perceived positively by foreign-based companies, then the progress of democratization might engender increased FDI. Based on data for the countries listed above, this study examines which effect, positive or negative, tends to surpass the other. Considering that the effects of democratization on FDI might be related to the income level of the resource-rich countries, the effects on foreign capital inflow will be investigated in combination with the compound effects of democratization and income level. Furthermore, the effects of the progress of democratization on foreign capital inflow might partially reflect the effects of corruption in resource-rich countries. Consequently, an analysis using an indicator of corruption in place of the indicator of democratization will also be performed, and the compound effects of corruption and income level will also be examined. The investment environment including the preservation of property rights will also be added the investigation of the effects on foreign capital inflow. As for the case of FDI, the effects of the governance infrastructure factors on the inflow of short-term capital will also be analyzed.

3. Method of analysis

This study assumes the following estimation formula.

$$INFLOW_{i,t} = b_{i,0} + b_{i,1}\ LGROWTH_{i,t\text{-}1} + b_{i,2}\ EXCOM_{i,t\text{-}1} + b_{i,3}\ WORLD_{t\text{-}1}$$
$$+ b_{i,4}\ CREDIT_{i,t\text{-}1} + b_{i,5}\ PRICE_{i,t\text{-}1} + b_{i,6}\ FX_{i,t\text{-}1} \qquad (1)$$
$$+ b_{i,7}\ KAOPEN_{i,t\text{-}1} + b_{i,8}\ POLITCS_{i,t\text{-}1} + v_{i,t}$$

In the above, $INFLOW_{i,t}$ is the variable of foreign capital flow into the i-th resource-rich country in the year t. This study uses the FDI in resources per capita, the total FDI per capita, and the

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[14] Polity IV is designed to have 10 as the maximum value and -10 as the minimum value, and the Democratic Accountability of ICRG is designed to have 6 as the maximum value and 0 as the minimum value. In both cases, the larger the value, the more progressed the democratization is.

[15] The Darfur conflict that intensified from around 2003 is an armed conflict between Sudanese government forces and militia organizations supported by the Sudanese government and anti-government forces. Oil income constituted 55.4% of all revenues of the Sudanese government in 2005. Such oil income may have been allocated to the military expenditures of the al-Bashir administration.

[16] In this way, indicators of democratization leave considerable room for subjective judgment and might be affected by a measurement error, which must be pointed out.

short-term loans (categories of Other Investments with maturity less than one year).[17,18] The resource sector does not include downstream sectors such as oil refining and sales, but is limited to the upstream sectors such as prospecting and mining.

In that equation, *LGROWTH* represents the real GDP growth rate of the countries to be analyzed and *EXCOM* the percentage of export of resource-related products. *WORLD* is a world factor. In this case, the real GDP growth rate of the world (*WGROWTH*) or the growth rate of the international commodity price index (*COMMODITY*) will be used. *CREDIT* signifies domestic credit in the private sector as a percentage of GDP, and *PRICE* denotes the standard deviation of the growth rate of consumer price index. *KAOPEN* represents the market openness index (KAOPEN) developed by Chinn and Ito (2008).

In addition, *FX* is the indicator of foreign exchange rate stability, which uses the standard deviation of the rate of changes in US dollar–yen exchange rates (*FXST*) or the index of the *de facto* exchange regime (*FXRR*) developed by Reinhart and Rogoff (2004). When the indicator of Reinhart and Rogoff (2004) is used, then a cross term with a dummy variable (*DUAL*), which is 1 in the case of a parallel exchange rate practice is added, and the following estimation formula is considered.

$$INFLOW_{i,t} = b_{i,0} + b_{i,1} \, LGROWTH_{i,t-1} + b_{i,2} \, EXCOM_{i,t-1} + b_{i,3} \, WORLD_{t-1}$$
$$+ b_{i,4} \, CREDIT_{i,t-1} + b_{i,5} \, PRICE_{i,t-1} + b_{i,6-1} \, FXRR_{i,t-1} + b_{i,6-2} \, FXRR_{i,t-1} \times DUAL_{i,t-1}$$
$$+ b_{i,7} \, KAOPEN_{i,t-1} + b_{i,8} \, POLITCS_{i,t-1} + v_{i,t} \quad (2)$$

POLITICS is an indicator of governance infrastructure, which uses Polity 2 (*POLITY*), ICRG's Democratic Accountability (*DEMO*), Corruption (*CORPT*), and Investment Profile (*INV*). In this case, estimation of two types, i.e., the case in which the governance infrastructure factor alone is added to the model, and the case in which and the case in which a cross term with GNI per capita is added to examine the relation with the income level, are performed. The estimation formula when a cross term with GNI per capita is added is the following.

$$INFLOW_{i,t} = b_{i,0} + b_{i,1} \, LGROWTH_{i,t-1} + b_{i,2} \, EXCOM_{i,t-1} + b_{i,3} \, WORLD_{t-1}$$
$$+ b_{i,4} \, CREDIT_{i,t-1} + b_{i,5} \, PRICE_{i,t-1} + b_{i,6} \, FX_{i,t-1} + b_{i,7} \, KAOPEN_{i,t-1}$$

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[17] The governments of some resource-rich countries are deeply involved in resource development. The resource businesses in these countries are run by public-service corporations, state-owned companies, or semi-governmental corporations. Accordingly, data that are categorized into "banks" and (not including the central bank and government) "other sectors" in IMF's Balance of Payments Statistics were included in Other Investments.

[18] Many of the existing studies on foreign capital inflow normalize the data on foreign capital inflow by dividing them according to GDP, not the population. Since the GDP growth rate is used as an explanatory variable, this study has used the population for the normalization. Fan, Morck, Xu, and Yeung (2009) has also used the population to normalize the data. Using data normalized by dividing by GDP, however, has produced equivalent results.

$$+ b_{i,8\text{-}1}\ POLITCS_{i,t\text{-}1} + b_{i,8\text{-}2}\ POLITCS_{i,t\text{-}1} \times GNI_{i,t\text{-}1} + v_{i,t} \qquad (3)$$

Finally, v represents a residual term.

The economic growth and growth in resource export of resource-rich countries are likely to increase the capital flow into these countries. Therefore, coefficients $b_{i,1}$ and $b_{i,2}$ are expected to have a positive sign. In addition, because global economic growth and an increase in international commodity prices are likely to increase the demand for resource development, coefficient $b_{i,3}$ is expected to have a positive sign.

CREDIT is an indicator of the financial market development. Simply put, given a larger the amount of deposits and loans at financial institutions in relation to the size of the real economy of a country, and greater reduction of the cost of investment, and higher *CREDIT*, then more foreign funds are expected to be accepted. In this case, the coefficient $b_{i,4}$ will have a positive sign. Conversely, if reliance on foreign funds declines attributable to adequate development of the domestic financial market, then the coefficient $b_{i,4}$ is likely to have a positive sign.

Not a few countries among those included in the analysis are experiencing hyperinflation. The inflation rate is used as an indicator of the soundness of macroeconomic policies. If an appropriate macroeconomic policy is implemented and commodity prices are stable, then the capital flow into this country is expected to increase, suggesting that coefficient $b_{i,5}$ will have a negative sign.

