THE EFFECTS OF AID ON FOREIGN DIRECT INVESTMENT: THE ROLES OF GOVERNANCE AND FINANCIAL MARKET DEVELOPMENT

A Master's Thesis

by

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I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Economics.

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ABSTRACT

THE EFFECTS OF AID ON FOREIGN DIRECT INVESTMENT:
THE ROLES OF GOVERNANCE AND FINANCIAL MARKET
DEVELOPMENT

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This thesis investigates the effects of aid on foreign direct investment. The study takes into account the conditions such as sound governance within countries or well-developed financial markets, which are expected to effect this relationship. The hypothesis is that aid encourages foreign direct investment only where governance is of quality or financial markets are developed or both. The dynamic relationship is examined using an unbalanced panel data set, including 97 countries over the period of 1960-2004, where available. The results of the empirical analysis confirm the hypothesis with strong evidence.

Keywords: Aid, Foreign Direct Investment

ÖZET

İKTİSADİ YARDIMIN DOĞRUDAN YABANCI YATIRIMA ETKİLERİ:

YÖNETİŞİM VE MALİ PİYASADAKİ GELİŞMENİN ROLÜ

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Bu tez iktisadi yardımın doğrudan yabancı yatırıma etkilerini araştırmaktadır. Çalışma ülkelerdeki iyi yönetişim veya gelişmiş mali piyasalar gibi bu ilişkiyi etkileyebilecek koşulları dikkate almaktadır. Hipotez, uluslararası iktisadi yardımın doğrudan yabancı yatırımı yalnızca yönetimi kaliteli veya mali piyasaları gelişmiş ya da her ikisinin de olduğu yerlerde teşvik edeceğidir. Dinamik ilişki, 97 ülkeyi ve 1960-2004 döneminin mümkün noktalarını kapsayan dengesiz panel veri kullanılarak incelenmektedir. Araştırma sonuçları hipotezi güçlü delillerle desteklemektedir.

Anahtar Kelimeler: İktisadi Yardım, Doğrudan Yabancı Yatırım

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CHAPTER 1

INTRODUCTION

Through the ages, mankind has been investing inter-regionally. Mesopotamian, Greek, and Phoenician merchants of about 6000 years ago, are ancestors of today's multinational investors. The well-known great colonies of those days, such as Carthage, Corinth, Miletus, Rhodes, Syracuse, Tyre and Sidon were settled by the inhabitants of overcrowded cities who sought profit in less developed territories and hence established in these lands to trade jewelry, pearls, coral, leather, wool, spices and slaves. (Phatak, 1971). In 2500 B.C., Sumerian merchants was building outposts in order to obtain, to stock and to trade their goods. (Wilkins, 1970).

Civilizations of the old world witnessed the peak of this earliest "global" trading system in the sixth century B.C.. However, with the rise of the Greek Empire and the Roman empire, the system started to decline. In the Middle Ages, feudalism constituted autonomous units of economies and restricted the trade which resulted in a "non-global" world. On the other hand, Genoa, Florence, Pisa, and Venice became crusade depots and controlled remotely, and financial institutions had emerged during the Crusades. Also, a new type of commercial organization, named commenda, had arisen in 1450s. Commenda was an agreement between a financier at home and a distant merchant on accomplishment

of a specific commission. Despite its temporary nature, the commenda led the multifaceted system of mercantilism. (Phatak, 1971).

Throughout the mercantilist period world had been dominated by British, French, Spanish, Portuguese, Dutch and Belgian colonists. Export-import houses and commercial agencies were founded in distant locations to serve home countries. Moreover, barriers to trade, price regulations and production quotas of contemporary world was born in the mercantilist era. The invention of steam power brought the Industrial Revolution resulting in the demise of mercantilism and the rise of laissez faire. In the nineteenth century, spread of the new technology in Europe changed the pattern of global trade considerably. Raw materials were not sufficient for the boosted production of the new factories, and thus, industrialized countries made permanent direct investments in their colonies located in Africa, America and Asia. (Phatak, 1971).

In the late nineteenth century the colonial system started to fall down, and the system collapsed in the mid-twentieth century. Meanwhile the world has confronted the rise of nationalism, the two world wars, and afterwards came the Great Depression and the appearance of Communist bloc of nations. The emergence of voluntary organizations such as the International Monetary Fund (IMF), and the GATT agreement in 1947 were also events of this later period. All these happenings play an important role in the growth of foreign direct investment. (Phatak, 1971).

In the book "A Short History of the International Economy since 1850", Ashworth (1987) states that the accumulated total British international investments was 200 million pound sterling in the beginning of the nineteenth

century, 2.4 billion pound sterling at the end of the nineteenth century, and before the First World War, it was presented to be 4 billion UK pounds. Ashworth (1987) also reports 15 billion French Franc of total French foreign investment by 1880; 25 billion Deutsche Mark of total German foreign investment in 1914; and 2.6 billion US dollars of accumulated total foreign investment of USA by 1914.

Wilkins (1974) presents that while USA foreign direct investment (FDI) at the end of 1910s was 3.9 billion US dollars, it was 7.6 billion US dollars at the end of 1920s. Wilkins (1974) also give an account of US capital net outflows for direct investment in 1946 is 0.2 billion US dollars and it is 0.6 billion dollars in 1950, 1.67 billion dollars in 1960 and 4.4 billion dollars in 1970.

According to World Development Indicators (WDI) Online, in the beginning of 1970s world total net inflows of FDI was more than 8.5 billion US dollars which constituted 0.45 percent of the world's GDP. In 1980, it was 57.4 billion US dollars which was 0.5 percent of world's GDP and in 1990, it was more than 200 billion US dollars corresponding to 0.95 percent of world's GDP. By the year 2000, total net inflows of FDI worldwide had reached to 1511 billion US dollars, representing 4.9 percent of world's GDP. In "Global Development Finance" (2000) the World Bank also shows that for middle income or low income countries, average of foreign direct investment to GDP ratio over 1990s was increasing.

From the time when the earliest known inter-regional investment activities, 6000 years has passed, foreign investment has evolved in the course of several phases, and the world finally has developed FDI as an instrument of international capital flows. Today, the importance of FDI can be captured from the significant

increase in the share of FDI in GDP. However, the literature could grasp the meaning of FDI only in the recent epoch. As Dunning (1993) states, even though there are studies on foreign investment before 1960s such as Iversen (1935) or Southard et al. (1936), the literature delves into FDI only after 1960s.

Contemporary studies on FDI, such as Borensztein et al. (1998), Balasubramanyam et al. (1996), Mencinger (2003), Makki and Somwaru (2004), Asheghian (2004) and Alfaro et al. (2003), search the effects of FDI on growth and development, and potential returns from FDI. Moreover, the recognition of the FDI as an important investment instrument and interest on the variables which allure or divert FDI, motivate the research to focus on the determinants of FDI. Through this process various determinants of FDI are asserted in the studies such as Root and Ahmed (1978), Nigh (1986), Hein (1992), Singh and Jun (1995), and Albuquerque et al. (2003).

While there is no consensus on the effects of most of the declared determinants in the literature, the majority of the studies agree on positive consequences of a few factors on FDI, such as market size or openness to trade. Although the literature proposes lots of variables as determinants of FDI, aid is rarely mentioned as a factor that affects FDI. Root and Ahmed (1978) and Blaise (2005) are examples of a few studies where aid is proposed to determine FDI. However, the former study concluded no relationship, and the latter study cannot be generalized due to its micro orientation. In this thesis, it is argued that aid can be an important determinant of FDI due to its signaling property, in the sense that when aid flows to a country, this may also indicate opportunities for FDI.

When aid data[1] is analyzed, it can be seen that world's total official development assistance (ODA) in 1970 is 6.9 billion US dollars equal to 0.2 percent of world's GDP, and in the mid 1990s the figure jumps up to 68 billion US dollars of aid transfers keeping importance at 0.2 percent of world's GDP. Significance of aid as a transfer of resources and the increase in the amount of aid are obvious, and hence aid cannot elude research. Recent studies such as Boone (1996), Burnside and Dollar (2000), Hansen and Tarp (2001) and Tavares (2003) scrutinize the significance of effects of aid on economic and development indicators, and also question whether the effect of aid is subject to some development factors. For instance, in a World Bank policy research report, namely "Assessing Aid" (1998), aid is presented to be more prolific on economic growth and development in countries with well developed policies.

However, aid literature generally concentrates on the causality from aid to domestic investment and growth. The importance of this study arises at this point. This research project builds the bridge the link between aid and FDI in order to close the gap in the literature. The underlying value of this study is that in exploring the effect of aid on FDI, necessary conditions such as sound management within countries and developed financial markets, which are expected to effect this relationship, are also taken into account. The main hypothesis is that aid promotes FDI inflows where quality of governance is high or financial markets are well developed or both. If there are obstacles in the economy such as political instability or weak financial background, the effect of aid on FDI is expected not to be necessarily positive. The dynamic relationship is

[1] Source: WDI Online.

investigated utilizing an unbalanced panel data set, consisting of 97 countries over the period of 1960-2004, where available. The computer software Ox version 3.10 is used in the model estimations. The results of empirical analysis provide robust evidence in favor of the hypothesis.

This outline of the study is as follows: Chapter 2 reviews the literature on FDI and aid. Chapter 3 is on data and methodology, presenting basic and appended models, hypothesis on these models, sources of data, and the econometric methodology utilized in the study. Chapter 4 provides model specifications and results of the regression analysis of the dynamic models of FDI. Chapter 5 makes concluding remarks and states policy implications.

CHAPTER 2

LITERATURE REVIEW

This chapter reviews two strands of literature related to the subject of this study. The first part of the literature is on foreign direct investment (FDI), which defines FDI and identifies the determinants of FDI. Since the literature is too extensive to cover entirely, a brief summary of this literature is presented in Section 2.1, where FDI is defined thoroughly, and traditional and recent theories on FDI are reviewed. The second part of the literature is on aid and its macroeconomic effects. This literature investigates the relationships among aid, growth and domestic investment, and controls for the effectiveness of aid flows. The effectiveness of aid depends heavily on the quality of state institutions, policies or financial markets, which form a list of necessary conditions in recipient economies to benefit from aid flows. Section 2.2 provides an account of the literature on the relationship aid and development of institutions and financial markets. In light of FDI and aid sections.

2.1. Explaining FDI

Dunning (1993) identifies foreign direct investment, as investment made beyond the borders of the home country of a multinational company (MNC), which is a corporation investing in more than one country and controlling these

investments. The investment contains assets and intermediate products, such as new technology, vintage capital, high management skills. Calvo et al. (1996), Blomstrom and Kokko (1997), Alfaro et al. (2003) and Deichmann et al. (2003) all mention the important role of MNC activities on home and host economies. From a view of developing country, Appleyard and Field (1998) goes over the main points of potential benefits from FDI as increase in output, wages, employment, exports and tax revenues, achievement of scale economies, provision of new technology and managerial skills, and weakening of power of domestic monopoly. Additionally, from the view of a MNC, Galego et al. (2004) and Buch et al. (2005) summarizes the advantages of FDI, as getting closer to a new consumer market, shortening the distance to the existing clients, and minimizing production costs.

The proportion of FDI in world GDP is growing continuously and economies are aware of all these facts and the importance of FDI long before. Even so, as Dunning (1993) emphasizes, prior to the 1960s, there was no development in the theory of MNCs or FDI. Dunning (1993) talks about the early attempts of Iversen (1935) on the theory of capital movements; Southard (1931), Southard et al. (1936), Barlow (1953) and Dunning (1958) on empirical and country specific determinants of FDI; Williams (1929) on modification of neoclassical theories of trade because of internationalization; and Plummer (1934), Penrose (1956, 1958) and Bye (1958) on advantages of horizontal and vertical integration. Numerous research has been conducted on MNCs and FDI only after 1960s, and at the present time, there is a vast literature on FDI.