Whether in the case of using the standard deviation of US dollar-to-yen exchange rates or in the case of using the indicator of Reinhart and Rogoff (2004), the larger the value, the more unstable the foreign exchange rate is. The coefficient of exchange rate volatility might have either sign. Coefficient $b_{i,6}$ is expected to have a negative sign if the exchange risk is reduced by controlling the exchange rate and capital inflow increases. In contrast, if exchange fluctuations are permitted and capital inflow aiming for a capital gain from the appreciated currency increases, then the sign of the coefficient $b_{i,6}$ will be positive. The latter case is expected to induce an inflow of speculative funds and might increase short-term borrowings. If there is a parallel exchange practices and the official rate is set at a level that is cheaper (or more expensive) than the actual level, then speculative capital inflow (or capital outflow) might occur, and the coefficient $b_{i,6\text{-}2}$ in Equation (2) is predicted to be a positive (or negative) value.

The more open the market, the greater the foreign capital inflow is expected to be. The degree of regulation of the capital account might be linked to the degree of regulation of the current account balance or the degree of other regulations. In other words, progress of deregulation of the current account balance would affect capital transactions such as an expansion of trade credits, and the effectiveness of regulation is likely to be reduced despite the continuity of capital regulations. In fact, KAOPEN of Chinn and Ito (2008) was developed by incorporating market openness related to various items in addition to capital accounts. It is designed such that an increase in the market

12

openness would increase KAOPEN, and the expected sign of the coefficient $b_{i,7}$ is positive.

As POLITICS, this study uses Polity 2 of Polity IV and ICRG's Democratic Accountability, Corruption, and Investment Profile. Regarding the indicators of democratization and corruption, estimation of Equation (3) will also be performed. The coefficient $b_{i,8}$ in Equation (1) and (2) will be a positive (or negative) value if the progress of democratization (or dictatorship) increases the capital flow into resource-exporting countries. Alternatively, if corruption is prevalent and increasing collusion between the government and foreign-based companies seems probable, then coefficient $b_{i,8}$ will be a negative value. If, on the other hand, reduction of corruption promotes the entry of foreign companies, then coefficient $b_{i,8}$ will be a positive value. Coefficient $b_{i,8}$ might become a positive value if improvement of the investment environment encourages a capital flow into resource-rich countries. In the estimation of Equation (3), a dictatorial government would invite more foreign companies when the income level is low. The coefficient $b_{i,8-2}$ will most likely be a positive value if progress of democratization is accompanied by an increase in the foreign capital inflow. In the case of corruption, too, if its reduction facilitates the acceptance of foreign capital in a country with a high income level, then the coefficient $b_{i,8-2}$ will be a positive value. As suggested by Collier (2009), a higher income level presumably increases the availability of information about government expenditures and raises the interest and knowledge of the people concerning the government expenditures. Because of this, the inflow of foreign capital based on public–private collusion might decrease. In high-income countries however, a situation in which foreign companies without a long-term relation with the government or an information advantage have equal access to investment opportunities is more likely to encourage foreign capital inflow.

This study performs the analysis using panel data[19]. Because the analysis uses proxy variables such as governance infrastructure factors and market openness of which a measurement error can not be ignored, two-stage least squares (TSLS) will be applied in addition to ordinary least squares (OLS). The instrumental variables in the estimation based on TSLS include a linear lagged explanatory variable, a cross term of the linear lagged real GDP growth rate of the resource-exporting countries and an explanatory variable, the real GDP growth rate per capita, the growth rate of the commodity price index, the real production growth rate of the resource sector calculated from GDP statistics by industry, M2 as a percentage of GDP, the inflation rate, and a linear lagged term of the standard deviation of the rate of changes in euro-to-yen exchange rates, which are used in combination.

4. Empirical results

Firstly, the determinants of FDI in resource industry were investigated. Table 2-1 through table

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[19] In this case, the estimation is performed based on the fixed effects model using the result of the Hausman Test.

2-4 report the estimation results by adopting Polity 2 in Polity IV, ICRG's Democratic Accountability, Corruption and Investment Profile as a variable of *POLITICS*, respectively. We find, whichever indicator of governance infrastructure is used, the real GDP growth rate of a resource-rich country induces FDI into the resource sector.

When polity2 is adopted for *POLITICS*, the estimated coefficient $b_{i,8\text{-}1}$ shows a negative sign and coefficient $b_{i,8\text{-}2}$ are estimated positively. Those coefficients reveal statistical significance in column (6). These empirical results imply that the progress of democracy coupled with increased income induces FDI into the resource sectors, while an autocratic resource-rich country whose income level is low is more likely to receive FDI from foreign resource-related companies than a low-income resource-rich country with democratic regime.

Table 2-2 shows the empirical results when ICRG's Democratic Accountability is used instead of polity2. Coefficient $b_{i,8\text{-}1}$ and coefficient $b_{i,8\text{-}2}$ are statistically significant in all of the five tests, revealing that advancement of democracy conceivably promotes FDI in the resource sector in high-income resource-rich countries, but this is not a case when a resource-rich country remains to be poor. Assuming that progress of democracy leads to the introduction of market mechanism in natural resource businesses in resource-rich countries, those results suggest that a shift to a market economy in a low-income country doesn't stimulate FDI in the resource sector.

Table 2-3 is a result when Equation (3) is estimated by applying the indicator of corruption. As expected, coefficient $b_{i,8\text{-}1}$ and coefficient $b_{i,8\text{-}2}$ are estimated negatively and positively, respectively., and they are statistically significant for all tests. Those results indicate that eradication of corruption promotes FDI in the resource sector in a high-income resource-rich country, but it doesn't contribute to increase in FDI for a low-income resource-rich country. Considering the results shown in table 2-1 and table 2-3, it is suggested that corrupt resource-rich countries with a low income level are those where the inflow of foreign capital based on public–private collusion might be prevalent.

Table 2-4 reports results in using ICRG's Investment Profile. We can find that the improvement of investment environments promotes increases in FDI. We can also find that, whichever indicators are applied as a variable of *POLITICS*, the real GDP growth rate positively affect FDI in the resource sector, while the rest of the variables doesn't show any clear effects on FDI.

There is possibility that usage of sectoral FDI data, due to limitation of availability of data, prevents us from obtaining stable and credible empirical results. Data of FDI for all sectors might be useful, considering that foreign capitals were flowed into not only the resource sector but also any other sectors during the commodity boom when a resource-rich country as a whole is likely to enjoy the economic prosperity. Therefore, investigations by employing total amount of FDI across sectors are also implemented and reported in table 3.

The coefficient of *LGROWTH* is revealed to be positive but insignificant when using total FDI. Table 3 shows that the coefficient of *EXCOM* is positive and significant for all tests, implying that

the increase in commodity-related product exports promote FDI in resource-rich countries. The coefficient of the real GDP growth rate of the world economy is estimated positive for all tests and the statistical significance is confirmed a test indicated in column 12. The coefficient of the domestic credit relative to GDP and that of standard deviation of CPI satisfy a sign condition as well as a statistically significant condition, suggesting that a resource-rich country with developed financial market and macroeconomic stability receives more FDI. The coefficient of FXST shows positive value, and statistical significance when conducting tests shown in column (9) and column (11). When the indicator proposed by Reinhart and Rogoff (2004) is used, the coefficient of the cross term between *FXRI* and *DUAL* is estimated negatively, although the statistical significance doesn't be confirmed. What those results indicate are those that foreign exchange stability promotes FDI and that foreign companies tend to exit from a country where parallel exchange practices are prevalent. The coefficient of *KAOPEN* is positive for all tests and statistically significant for four tests. The presumption the openness contributes to increase in FDI is plausible.

As for the effect of governance infrastructure, the results obtained by using total FDI are strikingly similar with those by using sectoral FDI. In a case of a high-income resource-rich country, progress of democracy (and progress of market economy) and improvement of corruption conceivably leads to the increase in FDI. In a case of a low-income country, on the other hand, an autocratic resource-rich country where corruption is prevalent might receive more FDI. Improvement of investment environments, as shown in table 2, is likely to promote FDI.

Lastly, the empirical investigations by using data of Other Investments are conducted. The results are shown in table 4. Other Investment used in the analysis contains capital flows with maturity less than one year into private sectors

Compared with those in table 3, we can see that the adjusted R^2_s became smaller when Other Investments are the subject of investigation. Among explanatory variables, the effect of the real GDP growth rate of resource-rich countries is prominent, implying that the economic growth of those countries is a driving force for promoting short-term borrowing from the international financial market. It is also confirmed that the domestic credit as a ratio to GDP is relatively influential for short-term capital inflows. This infers two scenarios, however: the effect of financial market development, and the over-lending stimulated by the commodity boom.

The coefficient of standard deviation of US dollar is estimated positively, and that of a cross term between *FXRR* and *DUAL* shows positive value. When FDI is the subject of the investigation, the proposition that foreign exchange stability promotes foreign capital inflows is suggested. What the results shown in table 4 infers is that a country allowing foreign exchange flexibility, and a country with parallel foreign exchange practices tend to receive speculative short-term capital aiming for a capital gain from the appreciated currency.

As for the effects of governance infrastructure, it has been observed that the aggravated

corruption bring about short-term capital inflows. Although the synergistic effect between democratization and a income level is not verified, a tendency that democratization increases short-term capital inflow is confirmed.

5. Conclusion

The following summarizes the results of this study.

FDI, first, clearly reflects the effects of economic growth of the resource-rich countries. The results have indicated that an economic growth of the resource-rich countries increases FDI. The effects of economic fundamentals on FDI have produced results that are mostly consistent with the predictions. An increase in resource exports of resource-rich countries, the financial markets development, stabilization of prices and foreign exchange rates, promotion of market liberalization, and global economic growth have been proven to increase FDI. Meanwhile, in the analysis using FDI in the resource sector, the economic fundamentals did not explain the effects of economic fundamentals as clearly as the estimation results from the total amount of FDI although in some cases, the effects of economic fundamentals were consistent with the prediction. Investigating whether this result is attributable to sample bias, or whether there are any behavioral patterns followed by foreign companies engaging in foreign direct investment in the resource sector that differ from those in other industries might be an interesting research theme for future study.

The analysis of the relations between governance infrastructure and acceptance of foreign direct investment has revealed that, first, progress of democratization (or a shift to a market economy) promotes the acceptance of foreign direct investment in resource-rich countries with a high income level. In resource-rich countries with a low income level, however, progress of democratization proves to cause withdrawal of foreign companies. The results of an investigation of the relations with corruption also suggest that, although the reduction of corruption in high-income resource-rich countries brings about increased FDI, in low-income resource-rich countries, FDI is facilitated rather by the prevalence of corruption. Improvement of the investment environment including the protection of property rights is suggested to increase FDI. Such results are verified using both the data on FDI in the resource sector and the total amount of FDI. In particular, when FDI in the resource sector alone is analyzed, the result indicated clearer effects of the governance infrastructure factors than those of economic fundamentals. Whereas Fan, Morck, Xu and Yeung (2009) reported that reduction of corruption does not contribute to an increase in FDI, the present study further verified the tendency of the prevalence of corruption in low-income countries, which promotes FDI.

Noticeable effects of economic growth of the resource-rich countries were indicated also when data on short-term loans provided to the private sector were used in place of FDI. Among the other economic fundamental factors, the effects of domestic credit as a percentage of GDP were apparent. This might illustrate a situation in which short-term capital is flowing into the resource-rich

countries from the outside when their economy is booming and loans are increasing.

Kazakhstan, for instance, is a large resource-rich country in Central Asia whose percentage of exports of resource-related products had exceeded 80% by 2005. Figure 4 reveals that Other Investments in the foreign capital flow into Kazakhstan increased in the 2000s and soared in 2006 and 2007. A large part of Other Investments is loans, of which a substantial portion appears to have little relevance to resource development[20] whereas loans for resource development projects[21] are most likely to be included. As a consequence of the international liquidity contraction triggered by the global financial crises in 2008, major banks in Kazakhstan have been falling into default. Figure 5 presents the percentage of FDI in each industry in Kazakhstan. Until 2004, FDI in the resource sector had comprised approximately 60% of the entire FDI in Kazakhstan. Since 2005, the percentage of FDI in the real estate sector has exceeded that in the resource sector. Kazakhstan has achieved rapid growth since the independence from the then Soviet Union on account of its abundant resources. The rise in resource prices has accelerated and internationally excessive liquidity began to be feared at around 2004, which was evidently the beginning of the real estate bubble.

Unlike FDI, the analysis of short-term capital reveals that resource-rich countries that allow foreign exchange fluctuations and those in which the actual rates deviate from the legal rates are more likely to invite foreign capital inflow. This suggests the possibility of inflow of speculative funds in expectation of future increase in the currency value. The effect of governance infrastructure factors revealed by the result is that the progress of democratization and prevalence of corruption increase the inflow of short-term capital from other countries. However, the relations with the investment environment such as the protection of property rights were not observed.

The following presents remaining issues for this study.

First, whether or not the equivalent results are obtainable if the variables adopted as the determinants of foreign capital inflow are replaced with other variables should be observed. Although the study has used, for instance, KAOPEN as an indicator of market openness, whether FDI increases or short-term borrowing increases is determined depending on which form of foreign capital on which the regulations were abolished by the countries analyzed. Furthermore, the empirical analysis using short-term capital did not explain the effects as clearly as the empirical results that used FDI. Factors that are important as determinants of short-term capital might not have been included in the model, or the data on short-term capital lacked accuracy. Model settings and data reliability must be reconfirmed.

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[20] According to the report of the Yomiuri Shimbun, the private financial institutions of Japan also actively participate in the loans provided to the resource development projects in Kazakhstan. Loans provided by Japanese financial institutions to Kazakhstan increased sharply between 2006 and 2007. (http://www.yomiuri.co.jp/atmoney/mnews/20080619mh01.htm)

[21] An analyst report of Capital Partners Securities Co., Ltd. states that the total foreign debts of Kazakhstan in 2008 had reached 45% of its GDP, and that approximately 50% of the borrowers belonged to the real estate sector. (http://capital.jp/invest/kazakh_back_number.php?v_date=%272008-0707%27)

Although the fluctuations of the data on foreign capital inflow used in the analyses of this study were relatively large, the DW value, in general, tended to deviate from 2, which surmises inefficiency of estimation due to serial correlation. Verifying the robustness of the results of a model incorporating a lagged term of a dependent variable using the GMM estimation method of Arellano and Bond (1991) is one challenge in terms of the demonstration methods.

The participation of foreign companies in resource development is likely to depend considerably on the stance of the national resource policy. For example, Sakaguchi (2010) reports that petroleum production and participation of foreign companies in Venezuela depend largely on whether the government would adopt a nation-oriented policy or market-oriented policy. If the resource policy stance in the resource-rich countries can be indicated using proxy variables of some kind, then it can be included in the empirical analysis.