In 2.1.1. three questions regarding the flows of FDI are explored. 2.1.2. presents the categories of methodologies utilized in the literature to identify the determinants of FDI.

2.1.1. Questioning FDI flows

According to Singh and Jun (1995) the entire FDI literature deals with three specific questions: First, why national companies turn into MNCs; second, why companies locate production abroad rather than licensing or exporting; and third, why FDI flows heterogeneously across countries. By the early 1970s, the conjecture on the first two of these questions was developed in the literature with the convergence of the theories of Hymer (1960) and Vernon (1966). However, there were still gaps in the theory and the third question on location determinants of FDI was remaining unanswered.

Dunning's (1973) ownership-location-internalization (OLI) paradigm became a turning point. The comprehensive study was analyzing the eclectic paradigm of international production within four conditions: the level of ownership-specific (O) advantages, the level of market internalization (I) advantages, the extent of location-specific (L) advantages and the extent of foreign production. Dunning (1993) presents these OLI factors. Several O-factors such as know-how or innovatory capacity, and many I-factors such as control over market outlets or avoidance of search and negotiation costs are identified in Dunning (1993). Besides O-factors and I-factors, various L-factors are stated some of which are the distribution of resource endowments and markets, input prices, quality and productivity, transport and communication cost, investment

incentives, barriers to trade, social and infrastructural provisions, cross-country differences and system of government. Nonetheless, Dunning (1973) does not justify the importance of L factors.

2.1.2. Methodologies to identify determinants of FDI

The empirical studies that focused on identifying the determinants of FDI followed different approaches. Singh and Jun (1995) groups these methodologies into three categories: micro oriented econometric methodology, survey data methodology, and aggregate econometric methodology.

Micro oriented econometric methodology is employed in the company or industry level and inspects to identify industry-specific factors. Kogut and Singh (1988), Blomstrom and Zejan (1991), Woodward and Rolfe (1993), Asiedu and Esfahani (1998), Smarzynska and Wei (2001), Buch et al. (2005) are examples of firm-level micro oriented studies. This methodology may give valuable results at industry level, however generalization of the factors to the overall economy may not be possible.

Survey data methodology utilizes the data analyzing the incentives of MNCs in order to discover the quality factors, but the results are subject to limitation of the survey structure and instruments. Rolfe et al. (1993), and Zhang and Yuk (1998) are studies representing survey data methodology.

Aggregate econometric methodology analyzes the data at the macroeconomic level to determine the country-specific factors, aggregate determinants and long-run trends. Examples of these determinant can be development of financial markets within a country, international business cycle

volatilities, market size and market power. Root and Ahmed (1978), Nigh (1986), Hein (1992), Singh and Jun (1995), and Albuquerque et al. (2003) all utilize aggregate econometric methodology and assess aggregate determinants of FDI. Following sections give an account to almost all of these determinants proposed in the literature.

2.1.3. Determinants of FDI

Even though several determinants of FDI are identified and grouped in the aid literature, there hardly is an agreement on significance or on signs of the coefficients. Calvo et al. (1996) classifies the promoting and hampering determinants of FDI into two groups: Factors external to the receivers of FDI and factors internal to them. Six external factors are described as: the changes in world interest rates, the fluctuations in international business cycle, international diversification of investment, relations with external creditors, adoption of sensible policies and reforms, and externalities or contagion effects. The importance of internal factors is also mentioned with the sound domestic fundamentals, but these fundamentals are not stated explicitly.

Lall et al. (2003) refers to a recent categorization of the determinants of FDI in Tsai (1991) and Ning and Reed (1995) which is similar to that of Calvo et al. (1996). Two groups of influencing factors are stated: demand-side or pulling factors, and supply-side or pushing factors. From the viewpoint of the FDI receiving country, drawing FDI depends on pulling factors which are interest rates, tax and tariff levels, economic size and market growth rate, quality of governance, distance from the origin of FDI, wage rate, literacy rate, cultural similarities and

all other investment attractors. From the aspect of investing country or company, FDI activity depends on pushing factors which are market power, product life cycle, economies of scale, intangible assets, technical and managerial expertise, patent and brand rights, access to credit, and all other motivators of investment. In a separate categorization, Lall et al. (2003) groups the variables into two major classes. The first class is called economic related variables and includes six categories of variables: Market size, cost differentials, interest rates, exchange rates, fiscal policies and trade policies. The second class of determinants in Lall et al. (2003) is named as structural/location related variables and contains five categories of factors: physical distance, psychic distance, education level, state of infrastructure and political quality.

In the following, Section 2.1.3.1 presents the economic related variables class of Lall et al. (2003) and refers to studies controlling these variables. In Section 2.1.3.2, structural/location related variables class in Lall et al. (2003) are specified and many exampling results on these variables are cited. The current study will focus on the latter categorization concentrating on the economic and structural/location related variables. Section 2.1.3.3 states the rest of the determinants mentioned in the literature, which are not stated explicitly in Lall et al. (2003).

2.1.3.1. Economic related determinants

First of all, MNCs' aim to accomplish scale economies and spread the cost is related to the market size of the host country. Larger markets would provide better incentives to MNCs in this sense. Since expectations of future market size

is derived from market growth rate, this rate can also be a determinant of FDI flows. Using several variables such as gross domestic product (GDP), GDP per capita and GDP growth, positive relationship is supported by Root and Ahmed (1978), Scaperlanda and Balough (1983), Nigh (1986), Ning and Reed (1995), Love and Lage-Hidago (2000), Deichmann et al. (2003), Janicki and Wunnava (2004) as well as by Smarzynska and Wei (2001), Lall et al. (2003) and Albuquerque et al. (2003). However, Bollen and Jones (1982) present that sign of the coefficient of potential market or population changes according to different estimation methods. Additionally, Filippaios et al. (2003) finds out that different time series or cross country data sets would report results contrary to the literature such as insignificant or negatively significant market size coefficients.

Secondly, Dunning (1993) emphasizes the importance of cost differentials of mobile factors of production on FDI flows. Relatively lower cost resources such as raw materials or labor in host country can positively influence FDI decisions. While Love and Lage-Hidago (2000), Janicki and Wunnava (2004), Lall et al. (2003), Albuquerque et al. (2003) and Smarzynska and Wei (2001) employ relative labor costs and provide evidence for negative relation between labor costs and FDI inflows; Ning and Reed (1995), and Giulietti et al. (2004) do not verify the hypothesis.

Thirdly, according to the neoclassical capital arbitrage theory of portfolio investment, international capital maximizes its returns by flowing to locations where interest rates are relatively high. Hence a positive relationship between interest rates and FDI is expected. Albuquerque et al. (2003) validate this expectation whereas Love and Lage-Hidalgo (2000) find no evidence of interest

rates and FDI relationship. Also Ning and Reed (1995) reported that the large FDI flows of world today cannot be determined with attractive interest rate differentials.

Fourthly, appreciation of the comparative value of MNC's home country currency would make investment abroad relatively inexpensive. Thus, FDI flows would increase with depreciation of host country's currency and similarly decrease with appreciation. This negative relationship between exchange rates and FDI flows is reported by Aliber (1970). Lall et al. (2003), Froot and Stein (1992) and Love and Lage-Hidago (2000) also report that changes in relative exchange rate negatively affect FDI. Nevertheless, Blonigen (1997) states that the link is significant only for the sectors in which firm-specific assets are important such as manufacturing industry and Albuquerque et al. (2003) finds no significant relationship at all between the rate of currency depreciation and FDI. Ning and Reed (1995) propose the relative importance of exchange rate expectations, and imply that the significance of exchange rate is dependent on these expectations.

Fifthly, fiscal policy is stated to be another imported determinant of MNC activities in the literature. Tight fiscal policy, which hinders the income or profits of the MNC through high tax rates or other artificial blocks, would decrease FDI. Culem (1988) proposes a parallel idea in which tax rate on MNC's income from local and global sales is a cost determinant of FDI. Root and Ahmed (1978) supports the idea that higher tax levels would discourage FDI activities. Albuquerque et al. (2003) uses ratio of public consumption to GDP as a proxy of overall tax burden, and obtain negative and significant results indicating that a rise in taxation and government consumption will deter FDI flows. Hines (1996)

implies that the MNC activities are very dependent on the tax policies. Mutti and Grubert (2004) presents the negative sensitivity of export oriented FDI to taxation, but in countries with high income per capita, the effect of tax on FDI is reported to be lesser, and over time, the elasticity of tax is shown to be increasing. Lall et al. (2003) supports negative relationship between tax and FDI in two sets of data, however for other sets of the study the relationship is found to be insignificant. Also Smarzynska and Wei (2001) shows the insignificant effect of corporate tax rates in host country.

Finally, trade policies effect FDI flows by many channels such as quotas, tariffs or other barriers to trade. Host country's degree of openness to trade is hypothesized to be a positive determinant of FDI decisions in the literature. Deichmann (2001) proposes the international trade as the most important determinant of the investment. Janicki and Wunnava (2004) empirically proves this hypothesis by presenting the high and positively significant relationship between the quantity of imports and FDI. Galego et al. (2004) use the ratio of external trade to gross domestic product (GDP) and support the idea of trade and FDI being complements. Smarzynska and Wei (2001) employs residuals from a regression of external trade to GDP, and they also find that there is a positive relationship. Nevertheless, Filippaios et al. (2003) finds out that ratio of exports to external trade is a negative determinant of US FDI. They explain that the negative significant effect of openness to trade is due to prior interest of US FDI which is to supply to local market.

2.1.3.2. Structural/Location related determinants

First, physical distance is an important factor since transportation, communication and managerial costs may effect FDI decisions. Closer host countries may attracts more FDI than those which are far away from the source countries and a negative relationship may exists between the extent of physical distance and FDI flows. The shortest linear measure of the distance between host country and USA is used as a proxy for physical distance in Lall et al. (2003) and a significant negative relationship is reported. Also Smarzynska and Wei (2001) used logarithm of distance in kilometers between capital cities of home and host countries and support the negative relationship between distance and FDI flows.

Secondly, psychic distance, which is the degree of cultural differences between countries, determines the MNC activities because cultural and linguistic similarities between host and home countries may support FDI flows into host countries, and conversely, gaps in cultures would impede FDI. Therefore there is a negative relationship between psychic distance and FDI. Zhang and Yuk (1998) shows that cultural similarities plays a positive role in FDI decisions. Lall et al. (2003) also presents that English speaking countries are more likely to receive US FDI.

Thirdly, education level in the host country reflects the development of the country. MNCs would invest in countries with higher education levels and as a result, higher technical skills of human capital. Hence, education level is a positive determinant of FDI. Education level is indicated with literacy rate in Lall et al. (2003) and positive relation is shown empirically. Deichman et al. (2003) uses student per teacher ratio to capture the education level, and finds negative

relation between this ratio and FDI flows which implies education level's positive influence on FDI.

Fourthly, state of infrastructure is another variable revealing the economic development. A well developed infrastructure in a host country creates a more productive environment for MNCs and thus a positive relationship between level of infrastructure and FDI flows exists. Root and Ahmed (1978) confirms that volume of commerce, transportation and communication is positively effectual on FDI. Bollen and Jones (1982) uses energy consumption to capture the effects of development in infrastructure and finds significant results. In Lall et al. (2003), as a proxy for infrastructure, the number of passenger cars per square mile is utilized. Significant effect of this proxy on FDI flows is presented telling the positive influence of infrastructure development on FDI. Deichmann et al. (2003) utilize percentage of paved roads as a proxy to transportation infrastructure and reports positive relationship.

Finally, political stability or governance quality is a very important factor which play role in the decisions of MNCs. Countries at risk or in a state of instability has distracting effect on FDI because of gaps in economic policies, and additional cost and increased risks of investments. For this reason higher levels of political stability and governance quality pull more FDI. Lall et al. (2003) employs the political right's index, which is proposed by Gastil (1983-1994) as a proxy to level of political stability, and finds supporting results. Root and Ahmed (1978) supports the hypothesis that high levels of regular executive transfers, which is described as a change of executives in the national office with conventional, legal or customary forces, distract FDI inflows. Nigh (1986) uses

four political events variables of Azar and Sloan (1975); namely conflicting international events, co-operative international events, conflicting domestic events and co-operative domestic events. His results present that conflicting domestic events and first lag of conflicting international events have negative and significant influence on FDI, whereas co-operative domestic events and first lag of co-operative international events have positive significant effects. Singh and Jun (1995) employs political risk index developed by Business Environment Risk Intelligence and finds a positive relation between FDI and stability. Smarzynska and Wei (2001) uses two measures of corruption indices and prove negative effect of corruption on FDI decisions. Janicki et al. (2004) finds that healthy investment environments by means of macroeconomic and political stability is favored by MNCs. Brada et al. (2004) shows that when compared to similar regions, although Balkans would be expected to receive higher FDI inflows, conflict and instability caused lower rates of FDI.

The literature also includes studies in which quality of policy is presented to have weak or no effects on FDI. Bollen and Jones (1982) reports weak effects of political instability on FDI. They use four types of political instability of Taylor and Hudson (1976), which are political assassinations, coups, armed attacks, and deaths from domestic violence. It is found that there is weak or even no relation between political instability and FDI flows. Moreover, Albuquerque et al. (2003) presents that the relationship between the strength of property rights, absence of corruption and quality of governance have no significant effect on FDI inflows.

2.1.3.3. Other determinants

Literature on FDI has numerous additional determinants of FDI and several types of categorization similar to those of Calvo et al. (1996) and Lall et al. (2003)'s. For instance, Root and Ahmed (1978) classifies 44 determinants of FDI into four groups: economic, social, political and policy determinants. In addition to the economic variables explained above, per capita growth rate, ratio of exports to imports, ratio of raw material exports to GDP, international liquidity, purchasing power parity, ratio of banking system claims on economy and on private sector to GDP and degree of economic integration are counted in Root and Ahmed (1978) as potential economic determinants of FDI. Share of banking system claims to GDP is used as the indicator of financial development and it measures local credit demonstrating financial depth. Deichmann et al. (2003) includes the share of banking credits in the total economic activity in the explanatory set and conveys on positive relationship between financial development and FDI inflows. Albuquerque et al. (2003) uses ratio of private credit by deposit banks and other financial institutions to GDP to measure financial depth's effect on FDI and obtains positive and significant coefficients.

Root and Ahmed (1978) counts many other potential determinants such as modernization of outlook and strength of labor movement in social factors; frequency of government changes, number of internal armed attacks, level of administrative efficiency, level of nationalism, per capita foreign aid from US and non-US sources, and colonial affiliation in political factors; and tax incentives, attitude towards joint ventures, local content requirement, and limitation on foreign personnel in policy factors. Nevertheless non of these potential

determinants are found to be significant. Albuquerque et al. (2004) also controls for the global variables such as world stock market return, US yield curve slope, world growth, and US credit spread; and the local variables some of which are real effective exchange rate (REER) volatility, GDP growth volatility, terms of trade (ToT) volatility, and balance of payments (BoP) restrictions. While US yield curve slope, world growth, GDP growth volatility and BoP restrictions are reported to be negative and significant, world stock market return, US credit spread, REER volatility and ToT volatility are not found to be significant.

Geographical locations of host terrains also exist in the literature as determinants of FDI. Consequences of coastal location and landlocked location on MNC activities is investigated in Chien (1996) and Deichmann et al. (2003). Both studies find that accessibility to the sea is positively related to the FDI flows.

Recent empirical studies on FDI also include agglomeration effects which gives valuable information about host country's environment. The lagged values of FDI is a generally accepted proxy for agglomeration to explain current amount of FDI. Singh and Jun (1995) explains the necessity to insert lagged values of FDI inflows with the time required to adjust to desired levels depending the conditions surrounding MNCs and regression results shows that stock adjustment models should be used. Deichmann et al. (2003) also utilizes lagged FDI in order to capture agglomeration factors and finds out the positive and significant returns of lagged FDI.

What is very odd in literature is that, under various collections of variables, among the crowd of FDI determinants, aid of any kind hardly comes into stage as a factor of FDI. In Root and Ahmed (1978), per capita foreign aid is mentioned as

a potential determinant of FDI, however no significant relationship is reported. In Blaise (2005), Japanese FDI in People's Republic of China (RPC) is modeled with Japanese ODA to RPC and a significant promoting effect of ODA on FDI is found. Yet, as mentioned earlier, since a micro oriented econometric methodology is employed in Blaise (2005), the results cannot be generalized. Lack of an aggregate econometric study on the link between aid and FDI constitutes an important gap in the economic literature and one of the main aims of this study is to construct the linkage from aid to FDI and fill this gap. With this aspiration, the literature where aid has been a determinant of some other economic variables are reviewed in the subsequent section.

2.2. Aid as a determinant of growth

Economic literature supplies several studies such as Burnside and Dollar (2000) or Hansen and Tarp (2001) which investigate the relationship between economic growth with aid. A few studies, for instance Easterly (2001) or Collier and Dollar (2004), also explicitly states aid as a determinant of domestic investment. However, to the best of our knowledge, the entire literature presents no example of an aggregate empirical study in which FDI is explained directly by aid. Hence, investigating this relationship is one of the contributions of this study to the literature.

Aid can be defined as donation of resources from one country to another country made with specific goals such as lessening poverty, supporting development, promoting welfare or improving growth in aid receiving country. There are various means of channeling aid to countries in need, with each means

serving different objectives. However, as stated in Boone (1996), in those years when aid programs were first started, there was no theory or evidence whether aid can achieve these goals. Hence, these aid programs themselves became an economic experiment, and only after many years can studies build theories on effectiveness of aid. The early literature is very narrow studying only the direct causality from aid to growth; for example, Papanek (1972) presents a positive relationship between aid and growth, and Mosley et al. (1987) reports that the aid to growth relationship is not significant. Today, there is a relatively broad and satisfying literature on effectiveness of aid.

In view of the fact that the maximum effect is sought from aid transfers, Collier and Dehn (2001) stressed the scarcity of aid as the main reason of the development of "aid effectiveness" literature, since allocation of the resources becomes more important when they are very scant. Literature has built several controversial ideas to find answers to the questions related to the efficiency of aid.

In Section 2.2.1 five premises on aid and Collier's (1999) investigation on these premises are presented. Section 2.2.2 briefly reviews the literature on aid and growth relationship and introduces the condition subjectivity of aid effectiveness concept. In Section 2.2.3, the literature dealing with the causality from aid to domestic investment is examined.

2.2.1. Five premises on aid

As the literature on aid started to develop, various propositions arise in the studies. Collier (1999) interrogates five common of these premises on aid under the idea of aid dependency. In the first premise, the magnitude of aid flows is

discussed to be a significant factor in affecting the effectiveness of aid flows. This premise built on the proposal that slower growth in Africa relative to other continents could be a result of comparatively large amount of aid to African countries. High aid is accused to detriment policy in Africa, and harmed policy does not allow aid to be effective. However, Collier (1999) counters the reasoning of the slower growth rates in Africa with big amounts of aid beyond limits of efficiency with the evidence presented Collier and Dollar (2002) which indicates that the aid to African countries is below the level where it becomes destructive regardless of policy.

The second premise presents the similarities between the concepts of aid dependency and welfare dependency. Consequences of a welfare payment system, such as lost appetite to work because of being trapped in new welfare conditions, are proposed as potential results of high aid to poor countries. However, Collier (1999) argues that any parallel effects of aid to those of welfare dependency are unimportant and aid may even effect the will to work and invest positively.

The third premise asserts aid as unnecessary distracter in an environment dominated by private capital inflows and governments are advised to concentrate on attracting private investment since aid would be detrimental after certain degrees. Collier (1999) indicates that aid interacts in a relatively complex path as aid has an important role in formation of private capital flows and growth up to a level, and therefore suggests to program aid by taking into account of the private investment and economic growth.

In the fourth premise, the belief about aid being a source of instability in the economy because of its hypothetical volatile nature is mentioned. This belief is

refuted in Collier (1999), in view of the statistical measures reporting that aid is not fickle, even more reliable than government revenues, and for this reason, aid is prescribed to be added in the budgets of where deficit prevails in order to sustain policy.

The fifth premise dooms aid to shrink on account of the evidence of donor fund retrenchments. Yet, Collier (1999) warns not to mix up the consequences of a phase in aid history to overall trend of aid. The simultaneous occurrence of cutback in aid supplies of USA and Western Europe is uttered to be an accident in the history, and such drops are advised not to be considered as the general tendency.

Many other studies also investigated these propositions. For instance, the negative returns from high aid flows in aid receiving countries which questions an idea parallel to one premise presented in Collier (1999) is inspected in Lensink and White (2001). In the study, negative returns from high aid flows are analyzed empirically and presents the idea with the aid Laffer curve. Studies such as Lavy and Sheffer (1991) or Sobhan (1996) are referred in order to explain diminishing returns to aid with absorption capacity of countries. But also, distortions in the policy resulting from high aid flows are mentioned as important on decreasing efficiency of aid. With a similar idea, Knack (2001) analyzes cross country data, to see whether higher levels of aid erode the governance, and presents empirically that the quality of policy is negatively effected with the aid. On the contrary, in the analysis of the relationship between aid and corruption, by employing physical and psychic distance to the aiding country as instrument variables Tavares (2003) finds that aid lessen the corruption. However, although there are several such

studies examining the propositions mentioned in Collier (1999), aid literature seems to rather concentrated on the necessary conditions for aid to be effective on economic indicators.

2.2.2. Necessary conditions for effectiveness of aid

A recent study on the effectiveness of aid is Boone (1996). In this study, the importance of three political regimes, namely, egalitarian, elitist, and laissez-faire on effectiveness of aid is inspected. Boone (1996) defines two channels through which previous literature theorize aid to realize its proposed goals. In the first mechanism, the imperfect capital market is emphasized and aid is suggested to support projects which cannot be launched or finalized due to immobility of capital and insufficient domestic saving in developing countries. In the second channel, aid's effect on fiscal policy is pointed out as in Barro (1990). Through this channel, aid lets the social planner cut taxes that distort investment, and hence, higher investment results in faster growth. However, since these channels strongly depend on political regimes, Boone (1996) studies the relationship between political regimes classified according to their interest groups and aid efficiency, and finds out that aid does not significantly effect growth, investment or development. Moreover aid is found to positively effectual on the size of government.