This study has elucidated the relations between governance infrastructure factors and foreign capital inflow using data from Polity IV and ICRG. The parallel exchange practices and inflation risks that were examined in the empirical analysis of this study are also likely to be related closely to the conditions of governance. The relations among these variables must be examined in greater detail. In connection with the relations between the governance infrastructure factors and foreign capital inflow, the types of countries from which capital flows must be identified. In Sudan, for instance, major international companies have withdrawn from oil resource development allegedly because of human rights problems. Petroleum companies from China have replaced the major international companies and have since become the key players in the oil resource development of Sudan. Foreign capital inflows must be understood based on the nationalities of the investors when data availability can be ensured.

One reason why many countries suffer economic stagnation and poverty despite having abundant resources might be that the foreign currency earned through resource exports is inappropriately managed. In addition, an asymmetric fiscal response during boom-bust in commodity price cycles may exists by which government expenditures increase as a result of sharp swings in commodity prices while reduction of expenditures is suspended as the resource boom ends, which result in the accumulation of public debts.[22] Additional studies should include topics such as the extent to which the governments of resource-rich countries rely on their resource income, what types of relation exist between the trends in resource prices and the patterns of government revenue and expenditure, whether the possibility exists that foreign capital inflow amplifies the business fluctuations of resource-rich countries, what types of relation exist between an economic crisis in a resource-rich country and foreign capital inflow, and the condition of the governance system.
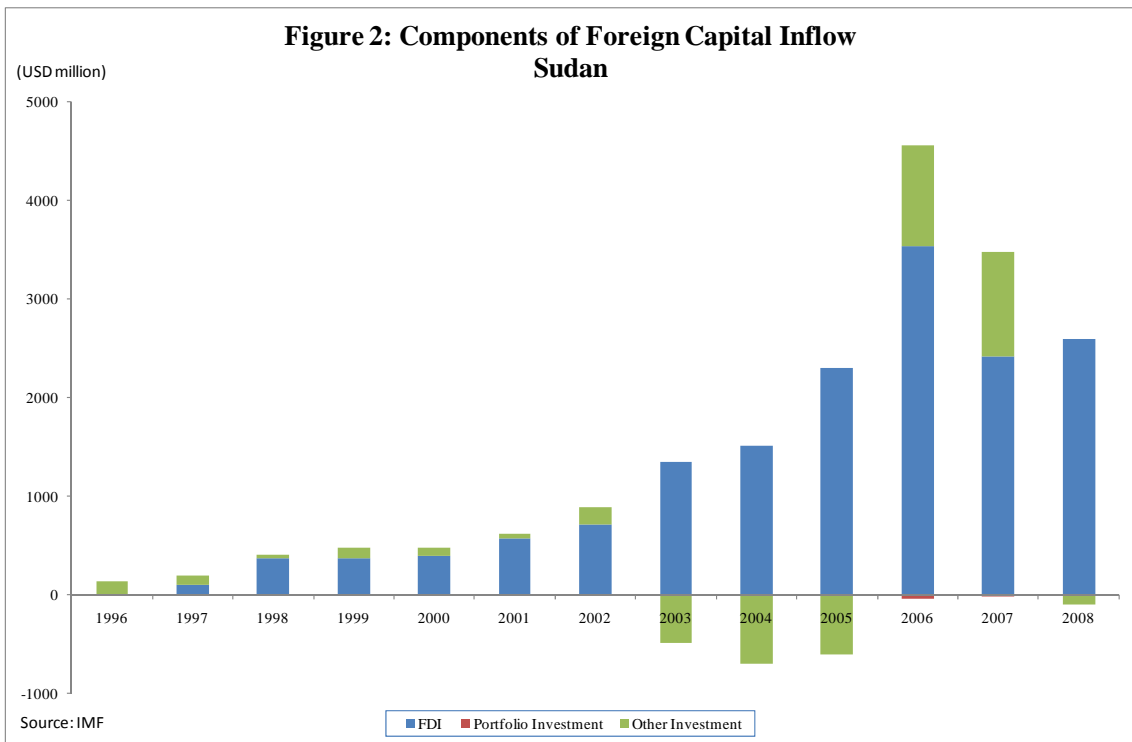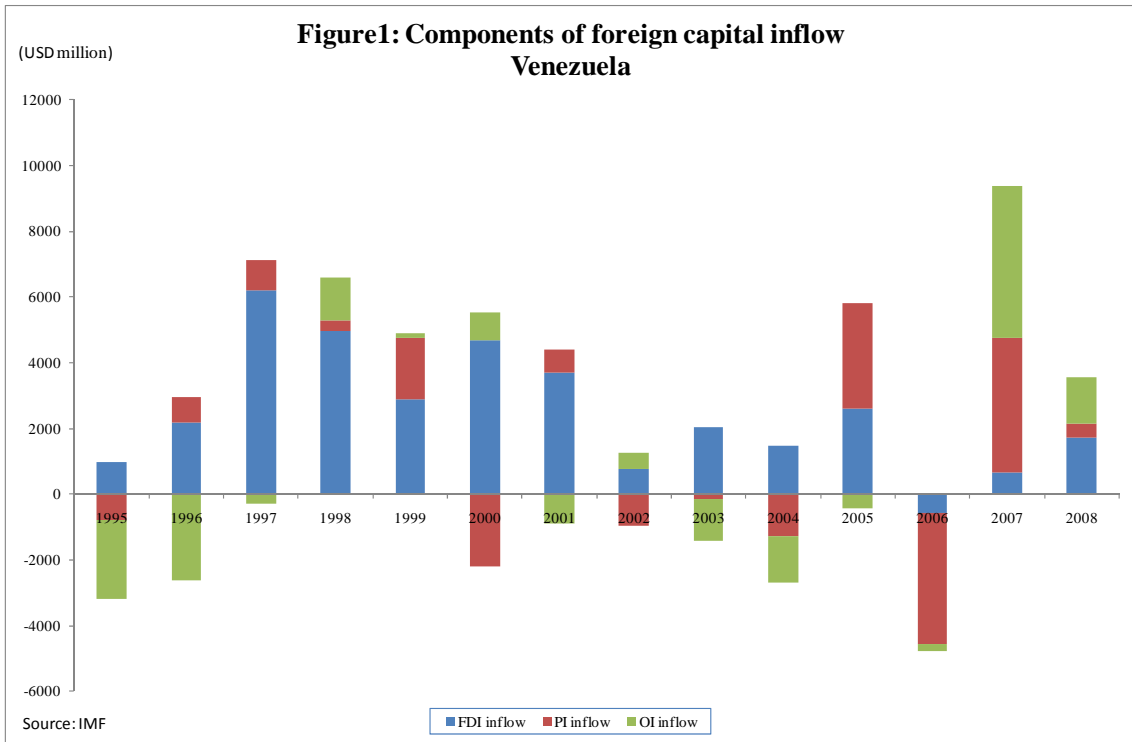
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[22] Medina (2010) examines the fiscal reactions of commodity-exporting Latin American countries to boom-bust in commodity prices.
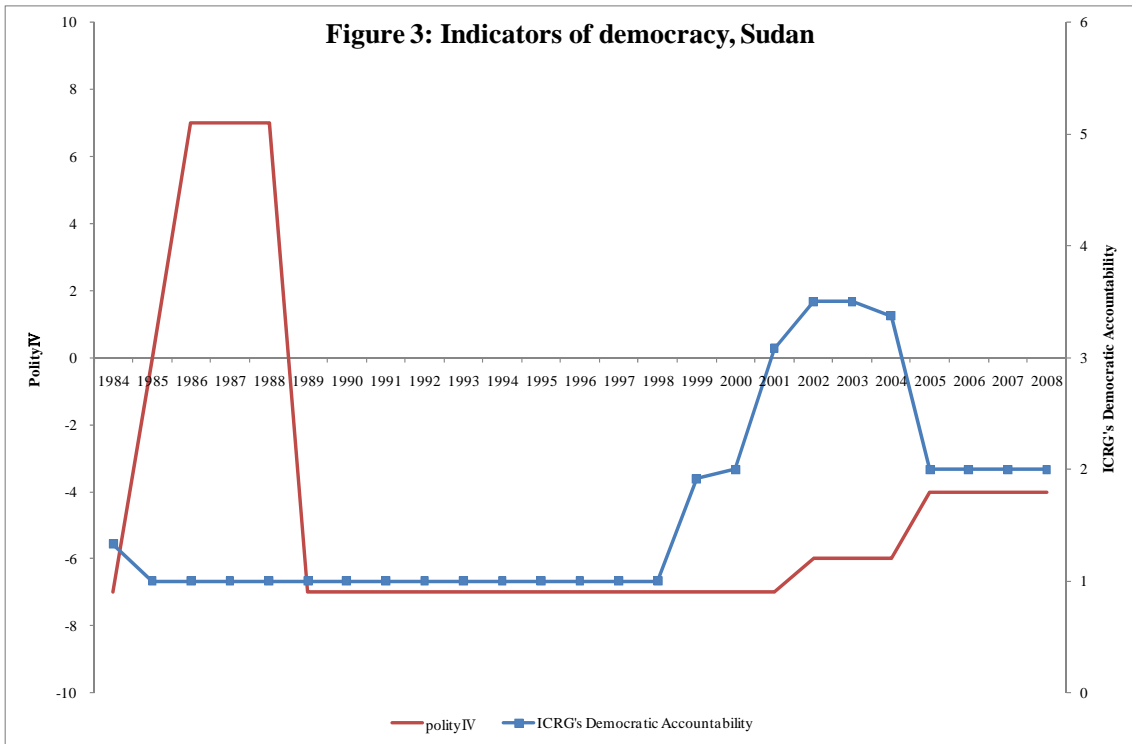
Reference