Boone (1996) is an important study in the literature, since aid is mentioned not to increase economic growth and development in a poor country. However, later studies such as Hadjimichael et al. (1995), Durbarry et al. (1998), Lensink and White (1999) and Burnside and Dollar (2000) probe the results of Boone

(1996). Although these four studies conclude that aid has positive effects on growth, Burnside and Dollar (2000) influenced not only the later studies and press, but also decisions of aid agencies and policymakers, relatively more than the rest including Boone (1996), because Burnside and Dollar (2000) focused on the hypothesis that the impact of aid on economic growth is dependent on policies which are actually effective on growth and tested the hypothesis with an interactive measure of aid with quality of policy. In their study, Burnside and Dollar (2000) state the importance of the policies in developing countries by referring to the studies of Easterly and Rebelo (1993), Fisher (1993) and Sachs and Warner (1995) where economic policies of a developing country are very effective on growth. Burnside and Dollar (2000) defines aid as an income transfer which may promote economic growth if it is utilized in investment or may not effect growth if it is consumed. Thus, the efficiency of aid is defined as being dependent on the proportion of aid that is invested. Since the possibilities of investing some portion of aid, and returns of that investment depends on status of policy, Burnside and Dollar (2000) argues that economic growth can be explained with interaction terms of aid with quality of policy alongside aid, initial income, policy measures and other control variables. In Burnside and Dollar (2000), it is found that aid has a positive effect on growth in developing countries where sound fiscal, monetary and trade policies are in rule, and if the policies are defective, aid cannot be that effective. Accordingly, aid should be allocated to countries with sound policies, but Burnside and Dollar (2000) states that in actuality it is the opposite case in which aid does not go to good policy environments.

However, as noted in Hudson (2004), the optimistic results of Burnside and Dollar (2000) had much repercussions. Burnside and Dollar (2000) is generally criticized in the literature because of the changeability of results with different sets of sample and inexistence of shocks in the original model. Hansen and Tarp (2001) shows that utilizing the outliers in the model of Burnside and Dollar (2000) affects the significance of the results presented in Burnside and Dollar (2000). In Hansen and Tarp (2001) terms used for the interaction between aid and policy in Burnside and Dollar (2000) and decreasing marginal returns to aid flows in Hadjimichal et al. (1995), Durbarry et al. (1998), and Lensink and White (1999) are analyzed. Contrary to findings of Burnside and Dollar (2000), Hansen and Tarp (2001) presents that aid is always positively effectual on growth rate irrespective of quality of policy, and nonlinearities, which are uncovered due to Burnside and Dollar (2000) misspecification, are important. Also, even though aid is not found to effect growth in models that include capital accumulation, the impact of aid on growth is verified through investment channel.

Another study that questions the sample dependent results of Burnside and Dollar (2000) is Dalgaard and Hansen (2001). In this study, the data set utilized in Burnside and Dollar (2000) is used to reassess the uncertain interaction between aid and policy. It is mentioned that with the sample selection procedure applied in Burnside and Dollar (2000), there are possibilities to reach different conclusions. In fact, the results in Dalgaard and Hansen (2001) presents a substitute relationship between aid and good policy that good policy decrease the positive

effectiveness of aid on growth claiming that the findings of Burnside and Dollar (2000) are not robust.[2]

Guillaumont and Chauvet (2001) questions whether good policy is effective on efficiency of aid, and declares many new environmental factors such as unsteadiness in the real value of exports and ToT trend, and climatic shocks, which are generally external to the economy and may concern aid effectiveness. Guillaumont and Chauvet (2001) finds that the effect of aid on economic growth is not positive in every instance and effectiveness of aid strongly depends on environmental conditions. Negative effects of environmental shocks on growth is found to be offset by aid, that is, aid is more efficient in countries in bad environmental conditions. Nevertheless, effectiveness of aid is not observed to be a function of goodness of policy. Moreover, Guillaumont and Chauvet (2001) shows that in actuality, the aid targeting pays attention to the desperation caused by exogenous environmental shocks but not to the quality of the policy.

Collier and Dehn (2001) also criticize Burnside and Dollar (2000) since their model does not include extreme shocks in their model. By inserting shocks in the model of Burnside and Dollar (2000), Collier and Dehn (2001) get significant results where shocks effect growth negatively in each choice of sample. Moreover, aid is found to be significantly counterbalancing the effects from shocks on growth. Therefore, rather than directing aid to good policy environments as suggested in Burnside and Dollar (2000), Collier and Dehn (2001) advise to target aid to the countries where impacts of an extreme negative shocks remain.

[2] Dalgaard and Hansen (2001) also introduces aid squared term to capture decreasing returns to aid, and notes a nonlinear relationship, which is parallel to the result in Hansen and Tarp (2001).

However, it is shown that in real life, donors does not pay attention whether a country experiences a shock.

Rather than varying or extending Burnside and Dollar (2000) by inserting new variables to the model or diverting from the original sample selection mechanism, Easterly et al. (2003) only updates the original data set used in Burnside and Dollar (2000) by filling in the holes in the set and adding four more years of observation and additional countries. With this new data set, by preserving the initial methodology, Easterly et al. (2003) rechecks the robustness of the results. Indeed, the expansion of the data set causes doubts on the outcomes of Burnside and Dollar (2000), in which aid affects growth in the existence of good policy, because results in Easterly et al. (2003) shows that interaction term of aid with policy is not significant any more with the new data set. Consequently, Easterly et al. (2003) counsels policymakers, international aid agencies and economists not to be much confident on results presented in Burnside and Dollar (2000).

In view of all comments on Burnside and Dollar (2000), Burnside and Dollar (2004) revisits the suggestion on aid and policy relationship. First, Burnside and Dollar (2004) mentions the inconsistencies in the literature, since some studies such as Hansen and Tarp (2001) find aid to be effectual in everywhere regardless of policy conditions, whereas some other studies such as Boone (1996) present aid as ineffective in any cases. Also, by presenting a figure on growth, aid and policy, Burnside and Dollar (2004) refutes the claims of Easterly et al. (2003) which is the denial of the conclusion in Burnside and Dollar (2000) with an expansion in the original data set. Next, with a new data set, which

only includes the observations from 90s, Burnside and Dollar (2004) tests three separate hypothesis: Aid promotes economic growth despite the quality of governance (unconditionality); aid does not promote economic growth in any conditions of governance (ineffectiveness); and aid promotes economic growth in case where governance, which effect growth positively, is well developed (conditionality). Burnside and Dollar (2004) finds that test results verify the proposition of Burnside and Dollar (2000) since conditionality hypothesis is found highly significant. Burnside and Dollar (2004) also concludes that the evidence on conditionality hypothesis is stronger than that of unconditionality hypothesis. Nonetheless, Burnside and Dollar (2004) cannot reject ineffectiveness hypothesis due to the fragility of statistical outcomes.

Putting aside the uncertain results on dependency of aid effectiveness on policy, Nkusu and Sayek (2004) search whether financial market development boost effectiveness of aid on economic growth. Nkusu and Sayek (2004) utilizes three financial indicators, namely liquid liabilities of the financial system, private sector credits, and bank credit, in order to capture the effect of the depth and development of financial markets on growth. Moreover, interaction terms of aid with these indicators are employed to catch the influence of financial market development on efficiency of aid on growth. Regression results present that interaction terms of aid with financial market development indicators are positive and significant, which support the hypothesis.

2.2.3. Aid to investment causality

In addition to the studies where aid directly enters growth equations, the underlying idea which is the impact of aid on investment is analyzed explicitly in numerous studies. In an early study, Levy (1987) examines the relationship between concessionary aid flows and domestic investment rates in cross country set of forty six low income countries over a thirteen years of observation. Over this period, the existence of considerable dissimilarities in investment and saving rates among these forty six countries is presented to be comparatively stable. Moreover, in order to wipe out the effects of random shocks or cyclical variations on variables, averages over six years or more are used. The results support the hypothesis that concessionary aid leads investment in low income countries, and indeed the extend of effect of a rise in aid on investment rates is very high to conclude one to one and positive relationship between aid and domestic investment.

In Dollar and Easterly (1999) two keys to unlock growth potential of Africa are examined, which are aid to investment key and aid to policy key. The idea underlying the first key is that, since the domestic savings in Africa is too low to finance domestic investment, aid can be utilized as and investment financing tool, and so, increase in the investment rates effects the growth rate positively. With this hypothesis, in the regressions Dollar and Easterly (1999) explain domestic investment with aid, and growth with domestic investment using one year lagged variables and averages over four years. The finding show that aid financed investment key does not unlock growth since effect of aid on investment and effect of investment on growth in African countries are not found to be robust.

In the book "The Elusive Quest for Growth", Easterly (2001) first tells the success story of Ghanaians about the Akosombo Dam built on Volta River with the aid coming from World Bank, and American and British governments. Subsequently, the mechanism of aid-financed investment is clarified with Harrod - Domar model. In this model, aid fills the financing gap which occurs due to the lack of private investment in countries like Ghana. That is to say, aid helps to attain the target growth rates through investment. Next, the links from aid to investment and from investment to growth are controlled in the case of Zambia. The investment rates in Zambia before receiving large amounts of aid is stated to be high. However after getting the aid, investment rate in Zambia is pointed out to be decreasing and investment is not found to generate growth. Existence of similar cases such as Mozambique and Zimbabwe are also mentioned and hence the prediction of the model is presented to be weak.

Morrissey (2001) firstly analyzes the differences between two and three gap models and new growth models. It is stated that the gap models attribute temporariness to the impact of aid on economy, whereas new growth theory asserts the permanency of the effect. Yet, except one difference about the lifetime of aid's effect, Morrissey (2001) finds the models very analogous on aid to growth mechanisms. Summary of these mechanisms also include the aid to investment causality in which aid is used in physical capital accumulation and human capital formation. In conclusion, the returns from aid is connected to the positive effects on productive investment, domestic savings, technology transfers and human capital development.

In Collier and Dollar (2004) investment is regressed on several variables including initial gross national product (GNP) per capita, share of ODA in GDP as aid, square of aid, policy and interaction term of aid with policy. The data set in Collier and Dollar (2002) is utilized in the regression and the results give an account for the positive average stimulation of aid on investment. Negatively significant coefficient of aid squared term is reported to be the diminishing returns to aid. Policy term is not found to be significant; however, contrary to the suggestion of Dalgaard and Hansen (2001), interaction term of aid with policy is obtained to be positively significant, which indicates that aid and policy are found to be complements.

As summarized in this section, aid literature is dominated with the models in which economic growth and domestic investment are explained with aid. However, these models are good examples to derive ideas for an original model where aid determines FDI only in some specific circumstances. In view of the identifications and econometric models, Chapter 3 develops the novel model where aid is incorporated to identify FDI.

CHAPTER 3

DATA AND METHODOLOGY

In this chapter, firstly the hypotheses are stated and the pre-models of previous chapter are outlined in Section 3.1. Next, the data, the variables used in the estimation of the models are described in detail in Section 3.2. Subsequently, the econometric methodology is presented in Section 3.3.

3.1. Hypotheses

In order to explain FDI, parallel to the hypotheses in the FDI literature, this study incorporates many variables. The preceding chapter indicate that actual and potential size of the market, openness to trade, interest rates and exchange rates are commonly utilized determinants of FDI. In addition, the model is appended with aid and lagged FDI.

As a matter of fact, aid is never used in an aggregate study to control the effect on FDI flows. Root and Ahmed (1978) mention aid as determinant of FDI but does not report a significant relationship. Blaise (2005) gives an account to the positive and significant causality, yet this result cannot be generalized due to microeconomic orientation of this study. For this reason, by taking into account the unconditional promoting effect of aid on domestic investment and growth in

the studies such as Hansen and Tarp (2001), this study asserts a positive causality from aid to FDI.

Lagged values of FDI appear in models to capture the influence of past FDI inflows on current FDI. Both Singh and Jun (1995) and Deichmann et al. (2003) propose lagged values of FDI and find positive and significant relationship between past and current values of FDI. This study also hypothesizes positive causality from previous to present FDI inflows, that is, high FDI in the past foretells higher FDI inflows at the present time.

GDP growth is included which measures potential market size. Analogous to the finding of Nigh (1986) and Albuquerque et al. (2003), higher GDP growth rates indicating larger market size is expected to be more attractive for FDI inflows.

GDP per capita is added to capture both actual market size and economic development. Lall et al. (2003), Singh and Jun (1995) or Deichman et al. (2003) report the coefficient of GDP per capita is positive, since relatively big actual markets with developed economies are hypothesized to be favored by FDI. So, higher values of GDP per capita are expected to correspond to higher FDI.

Human capital is another development indicator which is examined in the model. However, since GDP per capita and human capital are found to be highly correlated[3] these variables do not appear in the same models, and are used as substitutes. Importance of education is mentioned in Lall et al. (2003) and Deichman et al. (2003). These studies find positive relationship between

[3] See Appendix C.

educational development and FDI inflows. Correspondingly, human capital variable in this study is also expected to effect FDI positively.

Openness to trade is controlled which indicates the development in trade policies. Deichman (2001), Janicki and Wunnava (2004), Galego et al. (2004) and Smarzynska and Wei (2001) all state the complementary relationship between openness to trade and FDI inflows. Parallel to this idea, the expectation on this variable is that, the more the country is open to trade, the more she will receive FDI. As a proxy of trade policy development, share of total exports and imports in GDP is utilized.

REER is inserted to catch the appreciation and depreciation of the domestic currency and its effects on FDI. The link from exchange rates to FDI is found to be negative in Aliber (1970), Lall et al. (2003), Love and Lage-Hidago (2000), and Singh and Jun (1995). Similarly, REER and FDI relationship is expected to be negative, that is FDI is distracted by an increase in REER, or an appreciation of domestic currency, and FDI is attracted by a decrease in REER, that is a depreciation of domestic currency.

Inflation is put in the model as an instability indicator. Since FDI seek stable economies, inflation is expected to be a negative determinant of FDI which mean that as inflation in a country increases FDI inflow will decrease. Variation in the inflation is also integrated to the model as another instability indicator. Similarly, the relationship between variation in the inflation and FDI is expected to be negative.

In order to test these specifications, the basic model is constructed:

(3.1.1) $FDI_t = f(Aid;\ lagged\ FDI;\ other\ control\ variables)$

Subsequently, in view of the aid literature on conditional effects of aid on economic growth and domestic investment, this study incorporates interaction terms into the basic model constructed in the previous section. In the first augmented model, the interaction term of aid with quality of governance variables are included. Similar to the hypothesis in Burnside and Dollar (2000, 2004) where positive effect of aid on growth is subject to the development in policy, aid interacted with sound governance is expected to be positively effectual on FDI whereas the single term aid need not be positive. Additionally, the interaction term of lagged values of FDI with quality of governance are integrated to the model. Just like the hypothesis on interaction term of aid, while lagged FDI is not necessarily expected to boost current FDI, interacted FDI terms are expected to promote current FDI inflows. To summarize, in the absence of sound political environment, aid and lagged FDI are expected to effect the current FDI negatively. However, if the governance is well developed, aid and lagged FDI are expected to increase FDI inflows. The hypotheses on all other variables are like in the basic model.

In the second augmented model, as controlled in Nkusu and Sayek (2004), and Albuquerque et al. (2003), the conditional influence of financial market development indicators on effect of aid and lagged FDI is checked. Rather than inserting interaction terms of aid and lagged FDI with quality of governance,

interaction terms of aid and lagged FDI with financial market development indicators are integrated to the basic model. Expectations are parallel to the literature, specifically, if the financial market is well developed with sound depth, the effects of aid and lagged FDI on current FDI flows are expected to be positive, whereas undeveloped financial markets are expected to hinder the positive effects of aid or lagged FDI. Again, the expectations on all other variables, which also appear in the basic model, does not divert. Based on these expectations, extended models are formed:

(3.1.2) $FDI_t = f$ *(Aid; Aid × Governance; lagged FDI; lagged FDI × Governance; other control variables)*

(3.1.3) $FDI_t = f$ *(Aid; Aid × Financial Market Development; lagged FDI; lagged FDI × Financial Market Development; other control variables)*

In (3.1.2) and (3.1.3) the effect of governance and the effect of financial market development on FDI is analyzed separately. Alternatively, in the last augmented model all interaction terms, that is, the terms with quality of governance and the terms with quality of financial markets are employed altogether. Yet, expectations on these terms are not changed. To be precise, in this model, aid and lagged FDI are hypothesized to be supporting current flows of FDI under reliable conditions of governance and financial market; and the effect of aid and lagged FDI is expected to be obstructing if the governance and financial

markets are undeveloped or functioning inaccurately. Expectations on all other variables do not alter. (3.1.4) models the effects of both governance and financial market development on FDI jointly.

(3.1.4) $FDI_t = f$ *(Aid; Aid × Governance; Aid × Financial Market Development; lagged FDI; lagged FDI × Governance; lagged FDI × Financial Market Development; other control variables)*

Table 3.1 summarizes variables utilized in the simple and three augmented model, and the hypotheses on their effects on FDI.

Table 3.1: Variables in models and their expected effects on FDI

Name of the variable	(3.1.1)	(3.1.2)	(3.1.3)	(3.1.4)
Aid	(+)	(?)	(?)	(?)
Aid with sound governance		(+)		(+)
Aid with sound financial markets			(+)	(+)
Lagged FDI	(+)	(?)	(?)	(?)
Lagged FDI with sound governance		(+)		(+)
Lagged FDI with sound financial markets			(+)	(+)
GDP growth	(+)	(+)	(+)	(+)
GDP per capita or Human capital	(+)	(+)	(+)	(+)
Openness to trade	(+)	(+)	(+)	(+)
REER	(−)	(−)	(−)	(−)
Inflation	(−)	(−)	(−)	(−)
Inflation volatility	(−)	(−)	(−)	(−)

Many other determining variables of FDI mentioned in the literature, such as interest rates, cost differentials, physical and psychic distance, and market power

are excluded in this study. This omission of variables is due to several reasons: First reason is the high correlation between added variables and omitted ones; for instance, interest rates are highly correlated with the inflation, and hence omitted from the model. Second reason is the unavailable or unsatisfactory data of some variables; e.g. data on cost differentials is not satisfying, and REER captures the effect of cost differentials up to a degree. Third reason is the aggregate objective of the study; the variables such as physical distance can be used efficiently in bilateral studies, yet comprehensive structure of this study does not allow the usage of such fixed measures. Fourth reason of non-inclusion is for the sake of simplicity; for example, supply side factors such as market power or existence of product cycle is out of scope of this study.

3.2. Data and the variables

This study uses a panel data set composed of 97 countries and over the period of 1960-2004, where available. Since there are some missing observations for some variables in different time periods for different countries, the data is unbalanced. The data is obtained from four different sources: Data of aid, FDI, growth of GDP, GDP per capita, openness, REER and inflation are obtained from World Development Indicators Online. GDP and claims of deposit money banks is acquired from IMF IFS CD-ROM version 1.1.54. Governance indices are obtained from Kaufmann et al. (2003). Human capital data is taken from the study of Barro and Lee (2000). Appendix A provides an explanation of the data, sources of data and the derivations of all variables.

The main variables employed in the basic model consist of FDI and aid. Share of FDI in GDP (sFDI) is used as the endogenous variable. Share of official development assistance (ODA) in GDP (sODA) is taken as the aid measure. However, since the right hand side effects on FDI takes some time to realize, and also to smooth cyclical variations and exogenous shocks, moving average of the variables over *n* years (MA*n*) are taken. For this reason, MA*n* of sODA (MA*n*sODA) is used in the models. The coefficient of MA*n*sODA is expected to be positive, which reflects the main hypothesis. Moreover, in order to control the effects of past sFDI on current sFDI, the first lag of MA*n* of sFDI (MA*n*sFDI(−1)) is inserted as an explanatory variable. MA*n*sFDI(−1) is expected to effect sFDI positively, representing the hypothesis that past flows of FDI will result in higher rates of FDI.

In order to estimate these relationships, development indices, inflation, real effective exchange rate, openness and growth of GDP are also controlled for. First of all, the effect of development level on sFDI is controlled with the MA*n* of natural logarithm of GDP per capita in current US dollars (MA*n*lnGDPpc). It is possible that the countries with higher MA*n*lnGDPpc will receive more sFDI, thus the coefficient of MA*n*lnGDPpc is expected to be positive. In alternative models, since average years of secondary schooling as a measure of human capital (HK) may have similar effects on sFDI as that of MA*n*lnGDPpc, MA*n* of HK (MA*n*HK) is employed in place of MA*n*lnGDPpc. The effect of MA*n*HK is likely to be positive because this variable also measures the degree of development. Additionally, interaction term of MA*n*lnGDPpc with regional dummy of Africa

(MA*n*lnGDPpc × Afr) is added in models to control for possible different response of FDI to the level of development in African countries.

Secondly, the effect of inflation on sFDI is measured with the MA*n* of the rate of depreciation in money stock (MA*n*D) where the rate of depreciation in money stock (D) is as in Cukierman et al. (1992)[4]. The effect of MA*n*D on sFDI is expected to be negative, indicating that higher rates of past inflation will depress current flows of FDI. Moreover, the standard deviation of D over *k* years (σkD) is used as instability indicator. The effect of fluctuations on sFDI is expected to be negative.

Thirdly, MA*n* of natural logarithm of real effective exchange rate index for 1995=100 (MA*n*lnREER) is added to the models to control for the effect of exchange rate on sFDI. It is expected that the effect of MA*n*lnREER on sFDI will be negative, showing that depreciation of host country's currency will attract more FDI flows.

Fourthly, openness of a country to trade is another variable that influence FDI flows. Openness to trade can be measured with the ratio of exports (X) and imports (M) of goods and services to GDP. Hence, MA*n* of the sum of share of X and M in GDP in current local currency (MA*n*open) is inserted to the models as a control variable. The coefficient of MA*n*open is expected to be positive, supporting the belief that openness to trade will improve FDI inflows.

Finally, growth of GDP is possible to have effects on sFDI, therefore MA*n* of growth in GDP (MA*n*grGDP) is added to models. In view of the opinion that GDP growth will draw FDI, MA*n*grGDP is expected to change sFDI positively.

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[4] $D = \pi/(1+\pi)$ where π denotes inflation rate. Appendix A presents derivation of D.

In addition to all these control variables, there are interaction terms of MA*ns*FDI and MA*ns*ODA with quality of governance (Gov) and financial market development (FMD) indicators. Firstly, there are six Gov indicators which are constructed with an unobserved components methodology by Kaufmann et al. (2003)[5] and cover 199 countries and territories for 1996, 1998, 2000 and 2002. These indices combine numerous measures of governance and the original governance scores lie between -2.5 and 2.5 where higher scores in each index mean better governance. However, since these indices are used in the interaction terms, this study takes the average values of the four time periods and normalize these values to an interval between 0 and 1. The normalized governance indicators are Political Stability and Absence of Violence (Pols), Rule of Law (Rule), Control of Corruption (Contcorr), Government Effectiveness (Goveff), Regulatory Quality (Requal), and Voice and Accountability (Voacc). Pols index determines perceptions of the possibility of an overthrow or destabilization of the government in act with illegal and violent method. Rule index indicates the extent of confidence in and recognition of the rules of the society by the citizens. Contcorr index determines perceptions of corruption, which is public power used for individual benefits. Goveff index measures the quality of bureaucracy and public service provision, the capability of civil servants, the independence of civil service from political pressure, and the reliability of the commitment of government. Requal index determines the rate of existence of market-unfriendly policies, and Voacc index measures the political rights and freedom of individuals. This study employs product of MA*ns*ODA with Gov indicators

[5] Governance Matters III: Governance Indicators for 1996-2002, The World Bank.