Ahmed F., R. Arezki and N. Funke, (2005), "The composition of capital flows: Is South Africa different?" *IMF Working Paper*, WP/05/40

Alfaro L., S.K. Ozcan and V. Volosovych, (2008), "Why doesn't capital flow from rich to poor countries? An empirical investigation," *The Review of Economics and Statistics*, Vol.90, No.2, pp.347-368.

Arellano M. and S. Bond, (1991), "Some tests of specification for panel data: Monte carlo evidence and an application to employment equations," *Review of Economic Studies*, Vol.58, pp.277-297.

Calvo G., L. Leiderman and C. Reinhart, (1993), "Capital flows and the real exchange rate appreciation in Latin America: The role of external factors," *IMF staff Papers*, Vol.40, No.1, pp.108-151.

Carlson M. and L. Hernandez, (2002), "Determinants and Repercussions of the composition of capital inflows," *IMF Working Paper*, WP/02/86.

Chinn M.D. and H. Ito, (2008), "A new measure of financial openness," *Journal of Comparative Policy Analysis*, Vol.10, Issue 3, pp.309-322.

Collier P., (2008), *The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be Done About It*, Oxford University Press.

Collier P. and D. Rohner, (2008), "Democracy, development and conflict," *Journal of the European Economic Association*, Vol.6, pp.531-540.

Collier P., (2009), *Wars, Guns, and Votes: Democracy in Dangerous Places*, Harper.

Fan J.P.H., R. Morck, L.C.Wu and B. Yeung, (2009), "Institutions and foreign direct investment: China versus the rest of the world," *World Development*, Vol.37, No.4, pp.852-865.

Ferrucci G., V. Herzberg, F. Soussa and A. Taylor, (2004), "Understanding capital flows to emerging market economies," *Financial Stability Review,* June 2004, pp.89-97, Bank of England.

Globeman S. and D. Shapiro, (2002), "Global foreign direct investment flows: The role of governance infrastructure," *World Development*, Vol.30, pp.1899-1919.

Horii N., (2010), "Chinese petroleum industry: Transitions of relationship between government and corporations through free market reforms," Sakaguchi A. ed., *Political Economy for petroleum industry in developing countries*, Iwanami-Shoten (in Japanese).

Jeanneau S. and M. Micu, (2002), "Determinants of international bank lending to emerging market countries," *BIS Working Papers*, No.112.

Lucas R. E., (1990), "Why doesn't capital flow from rich to poor countries?" *American Economic Review*, Vol.80, No. 2, pp.92-96.

Manzano O and R. Rigobon, (2001), "Resource curse or debt overhang?" *NBER Working Paper*, No.8390.

McKinnon R.I. and H. Pill, (1996), Credible liberalizations and international capital flows: The overborrowing syndrome," in Takatoshi Ito and Anne O. Krueger eds., *Financial Deregulation and Integration in East Asia*, Chicago University Press, pp.7-22.

Medina L., (2010), "The dynamic effects of commodity prices on fiscal performance in Latin America," *IMF Working Paper*, WP/10/192.

Montiel P. and C.M. Reinhart, (1999), "Do capital controls and macroeconomic policies influence the volume and composition of capital flows?: Evidence from the 1990s," *Journal of International Money and Finance*, Vol.18 pp.619-635.

Murshed S.M., (2004), "When does natural resource abundance lead to a resource curse?" *Environmental Economics Programme*, *Discussion Paper*, 04-01.

Nabamita D. and R. Sanjukta, (2010), "Foreign direct investment, financial development and political risks," *Journal of Developing Areas*, Forthcoming.

Obstfeld M., (2009), "International finance and growth in developing countries: What have we learned?" *NBER Working Paper*, No.14691.

Ohno S., (2008), "Liquidity effects in the stock market and in the foreign exchange market," *Musashi-Daigaku-Ronshu* (*The Journal of Musashi University*), Vol.55, No.2, pp.101-147 (in Japanese).

Ohno S., (2010), "Institutions and foreign capital inflows: Evidence from commodity exporting countries," *Musashi-Daigaku-Ronshu* (*The Journal of Musashi University*), Vol.58, No.2, pp.69-110 (in Japanese).

Ohno S. and J. Odsuren, (2010), "Institutions of commodity-exporting countries: Evidence from governance index," *Musashi-Daigaku-Ronshu* (*The Journal of Musashi University*), Vol.58, No.3, pp. (in Japanese).

Papyrakis E. and R. Gerlagh, (2004), "The resource curse hypothesis and its transmission channels," *Journal of Comparative Economics*, Vol.32, pp.181-193.

Rienhart, C.M. and K. Rogoff, (2003), "FDI to Africa: The role of price stability and currency instability," *IMF Working Paper*, No.03/10.

Reinhart, C.M. and K. Rogoff, (2004), "The modern history of exchange rate arrangements: A reinterpretation," *Quarterly Journal of Economics*, Vol.119, No.1, pp.1-48.

Reinhart, C.M. and E.O. Ilzetzki, (2009), "Exchange rate arrangements entering the 21st century: Which anchor will hold?" http://www.wam.umd.edu/~creinhar.

Prasad E. and R. Rajan, (2008), "A pragmatic approach to capital account liberalization," *NBER Working Paper*, No.w14051.