(MA*n*sODA × Gov), and the first lag of the product of MA*n*sFDI with Gov indicators (MA*n*sFDI × Gov(−1)). The coefficients of both variables are expected to be positive reflecting that good governance in a country improves the effects from aid and FDI.

Secondly, this study uses three financial market development (FMD) indicators. These indicators shows to what extend the financial market is developed, and higher values mean better financial market conditions. As done for Gov indicators, FMD indicators are normalized between 0 and 1. These indicators are share of money and quasi money in GDP (sM2); share of total claims of deposit money banks in GDP (sCR); and share of claims of deposit money banks on private sector in GDP (sCRpr). FMD interaction terms appearing in the models are the product of MA*n*sODA with FMD indicators (MA*n*sODA × FMD) and the first lag of the product of MA*n*sFDI with FMD indicators (MA*n*sFDI × FMD(−1)). As countries with well developed financial markets are expected to have positive returns from aid and FDI, both interaction terms are expected to affect sFDI positively.

3.3. Methodology

This section explains the methodology applied to the panel data set introduced in the previous sections. Since panel data sets covers both time-series and cross-sectional data, the increase in available data, and consequent increase in degrees of freedom make these sets very useful in the econometric analyses. Moreover, studies using panel data sets can address complex models involving

important economic problems which can be analyzed neither by time-series data, nor by cross-sectional data.

The general static single-equation panel model is:

$$y_{it} = x'_{it}\beta + \tau_t + \iota_i + \varepsilon_{it},$$

$$t = 0,\ldots,T-1,$$

$$i = 0,\ldots,N-1,$$

where x_{it} is a vector of K explanatory variables, τ_t is time specific effect, ι_i is individual specific effect, ε_{it} is the error term, T is time range and N is number of individuals.

When explanatory variables include some of the lagged values of dependent variables, the model becomes dynamic and such a model can be written as:

$$y_{it} = \sum_{s=1}^{z} \alpha_i y_{i,t-s} + x'_{it}\beta + \iota_i + \varepsilon_{it},$$

$$t = 0,\ldots,T_i-1,$$

$$i = 0,\ldots,N-1,$$

where lagged values of dependent variables are available, x_{it} is a vector of K explanatory variables, ι_i is individual specific effect, ε_{it} is the error term, T_i is number of time periods for ith individual for an unbalanced panel data set, and N is number of individuals.

Nickell (1981) shows that the dynamic character of the model and existence of individual specific fixed effects cause problems and inconsistent estimates in OLS estimation of the models and the asymptotic biases are presented to be large and matching with the estimates in Nervole (1967) and Maddala (1971). Since the

models in this study have explanatory variables including some lagged values of the dependent variable and the panel data set is unbalanced; dynamic panel data estimation method developed by Arellano and Bond (1988) is found to be the proper technique to estimate the model. The computer software Ox version 3.10 is used in model estimations and "Panel Data estimation, using DPD for Ox" by Doornik, Arellano and Bond (2002) is used to apply the unbalanced panel data set in an appropriate way and utilize the generalized methods of moments (GMM).

In this method, in order to remove country specific fixed effect biases, the estimations take the first differences of all variables in the equation. This transformation leads to a decrease in the number of observations by the number of cross-section observations, N, and thus to a loss in degrees of freedom in estimation. Although, the basic model assumed to have white-noise errors; the transformation causes first order serial correlation in the error terms. Hence, instrumental variables technique is employed to prevent this serial correlation. The first and second moments of the rest of the lags of the dependent variable that is not used in the explanatory part of the model, is built with GMM technique in Arellano and Bond (1988) and applied as the GMM instrument. The set of instrument variables is composed of all explanatory variables except MAnsFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MAnsFDI. The specifications and lag lengths are tested with Sargan test and serial correlation test.

The Sargan test is used to test the validity of instrument variables. The hypothesis being tested with the Sargan test is that the instrumental variables are

uncorrelated with a set of residuals, and hence instruments are suitable. If the null hypothesis is not rejected by the statistic, the instruments are valid.

AR(m) tests are used to test the existence of m order serial correlation respectively. The hypothesis being tested with AR tests is that there does not exist m order serial correlation. If the null hypothesis is rejected by the statistic, there exists m order serial correlation. For the purposes of the analysis, since dynamic panel data involves an AR(1) process for the error terms, the lack of second order autocorrelation is the main concern, which thus requires the non-rejection of H_0 = no AR(2) or H_0 = no m_2 as denoted in Arellano and Bond (1991).

Moreover, Wald tests are used to test the significance of groups of variables. Wald (Joint) test in the tables are on all explanatory variables except dummies. The null hypothesis being tested with Wald (Joint) test is that none of the coefficients, excluding the constant, in the model is statistically significant. If the null hypothesis is rejected by the statistic, then at least one of the coefficients is statistically significant. Wald (Dummy), Wald (sODA terms), Wald (sFDI terms) and Wald (lnGDPpc terms) tests are similar tests to check the significance of dummies including constant term; significance of all terms with sODA; significance of all terms with sFDI; and significance of all terms with lnGDPpc, respectively.

CHAPTER 4

REGRESSION ANALYSIS

In view of the foregoing explanation on the data, the variables and the econometric methodology, in this chapter, firstly the model specifications are introduced in section 4.1. Then, regression results are discussed in section 4.2.

4.1. Models

Based on the test results, specifications taking $n = 3$ and $k = 5$, that is, using MA3 of the explanatory variables, and σ5D with the particular instrument variables, are found to be appropriate. Specifically, Sargan test results reported that instrument variables are found to be uncorrelated with the error terms and m_2 tests presented that there is no second order serial correlation.

When the variables are integrated into the basic model of this study, the model (3.1.1) can be rewritten as:

$$\begin{aligned} sFDI_{it} = {} & \alpha_{0i} + \alpha_1 (\mathrm{MA3}\, sODA)_{it} + \alpha_2 (\mathrm{MA3}\, sFDI)_{i(t-1)} \\ & + \alpha_3 (\mathrm{MA3} \ln GDPpc)_{it} + \alpha_4 (\mathrm{MA3}\, D)_{it} + \alpha_5 (\sigma 5\, D)_{it} \\ & + \alpha_6 (\mathrm{MA3} \ln REER)_{it} + \alpha_7 (\mathrm{MA3}\, open)_{it} \\ & + \alpha_8 (\mathrm{MA3}\, grGDP)_{it} \end{aligned} \tag{4.1.1}$$

The main hypothesis here is that MA3sODA affects sFDI positively. Other expectations are that MA3lnGDPpc, MA3open, MA3grGDP, and MA3sFDI(−1) affects current sFDI positively while MA3D, σ5D, and MA3lnREER affect sFDI

negatively.[6] For all following regressions, dynamic panel data estimation method, described in Section 3.3, was used; and estimation is carried out with Ox version 3.10. The instrument set includes all right hand side variables except MA3sFDI and GMM-type instrument is fourth and further lags of MA3sFDI.

The regression results of (4.1.1) are presented in the first column of Table 4.1.1. Test results of first column of Table 4.1.1 present joint significance with well defined instruments and no second order autocorrelation. However, although MA3sFDI(−1), MA3D, MA3lnREER, MA3open and MA3grGDP have coefficients corresponding to the expectations, the results show that MA3sODA and σ5D is statistically significant at %1 level with unexpected signs. Also, interestingly it is found that coefficient of MA3lnGDPpc is statistically significant at 1% level with a minus sign.

Alternatively MA3HK is used in place of MA3lnGDPpc since both of the variables measure the similar effect on sFDI. Results are shown in the second column of Table 4.1.1. The results presents that the signs of coefficients of all variables except MA3sODA are matching with the expectations stated above. Null hypothesis of Wald tests are rejected which means that at least one of the coefficients is statistically significant. Sargan test result shows that instruments are appropriate and m_2 test result indicates that there is no second order autocorrelation.

Based on the investigation of the residual terms of the regression results in first column of Table 4.1.1, it is observed that the residuals of African countries stand out as largely negative. Therefore, the effect of MA3lnGDPpc on sFDI in

[6] Squared aid term is controlled for returns of scale. The term is not found to be significant indicating constant returns to scale.

Africa is separately inspected. A possible different behavior of Africa is controlled with the inclusion of the interactive term of MA3lnGDPpc × Afr. The results are reported in the third column of Table 4.1.1.

Table 4.1.1: Regression results of the basic model (4.1.1)

Dependent Variable: sFDI

Explanatory variables:	I	II	III
(MA3sODA)	-0.05*** (-17.70)	-0.05*** (-10.30)	-0.06*** (-16.40)
(MA3sFDI)(−1)	0.18*** (142.00)	0.39*** (66.30)	0.16*** (85.50)
(MA3lnGDPpc)	-0.002*** (-6.77)		0.01*** (17.60)
(MA3HK)		0.01*** (13.60)	
(MA3lnGDPpc × Afr)			-0.02*** (-38.40)
(MA3D)	-0.02*** (-18.80)	-0.02*** (-17.60)	-0.02*** (-15.00)
(σ5D)	0.01*** (4.29)	-0.02*** (-10.50)	0.0003 (-0.18)
(MA3lnREER)	-0.002*** (-13.50)	-0.01*** (-19.60)	-0.003*** (-10.90)
(MA3open)	0.02*** (42.30)	0.02*** (34.20)	0.02*** (28.10)
(MA3grGDP)	0.08*** (31.50)	0.06*** (8.25)	0.08*** (64.50)
Constant	0.001*** (68.40)	0.0001*** (2.34)	0.001*** (44.70)
No. of Observations	1320	1013	1320
Wald (Joint)	66930 [0.00]	64620 [0.00]	63560 [0.00]
Wald (Dummy)	4683 [0.00]	5.47 [0.02]	2001 [0.00]
Wald (MA3lnGDPpc terms)			1630 [0.00]
Sargan test	85.09 [1.00]	64.98 [1.00]	89.06 [1.00]
m_2 test	-0.88 [0.38]	0.21 [0.83]	-0.88 [0.38]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Third column of Table 4.1.1 presents that negative coefficient of MA3lnGDPpc in the second column was due to African countries, since MA3lnGDPpc × Afr is negatively significant at %1, where MA3lnGDPpc is positively significant at %1. Strangely, in all three columns, the outcomes of MA3sODA are negative and significant. These negative results are possibly on account of low governance statistics in countries receiving aid. Hence, in order to control the governance effect on FDI flows, interaction terms of MA3sODA × Gov and MA3sFDI × Gov(−1) are introduced in (4.1.2):

$$\begin{aligned} sFDI_{it} = {} & \alpha_{0i} + \alpha_1 (\mathrm{MA3}\, sODA)_{it} + \alpha_2 (\mathrm{MA3}\, sODA \times Gov)_{it} \\ & + \alpha_3 (\mathrm{MA3}\, sFDI)_{i(t-1)} + \alpha_4 (\mathrm{MA3}\, sFDI \times Gov)_{i(t-1)} \\ & + \alpha_5 (\mathrm{MA3} \ln GDPpc)_{it} + \alpha_6 (\mathrm{MA3} \ln GDPpc \times Afr)_{it} \\ & + \alpha_7 (\mathrm{MA3}\, D)_{it} + \alpha_8 (\sigma 5D)_{it} + \alpha_9 (\mathrm{MA3} \ln REER)_{it} \\ & + \alpha_{10} (\mathrm{MA3}\, open)_{it} + \alpha_{11} (\mathrm{MA3}\, grGDP)_{it} \end{aligned} \tag{4.1.2}$$

For this model, the main hypothesis is that while the interaction term MA3sODA × Gov affects sFDI positively; the coefficient of MA3sODA needs not to be positive, which means that MA3sODA is effective on sFDI in a positive manner only if the country has stable governance. Also, for similar reasons, it is expected that the interaction term MA3sFDI × Gov(−1) has positive effects on sFDI where MA3sFDI(−1) need not be significantly positive. Coefficients of control variables are expected to be parallel to previous expectations. The regression results are presented in Table 4.1.2.