Rodrik D., (2008), "The real exchange rate and economic growth," *Brookings Papers on Economic Activity*.

Sachs, J.D. and A.M. Warner, (1995), "Natural resource abundance and economic growth," in G.

Meier and J. Rauch eds., *Leading Issues in Economic Development*, Oxford University Press.

Sakaguchi A., (2010), "Petroleum policy in Venezuela: The swing of the pendulum between nationalization and market-oriented policy," Sakaguchi A. ed., *Political Economy for petroleum industry in developing countries*, Iwanami-Shoten (in Japanese).

Sato Y., "Transition of governance arrangements on petroleum industry in Indonesia," Sakaguchi A. ed., *Political Economy for petroleum industry in developing countries*, Iwanami-Shoten (in Japanese).

Talvi E. and C.A. Vegh, (2000), "Tax base variability and procyclical fiscal policy," *NBER Working Paper*, No.7499.

Van der Ploeg F., (2006), "Challenges and opportunities for resource rich economies," *EUI Working Paper*, RSCAS No.2006/23.

Wei Shang-Jin and W. Wu, (2001), "Negative alchemy? Corruption, composition of capital flows, and currency crises," *NBER Working Paper*, No.8187.

Figure1: Components of foreign capital inflow
Venezuela

(USD million)

Source: IMF

Legend: FDI inflow, PI inflow, OI inflow

Figure 2: Components of Foreign Capital Inflow
Sudan

(USD million)

Source: IMF

Legend: FDI, Portfolio Investment, Other Investment

Figure 3: Indicators of democracy, Sudan

Figure 4: Components of Foreign Capital iIflow Kazakhstan

(USD million)

Source: IMF

FDI Portfolio Investment Other Investment
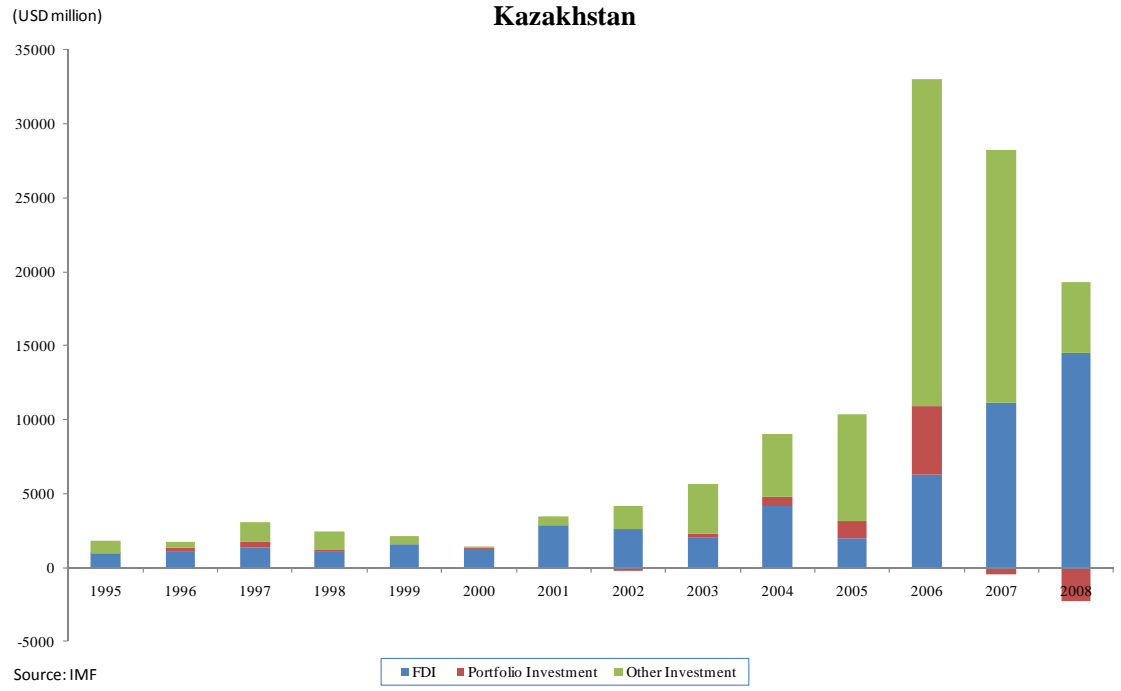
Figure 5: Sectoral FDI of Kazakhstan

Mining & Quarrying   Manufacturing   Transport, Storage & Communication

Financial Intermediation   Real Estate, Renting & Business Activities
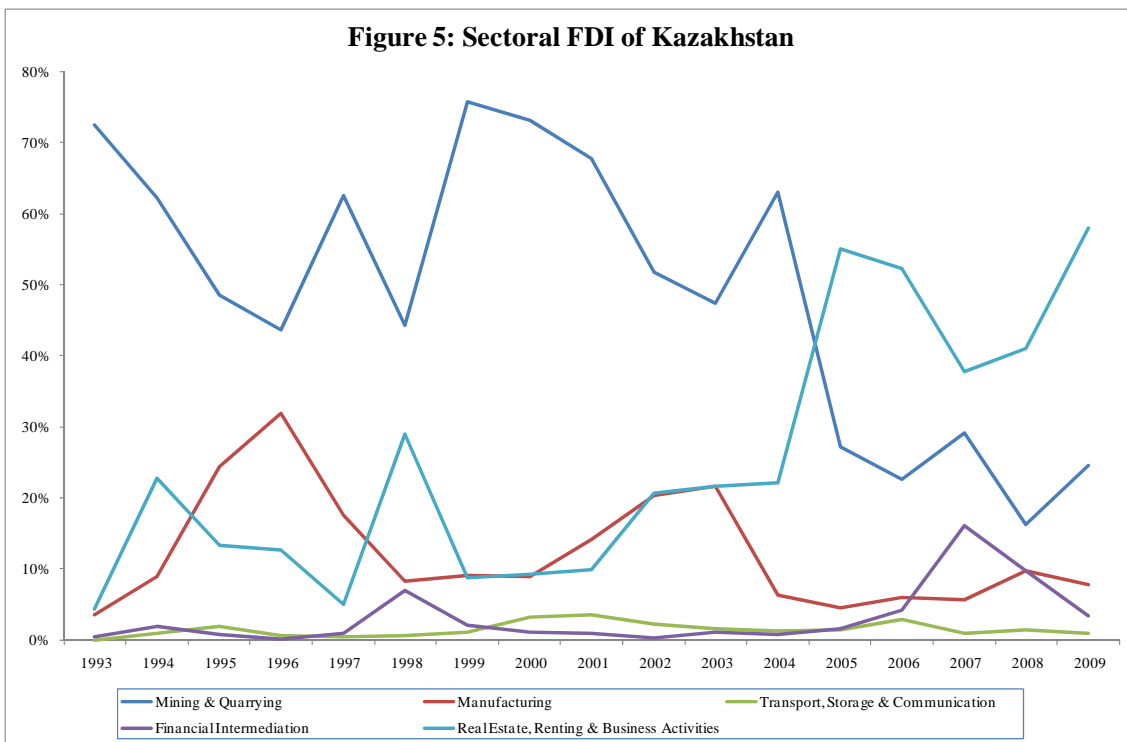
Table 1: Coding of Re-classification released in Reinhart and Rogoff (2004)

1	No separate legal tender
2	Pre announced peg or currency board arrangement
3	Pre announced horizontal band that is narrower than or equal to +/-2%
4	De facto peg
5	Pre announced crawling peg
6	Pre announced crawling band that is narrower than or equal to +/-2%
7	De factor crawling peg
8	De facto crawling band that is narrower than or equal to +/-2%
9	Pre announced crawling band that is wider than or equal to +/-2%
10	De facto crawling band that is narrower than or equal to +/-5%
11	Moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation over time)
12	Managed floating
13	Freely floating
14	Freely falling
15	Dual market in which parallel market data is missing.