Table 4.1.2: Regression results of the model (4.1.2) with MA3lnGDPpc Introducing the interaction terms of MA3sODA and MA3sFDI with Gov

Dependent Variable: sFDI

Explanatory Variables:	Gov =	Pols	Rule	Contcorr	Requal	Goveff	Voacc
(MA3sODA)		-0.22*** (-13.70)	-0.26*** (-12.50)	-0.27*** (-20.40)	-0.44*** (-20.90)	-0.31*** (-22.40)	-0.22*** (-15.50)
(MA3sODA × Gov)		0.28*** (10.20)	0.63*** (13.70)	0.80*** (24.40)	0.76*** (19.00)	0.72*** (16.90)	0.37*** (17.10)
(MA3sFDI)(−1)		-0.90*** (-108.00)	-0.90*** (-102.00)	-0.68*** (-64.90)	-1.64*** (-132.00)	-1.10*** (-105.00)	-0.71*** (-64.80)
(MA3sFDI × Gov)(−1)		1.59*** (122.00)	2.22*** (118.00)	2.01*** (72.90)	2.78*** (150.00)	2.66*** (114.00)	1.23*** (73.00)
(MA3lnGDPpc)		-0.003*** (-3.04)	0.003*** (4.61)	0.004*** (6.93)	0.003*** (5.86)	0.003*** (5.45)	0.004*** (7.61)
(MA3lnGDPpc × Afr)		-0.02*** (-16.70)	-0.02*** (-24.00)	-0.02*** (-29.50)	-0.02*** (-24.00)	-0.02*** (-23.10)	-0.02*** (-27.70)
(MA3D)		-0.04*** (-27.20)	-0.02*** (-21.30)	-0.02*** (-24.70)	-0.02*** (-14.60)	-0.02*** (-22.40)	-0.02*** (-22.20)
(σ5D)		-0.02*** (-10.20)	-0.01*** (-4.99)	-0.01*** (-4.50)	-0.003** (-1.98)	-0.01*** (-3.39)	-0.002* (-1.65)
(MA3lnREER)		-0.003*** (-9.29)	-0.003*** (-9.13)	-0.003*** (-9.07)	-0.003*** (-9.32)	-0.003*** (-10.40)	-0.002*** (-7.64)
(MA3open)		0.03*** (47.30)	0.02*** (31.90)	0.02*** (33.40)	0.02*** (34.40)	0.02*** (29.10)	0.03*** (39.60)
(MA3grGDP)		0.03*** (11.20)	0.05*** (19.00)	0.05*** (22.50)	0.05*** (19.60)	0.05*** (22.70)	0.06*** (20.60)
Constant		0.001*** (32.10)	0.001*** (42.30)	0.001*** (41.20)	0.001*** (43.40)	0.001*** (51.00)	0.001*** (34.70)
No. of observation		1270	1320	1320	1320	1320	1320
Wald (joint)		76700 [0.00]	97170 [0.00]	31370 [0.00]	154000 [0.00]	63340 [0.00]	23960 [0.00]
Wald (dummy)		1031 [0.00]	1793 [0.00]	1694 [0.00]	1884 [0.00]	2600 [0.00]	1205 [0.00]
Wald (MA3sODA terms)		247.40 [0.00]	198.30 [0.00]	618.70 [0.00]	576.40 [0.00]	1380 [0.00]	337.20 [0.00]
Wald (MA3sFDI terms)		14900 [0.00]	21780 [0.00]	10700 [0.00]	35510 [0.00]	19920 [0.00]	7993 [0.00]
Wald (MA3lnGDPpc terms)		1024 [0.00]	1380 [0.00]	2961 [0.00]	610.10 [0.00]	843.30 [0.00]	1185 [0.00]
Sargan test		82.24 [1.00]	86.34 [1.00]	86.63 [1.00]	85.65 [1.00]	85.29 [1.00]	87.43 [1.00]
m_2 test		-0.04 [0.97]	-1.03 [0.30]	-0.99 [0.32]	-1.09 [0.28]	-0.97 [0.33]	-1.18 [0.24]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level and * indicates significance at 10% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

It can be seen in Table 4.1.2 that the results are consistent with the expectations that better Gov is needed for MA3sODA and MA3sFDI(−1) to affect sFDI positively. Other coefficients and test outcomes generally conform with the expectations as well. Moreover, instead of MA3lnGDPpc and MA3lnGDPpc × Afr, MA3HK is inserted to (4.1.2). The findings are in Appendix D and similar to the results in Table 4.1.2.

Subsequently, rather than putting interaction terms with Gov, interaction terms of MA3sODA × FMD and MA3sFDI × FMD(−1) are added into (4.1.1) with the intention of controlling the FMD effects on outcomes.

$$\begin{aligned} sFDI_{it} = {} & \alpha_{0i} + \alpha_1 (\mathrm{MA3}\, sODA)_{it} + \alpha_2 (\mathrm{MA3}\, sODA \times FMD)_{it} \\ & + \alpha_3 (\mathrm{MA3}\, sFDI)_{i(t-1)} + \alpha_4 (\mathrm{MA3}\, sFDI \times FMD)_{i(t-1)} \\ & + \alpha_5 (\mathrm{MA3} \ln GDPpc)_{it} + \alpha_6 (\mathrm{MA3} \ln GDPpc \times Afr)_{it} \\ & + \alpha_7 (\mathrm{MA3}\, D)_{it} + \alpha_8 (\sigma 5\, D)_{it} + \alpha_9 (\mathrm{MA3} \ln REER)_{it} \\ & + \alpha_{10} (\mathrm{MA3}\, open)_{it} + \alpha_{11} (\mathrm{MA3}\, grGDP)_{it} \end{aligned} \tag{4.1.3}$$

The main hypothesis of this model is that MA3sODA × FMD has positive effect on sFDI, but MA3sODA is not necessarily expected to have a positive effect on sFDI. Hence it is expected that MA3sODA is positively effectual on sFDI only in case where financial market is well developed. Likewise, MA3sFDI × FMD(−1) is expected to change sFDI positively, while MA3sFDI(−1) is not essentially expected to have positive effects on sFDI. Table 4.1.3 present the outcomes of the regression of (4.1.3).

Table 4.1.3 reports that the results are consistent with the expectations that better FMD is needed for MA3sODA and MA3sFDI(−1) to affect sFDI positively. Other coefficients and test results mainly correspond to the expectations. Also, the results from regression where MA3HK is used in (4.1.3) instead of MA3lnGDPpc

and MA3lnGDPpc × Afr are in Appendix D and similar to the results in Table 4.1.3.

Table 4.1.3: Regression results of the model (4.1.3) with MA3lnGDPpc Introducing the interaction terms of MA3sODA and MA3sFDI with FMD Dependent Variable: sFDI

Explanatory variables:	FMD =	M2	sCR	sCRpr
(MA3sODA)		-0.08*** (-17.70)	-0.11*** (-15.60)	-0.12*** (-21.60)
(MA3sODA × FMD)		0.17*** (16.00)	0.71*** (21.80)	0.72*** (30.10)
(MA3sFDI)(−1)		-0.26*** (-28.50)	-0.09*** (-17.80)	-0.14*** (-19.00)
(MA3sFDI × FMD)(−1)		1.67*** (44.20)	0.93*** (34.60)	1.09*** (34.90)
(MA3lnGDPpc)		0.003*** (5.03)	0.005*** (5.69)	0.003*** (3.09)
(MA3lnGDPpc × Afr)		-0.02*** (-23.90)	-0.03*** (-27.50)	-0.02*** (-22.30)
(MA3D)		-0.02*** (-16.80)	-0.01*** (-9.45)	-0.01*** (-9.55)
(σ5D)		-0.001 (-0.70)	0.001 (0.38)	0.001 (0.17)
(MA3lnREER)		-0.003*** (-11.50)	-0.003*** (-13.20)	-0.004*** (-8.44)
(MA3open)		0.02*** (26.30)	0.02*** (26.00)	0.01*** (18.80)
(MA3grGDP)		0.08*** (39.10)	0.09*** (41.80)	0.09*** (52.20)
Constant		0.001*** (28.40)	0.001*** (29.90)	0.001*** (30.60)
No. of Observations		1316	1308	1303
Wald (Joint)		129100 [0.00]	119700 [0.00]	123000 [0.00]
Wald (Dummy)		805.30 [0.00]	892.90 [0.00]	934.20 [0.00]
Wald (MA3sODA terms)		355 [0.00]	474.50 [0.00]	906.30 [0.00]
Wald (MA3sFDI terms)		10060 [0.00]	4733 [0.00]	4292 [0.00]
Wald (MA3lnGDPpc terms)		652.30 [0.00]	759.80 [0.00]	502.50 [0.00]
Sargan test		84.55 [1.00]	80.80 [1.00]	84.09 [1.00]
m_2 test		-0.90 [0.37]	-0.85 [0.39]	-0.89 [0.38]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level, * indicates significance at 10% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Finally, each of the six Gov interaction terms are used together with the FMD interaction terms of (4.1.3):

$$
\begin{aligned}
sFDI_{it} = {} & \alpha_{0i} + \alpha_1 (\mathrm{MA3}\, sODA)_{it} + \alpha_2 (\mathrm{MA3}\, sODA \times Gov)_{it} \\
& + \alpha_3 (\mathrm{MA3}\, sODA \times FMD)_{it} + \alpha_4 (\mathrm{MA3}\, sFDI)_{i(t-1)} \\
& + \alpha_5 (\mathrm{MA3}\, sFDI \times Gov)_{i(t-1)} + \alpha_6 (\mathrm{MA3}\, sFDI \times FMD)_{i(t-1)} \\
& + \alpha_7 (\mathrm{MA3} \ln GDPpc)_{it} + \alpha_8 (\mathrm{MA3} \ln GDPpc \times Afr)_{it} \\
& + \alpha_9 (\mathrm{MA3}\, D)_{it} + \alpha_{10} (\sigma 5D)_{it} + \alpha_{11} (\mathrm{MA3} \ln REER)_{it} \\
& + \alpha_{12} (\mathrm{MA3}\, open)_{it} + \alpha_{13} (\mathrm{MA3}\, grGDP)_{it}
\end{aligned}
\qquad (4.1.4)
$$

Here, the main hypothesis is that MA3sODA × Gov and MA3sODA × FMD has positive effect on sFDI. MA3sODA is not necessarily expected to have a positive coefficient. This hypothesis states that sound governance companied with a well developed financial market is essential for an assisted country to have positive changes in its foreign investment inflows. MA3sFDI × Gov(−1) and MA3sFDI × FMD(−1) are also expected to affect sFDI positively, as MA3sFDI(−1) need not be positive. Control variables are expected to behave as reported before. The results of the regression of (4.1.4) for each of the six Gov indicators are shown in Tables 4.1.4.1 to 4.1.4.6.