Table 2-1: Determinants of FDI in resource industry per capita: In the case of using polity2 for *POLITICS*
Sample period: 1985-2008

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) TSLS
Periods included	24	24	24	24	24	23
Cross-sections included	11	11	11	11	11	9
Total panel observations	114	120	120	120	126	96
Constant	-2.76	-10.42	-5.05	1.13	-23.03	-55.86
LGROWTH(-1)	499.66 ***	578.54 ***	476.80 ***	490.63 ***	376.62 ***	817.77 ***
EXCOM(-1)	-1.13	0.27	0.38	0.65	1.35	0.33
WGROWTH(-1)	1082.56	481.07	527.59			-1836.16
COMMODITY(-1)				1.42	6.30	
CREDIT(-1)	45.28					128.28
PRICE(-1)	36.89	-13.32	-13.24	-10.54		-229.66
FXST(-1)	89.36	172.32 **			83.11	0.02
KAOPEN(-1)	-2.44					-10.67
POLITY(-1)	-16.14	-16.91	-16.15	-18.27	-16.80	-12.95 **
POLITY(-1)*GNI(-1)	2.38	2.39	2.26	2.51	2.33	3.00 **
Adj-R2	0.46	0.46	0.46	0.46	0.44	0.35
DW	1.96	1.90	1.87	1.86	1.77	1.98

Notes 1) (-1) indicates the first lag of the variable.

   2) ***, ** and * denotes the significance at 1%, 5% and 10% level, respectively.

   3) The estimates are calculated by using a consisten covariance matrix allowing for heteroscedasticity and serial correlation of residual terms.

Table 2-2: Determinants of FDI in resource industry per capita: In the case of using ICRG's Democratic Accountability for *POLITICS*
Sample period: 1985-2008

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) TSLS
Periods included	24	24	24	24	23
Cross-sections included	11	11	11	12	9
Total panel observations	114	114	114	125	96
Constant	24.08	20.12	11.73	100.92	101.61
LGROWTH(-1)	507.11 ***	528.32 ***	540.11 ***	1046.40	463.76 *
EXCOM(-1)	-1.16	-1.11	-0.92	4.35	3.03
WGROWTH(-1)	503.64			-6845.54	-2726.10
COMMODITY(-1)		19.13			
CREDIT(-1)	-27.04				-203.70
PRICE(-1)	128.05 *	137.72	126.65 **		27.98
FXST(-1)	77.54	92.80	96.90	151.71	-75.32
KAOPEN(-1)	-8.70	-9.11	-8.90		-15.36 *
DEMO(-1)	-137.87 ***	-129.76 ***	-128.15 ***	-106.76 *	-262.13 *
DEMO(-1)*GNI(-1)	17.89 ***	16.96 ***	16.85 ***	13.65 **	32.02 *
Adj-R2	0.50	0.50	0.51	0.17	0.30
DW	2.04	2.02	2.03	2.53	2.02

Notes 1) (-1) indicates the first lag of the variable.

   2) ***, ** and * denotes the significance at 1%, 5% and 10% level, respectively.

   3) The estimates are calculated by using a consisten covariance matrix allowing for heteroscedasticity and serial correlation of residual terms.

Table 2-3: Determinants of FDI in resource industry per capita: In the case of using ICRG's Corruption for *POLITICS*
Sample period: 1985-2008

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) TSLS
Periods included	24	24	24	24	24	24	24
Cross-sections included	11	11	11	11	11	11	10
Total panel observations	114	121	114	120	121	114	108
Constant	41.69	59.94	59.25	56.48	60.78	62.27	-35.08
LGROWTH(-1)	523.79 ***	224.43 **	465.91 ***	259.23 **	235.23 **	537.66 ***	624.77 ***
EXCOM(-1)	-1.68 *	-0.19	-1.50	-0.95	0.06	-0.84	-1.54
WGROWTH(-1)	1146.89		1190.17	1283.28			1114.53
COMMODITY(-1)		19.62				20.20	
CREDIT(-1)	31.69	17.51					71.72
PRICE(-1)	163.37 **		197.04 ***			162.67	46.19
FXST(-1)	83.87			96.21		116.64	217.43
KAOPEN(-1)	-5.52	-1.02	-4.12	-1.58	-0.30	-3.69	-18.66 ***
CORPT(-1)	-159.98 ***	-113.19 *	-166.71 ***	-129.39 **	-118.82 *	-163.27 ***	-184.00 ***
CORPT(-1)*GNI(-1)	19.11 ***	12.97 *	19.66 ***	14.71 *	13.62 *	19.41 ***	24.51 ***
Adj-R2	0.49	0.47	0.50	0.48	0.48	0.49	0.46
DW	2.05	1.86	2.04	1.93	1.87	2.00	1.99

Notes 1) (-1) indicates the first lag of the variable.
2) ***, ** and * denotes the significance at 1%, 5% and 10% level, respectively.
3) The estimates are calculated by using a consisten covariance matrix allowing for heteroscedasticity and serial correlation of residual terms.

Table 2-4: Determinants of FDI in resource industry per capita: In the case of using ICRG's Investment Profile for *POLITICS*
Sample period: 1985-2008

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) TSLS
Periods included	24	24	24	24	24	24
Cross-sections included	11	11	11	11	11	10
Total panel observations	114	114	114	114	120	108
Constant	-77.25	-50.02	-53.63	-44.72	-35.20	-189.61 **
LGROWTH(-1)	434.04 ***	473.02 ***	497.13 ***	460.38 ***	226.19 **	427.64 **
EXCOM(-1)	-0.79	0.44	0.15	0.27	0.66	0.10
WGROWTH(-1)	1464.01					1670.73
COMMODITY(-1)				19.07	20.34	
CREDIT(-1)	36.34		37.37			33.39
PRICE(-1)	52.42	27.07	38.75	36.18		-31.75
FXST(-1)	108.81	151.23	145.75	149.60	81.95	265.83
KAOPEN(-1)	-5.36	-1.67	-2.58	-1.95	0.69	-21.18 *
INV(-1)	10.24 ***	9.04 ***	8.37 ***	9.00 ***	7.40 ***	20.55 ***
Adj-R2	0.48	0.47	0.47	0.47	0.46	0.44
DW	1.97	1.90	1.91	1.89	1.79	1.90

Notes 1) (-1) indicates the first lag of the variable.
2) ***, ** and * denotes the significance at 1%, 5% and 10% level, respectively.
3) The estimates are calculated by using a consisten covariance matrix allowing for heteroscedasticity and serial correlation of residual terms.

Table3：Determinants of total FDI industry per capita
Sample period: 1985-2008

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS
Periods included	24	24	24	24	24	24
Cross-sections included	27	27	26	26	26	26
Total panel observations	442	431	428	431	431	431
Constant	-441.28 *	-397.11 *	-578.41 **	-578.63 **	-264.26	-276.38
LGROWTH(-1)	564.95	207.72	630.59	391.61	428.64	421.90
EXCOM(-1)	7.12 *	5.62 **	6.60 *	5.67 *	6.39 *	5.63
WGROWTH(-1)	369.87	2200.99	1189.17	-592.30	154.99	-288.31
CREDIT(-1)	708.25 ***	642.47 ***	678.77 ***	439.58 ***	710.25 ***	635.50 ***
PRICE(-1)	-15.38 **	-15.63 ***	-14.50 **	-2.46	-12.61 *	-12.28 **
FXST(-1)	-171.12		-170.71	-119.56	-244.50	-186.15
FXRR(-1)		0.93				
FXRR(-1)*DUAL(-1)		-0.66				
KAOPEN(-1)	43.43 *	48.00 **	14.10	-28.24	39.93 *	10.32
POLITY(-1)			-141.85 **			
POLITY(-1)*GNI(-1)			22.00 ***			
DEMO(-1)				-600.48 ***		
DEMO(-1)*GNI(-1)				86.40 ***		
CORPT(-1)					-47.73 *	-561.66 ***
CORPT(-1)*GNI(-1)						67.53 ***
INV(-1)						
Adj-R2	0.35	0.40	0.38	0.41	0.35	0.37
DW	1.52	1.60	1.62	1.71	1.54	1.56

Notes 1) (-1) indicates the first lag of the variable.

2) ***, ** and * denotes the significance at 1%, 5% and 10% level, respectively.

3) The estimates are calculated by using a consisten covariance matrix allowing for heteroscedasticity and serial correlation of residual terms.

Table3：Determinants of total FDI industry per capita (Continued)
Sample period: 1985-2008

	(7) OLS	(8) OLS	(9) TSLS	(10) TSLS	(11) TSLS	(12) TSLS
Periods included	24	24	24	24	24	24
Cross-sections included	26	25	24	24	25	25
Total panel observations	420	417	392	395	406	406
Constant	-235.95	-765.17 ***	-395.07 ***	123.98	173.03	-810.73 ***
LGROWTH(-1)	84.46	398.44	255.34	-347.27	186.18	-499.86
EXCOM(-1)	4.03 *	6.94 **	1.43	0.81	4.14	6.26 ***
WGROWTH(-1)	1557.37	1622.91	2216.43	2612.96	455.17	4333.51 *
CREDIT(-1)	575.14 ***	582.13 ***	499.23 ***	476.87 **	677.92 ***	499.40 *
PRICE(-1)	-12.92 **	-14.60 ***	-16.45 *	-7.31	-18.76 *	-26.14 **
FXST(-1)		31.57	-388.98 *	-413.51	-665.13 *	-178.43
FXRR(-1)	6.31					
FXRR(-1)*DUAL(-1)	-6.62					
KAOPEN(-1)	21.66	-3.02	-30.59	13.30	62.63 **	-4.74
POLITY(-1)		-116.04 *	-380.93 ***			
POLITY(-1)*GNI(-1)		17.92 **	54.03 ***			
DEMO(-1)						
DEMO(-1)*GNI(-1)						
CORPT(-1)	-526.55 **			-866.90 ***		
CORPT(-1)*GNI(-1)	61.59 **			97.52 ***		
INV(-1)		31.99 ***				60.47 *
Adj-R2	0.42	0.39	0.40	0.40	0.39	0.41
DW	1.64	1.66	1.66	1.62	1.58	1.69

Notes 1) (-1) indicates the first lag of the variable.

2) ***, ** and * denotes the significance at 1%, 5% and 10% level, respectively.

3) The estimates are calculated by using a consisten covariance matrix allowing for heteroscedasticity and serial correlation of residual terms.

Table4: Determinants of short-term capital inflows into private sectors as a ratio relative to population
Sample period: 1985-2008

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS
Periods included	24	24	24	24	24	24
Cross-sections included	22	22	21	21	21	21
Total panel observations	370	364	353	359	353	359
Constant	-4896.16 *	-3866.52 *	-8637.06 ***	-8097.10 **	-468.45	-2297.69
LGROWTH(-1)	15371.36 **	9485.46 **	9969.48 *	11765.95 *	8470.77 *	14944.16 *
EXCOM(-1)	92.68	61.83	70.30	98.90	41.88	77.95
WGROWTH(-1)	-15258.21	14163.91	9550.44	-1955.86	13504.51	-16824.06
CREDIT(-1)	3758.96 **	2564.43 *	2898.91 **	1812.13 *	2350.35 *	3605.06 *
PRICE(-1)	-88.43	-26.17	42.30	-80.74	26.64	-40.20
FXST(-1)	6518.39 *		3391.05	9110.68 **		5502.40
FXRR(-1)		19.58			6.66	
FXRR(-1)*DUAL(-1)		78.45 **			47.91	
KAOPEN(-1)	-35.76	-14.06	-104.63	-420.84	-64.78	-68.85
POLITY(-1)						
POLITY(-1)*GNI(-1)						
DEMO(-1)			1150.58 ***			
DEMO(-1)*GNI(-1)			245.42			
CORPT(-1)					-825.79 **	-659.50 *
CORPT(-1)*GNI(-1)						
INV(-1)				508.34		
Adj-R2	0.03	0.08	0.10	0.05	0.08	0.03
DW	1.45	1.54	1.59	1.50	1.54	1.45

Notes 1) (-1) indicates the first lag of the variable.

2) ***, ** and * denotes the significance at 1%, 5% and 10% level, respectively.

3) The estimates are calculated by using a consisten covariance matrix allowing for heteroscedasticity and serial correlation of residual terms.

Table4: Determinants of short-term capital inflows into private sectors as a ratio relative to population (Continued)
Sample period: 1985-2008

	(7) OLS	(8) OLS	(9) TSLS	(10) TSLS	(11) TSLS	(12) TSLS
Periods included	24	24	24	24	24	24
Cross-sections included	21	21	19	19	19	19
Total panel observations	359	353	328	320	325	330
Constant	-2188.95	-68.69	-5126.59	-9278.76 **	3347.17	-6804.57
LGROWTH(-1)	15103.47 **	8432.51	19404.30 **	13746.28 **	8353.05 *	38029.09 *
EXCOM(-1)	81.62	46.70	102.30 ***	184.62 *	-27.69	78.13
WGROWTH(-1)	-15356.89	16606.22	-45057.61	16997.44	63670.64	-101932.70
CREDIT(-1)	3767.00 *	2598.32	-1459.69	2071.97	-1126.86	-0.13
PRICE(-1)	-39.49	30.36 *	105.64	-181.75	262.87	-749.46
FXST(-1)	5342.71		25738.36 **	11535.43 *	1148.88	82985.72
FXRR(-1)		-18.20				
FXRR(-1)*DUAL(-1)		50.28				
KAOPEN(-1)	47.36	97.99 *	771.51 *	753.05 *	30.49	970.26
POLITY(-1)				658.13		
POLITY(-1)*GNI(-1)				-70.75		
DEMO(-1)						
DEMO(-1)*GNI(-1)						
CORPT(-1)	1307.87	2235.16			-1270.41 *	-8992.38
CORPT(-1)*GNI(-1)	-257.36	-401.34				1230.96
INV(-1)			272.32			
Adj-R2	0.03	0.09	0.03	0.09	0.06	-0.25
DW	1.46	1.56	1.51	1.63	1.53	1.51

Notes 1) (-1) indicates the first lag of the variable.

2) ***, ** and * denotes the significance at 1%, 5% and 10% level, respectively.

3) The estimates are calculated by using a consisten covariance matrix allowing for heteroscedasticity and serial correlation of residual terms.