Although there exists high correlation among the interaction variables in these models, the majority of the results in Tables 4.1.4.1 to 4.1.4.6 reports that better Gov and FMD are both needed for MA3sODA and MA3sFDI(−1) to affect sFDI positively. Coefficients of other variables and test results are also parallel to the expectations.

When human capital is used instead of lnGDPpc and the interaction term of lnGDPpc with Afr, the findings are similar to the results reported in Tables 4.1.4.1

to 4.1.4.6. Hence, these results are not reported for simplicity but can be found in Appendix D.

Table 4.1.4.1: Regression results of the model (4.1.4) with MA3lnGDPpc Introducing Pols and FMD interaction terms of MA3sODA and MA3sFDI Dependent Variable: sFDI

Explanatory variables:	FMD =	M2	sCR	sCRpr
(MA3sODA)		-0.20*** (-11.60)	-0.23*** (-13.10)	-0.21*** (-11.10)
(MA3sODA × Pols)		0.23*** (6.62)	0.32*** (10.70)	0.21*** (8.02)
(MA3sODA × FMD)		-0.01 (-0.47)	-0.21*** (-7.05)	0.27*** (10.30)
(MA3sFDI)(−1)		-0.96*** (-71.00)	-0.91*** (-83.60)	-0.88*** (-78.00)
(MA3sFDI × Pols)(−1)		1.99*** (56.70)	1.58*** (58.60)	1.44*** (50.20)
(MA3sFDI × FMD)(−1)		-1.22*** (-8.81)	0.10 (1.08)	0.41*** (4.45)
(MA3lnGDPpc)		-0.002* (-1.73)	-0.003*** (-3.31)	-0.003*** (-3.04)
(MA3lnGDPpc × Afr)		-0.01*** (-12.50)	-0.01*** (-12.80)	-0.02*** (-14.30)
(MA3D)		-0.03*** (-19.60)	-0.04*** (-25.10)	-0.03*** (-24.00)
(σ5D)		-0.02*** (-8.19)	-0.02*** (-9.95)	-0.01*** (-6.76)
(MA3lnREER)		-0.003*** (-6.86)	-0.002*** (-3.95)	-0.004*** (-7.42)
(MA3open)		0.03*** (28.20)	0.03*** (31.10)	0.02*** (20.40)
(MA3grGDP)		0.02*** (5.86)	0.03*** (11.70)	0.04*** (12.60)
Constant		0.001*** (22.70)	0.001*** (26.30)	0.001*** (24.20)
No. of Observations		1266	1258	1253
Wald (Joint)		392400 [0.00]	61970 [0.00]	27680 [0.00]
Wald (Dummy)		514.80 [0.00]	694.10 [0.00]	585.50 [0.00]
Wald (MA3sODA terms)		327.40 [0.00]	317.50 [0.00]	183.90 [0.00]
Wald (MA3sFDI terms)		23070 [0.00]	10740 [0.00]	7806 [0.00]
Wald (MA3lnGDPpc terms)		914.60 [0.00]	599.80 [0.00]	534.10 [0.00]
Sargan test		79.13 [1.00]	80.96 [1.00]	80.05 [1.00]
m_2 test		-0.11 [0.92]	0.00 [1.00]	-0.04 [0.97]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level, ** indicates significance at 5% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n+1)^{th}$ and all subsequent lags of MA3sFDI.

Table 4.1.4.2: Regression results of the model (4.1.4) with MA3lnGDPpc Introducing Rule and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables:	FMD =	M2	sCR	sCRpr
(MA3sODA)		-0.26***	-0.25***	-0.24***
		(-10.20)	(-12.00)	(-8.01)
(MA3sODA × Rule)		0.59***	0.52***	0.47***
		(8.85)	(11.90)	(7.60)
(MA3sODA × FMD)		0.04**	0.32***	0.47***
		(2.04)	(5.78)	(13.50)
(MA3sFDI)(−1)		-0.91***	-0.87***	-0.83***
		(-70.60)	(-78.50)	(-53.10)
(MA3sFDI × Rule)(−1)		1.92***	2.07***	1.80***
		(58.70)	(82.60)	(60.20)
(MA3sFDI × FMD)(−1)		0.74***	0.17***	0.58***
		(14.40)	(3.28)	(14.40)
(MA3lnGDPpc)		0.001**	0.002***	0.001
		(2.23)	(3.19)	(1.45)
(MA3lnGDPpc × Afr)		-0.02***	-0.02***	-0.02***
		(-16.20)	(-15.80)	(-13.60)
(MA3D)		-0.02***	-0.02***	-0.02***
		(-16.40)	(-12.80)	(-10.80)
(σ5D)		-0.01***	-0.01***	-0.01***
		(-6.91)	(-4.79)	(-3.95)
(MA3lnREER)		-0.003***	-0.002***	-0.003***
		(-7.03)	(-4.56)	(-6.48)
(MA3open)		0.02***	0.02***	0.01***
		(26.10)	(22.90)	(17.60)
(MA3grGDP)		0.05***	0.05***	0.06***
		(11.80)	(16.80)	(21.50)
Constant		0.001***	0.001***	0.001***
		(36.40)	(32.90)	(30.50)
No. of Observations		1316	1308	1303
Wald (Joint)		56960	36290	88700
		[0.00]	[0.00]	[0.00]
Wald (Dummy)		1324	1080	931.40
		[0.00]	[0.00]	[0.00]
Wald (MA3sODA terms)		1392	209.50	387.40
		[0.00]	[0.00]	[0.00]
Wald (MA3sFDI terms)		18370	9350	5877
		[0.00]	[0.00]	[0.00]
Wald (MA3lnGDPpc terms)		448.50	295.60	241.50
		[0.00]	[0.00]	[0.00]
Sargan test		85.91	81.47	81.69
		[1.00]	[1.00]	[1.00]
m_2 test		-1.05	-1.01	-1.00
		[0.29]	[0.31]	[0.32]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Table 4.1.4.3: Regression results of the model (4.1.4) with MA3lnGDPpc Introducing Contcorr and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables: FMD =	M2	sCR	sCRpr
(MA3sODA)	-0.28*** (-19.10)	-0.28*** (-19.70)	-0.27*** (-13.60)
(MA3sODA × Contcorr)	0.83*** (17.00)	0.77*** (20.70)	0.71*** (18.00)
(MA3sODA × FMD)	-0.01 (-0.32)	0.25*** (4.62)	0.39*** (9.75)
(MA3sFDI)(−1)	-0.70*** (-53.00)	-0.67*** (-56.80)	-0.64*** (-42.70)
(MA3sFDI × Contcorr)(−1)	1.56*** (34.60)	1.72*** (51.60)	1.46*** (39.10)
(MA3sFDI × FMD)(−1)	0.95*** (16.30)	0.54*** (13.80)	0.86*** (21.50)
(MA3lnGDPpc)	0.002*** (4.20)	0.003*** (3.63)	0.001 (1.25)
(MA3lnGDPpc × Afr)	-0.02*** (-18.80)	-0.02*** (-15.20)	-0.02*** (-13.30)
(MA3D)	-0.02*** (-21.10)	-0.02*** (-14.90)	-0.02*** (-12.10)
(σ5D)	-0.01*** (-5.87)	-0.01*** (-3.21)	-0.01*** (-2.60)
(MA3lnREER)	-0.002*** (-6.31)	-0.002*** (-3.92)	-0.003*** (-4.06)
(MA3open)	0.02*** (29.40)	0.02*** (23.10)	0.01*** (16.40)
(MA3grGDP)	0.05*** (19.50)	0.06*** (22.00)	0.06*** (21.30)
Constant	0.001*** (39.10)	0.001*** (34.70)	0.001*** (35.80)
No. of Observations	1316	1308	1303
Wald (Joint)	16360 [0.00]	43090 [0.00]	107500 [0.00]
Wald (Dummy)	1529 [0.00]	1204 [0.00]	1281 [0.00]
Wald (MA3sODA terms)	1618 [0.00]	795.60 [0.00]	692.60 [0.00]
Wald (MA3sFDI terms)	9464 [0.00]	5712 [0.00]	5483 [0.00]
Wald (MA3lnGDPpc terms)	839.30 [0.00]	287.70 [0.00]	296.30 [0.00]
Sargan test	83.63 [1.00]	82.73 [1.00]	82.28 [1.00]
m_2 test	-1.01 [0.31]	-0.96 [0.34]	-0.97 [0.33]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level, ** indicates significance at 5% level, * indicates significance at 10% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n+1)^{th}$ and all subsequent lags of MA3sFDI.

Table 4.1.4.4: Regression results of the model (4.1.4) with MA3lnGDPpc Introducing Requal and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables:	FMD = M2	sCR	sCRpr
(MA3sODA)	-0.46*** (-21.30)	-0.46*** (-27.20)	-0.46*** (-21.90)
(MA3sODA × Requal)	0.75*** (17.50)	0.68*** (23.20)	0.65*** (20.30)
(MA3sODA × FMD)	0.03* (1.84)	0.49*** (13.50)	0.58*** (19.80)
(MA3sFDI)(−1)	-1.63*** (-96.90)	-1.61*** (-89.40)	-1.54*** (-72.90)
(MA3sFDI × Requal)(−1)	2.54*** (105.00)	2.72*** (85.10)	2.51*** (67.70)
(MA3sFDI × FMD)(−1)	0.75*** (19.60)	0.02 (0.61)	0.35*** (10.90)
(MA3lnGDPpc)	0.003*** (3.81)	0.003*** (3.74)	0.002*** (2.81)
(MA3lnGDPpc × Afr)	-0.02*** (-21.10)	-0.02*** (-24.70)	-0.02*** (-23.90)
(MA3D)	-0.02*** (-10.80)	-0.02*** (-10.00)	-0.01*** (-8.51)
(σ5D)	-0.01*** (-5.88)	-0.01*** (-3.17)	-0.01*** (-2.47)
(MA3lnREER)	-0.003*** (-7.09)	-0.003*** (-5.93)	-0.003*** (-7.06)
(MA3open)	0.02*** (25.90)	0.02*** (26.80)	0.01*** (15.60)
(MA3grGDP)	0.05*** (16.90)	0.05*** (25.50)	0.06*** (22.40)
Constant	0.001*** (26.90)	0.001*** (33.70)	0.001*** (36.50)
No. of Observations	1316	1308	1303
Wald (Joint)	87250 [0.00]	149500 [0.00]	61220 [0.00]
Wald (Dummy)	725.70 [0.00]	1134 [0.00]	1333 [0.00]
Wald (MA3sODA terms)	2551 [0.00]	1195 [0.00]	1043 [0.00]
Wald (MA3sFDI terms)	17820 [0.00]	8163 [0.00]	5309 [0.00]
Wald (MA3lnGDPpc terms)	449.30 [0.00]	657.50 [0.00]	638.90 [0.00]
Sargan test	80.24 [1.00]	81.89 [1.00]	83.90 [1.00]
m_2 test	-1.12 [0.26]	-1.09 [0.28]	-1.08 [0.28]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level, ** indicates significance at 5% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Table 4.1.4.5: Regression results of the model (4.1.4) with MA3lnGDPpc Introducing Goveff and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables:	FMD = M2	sCR	sCRpr
(MA3sODA)	-0.29*** (-8.55)	-0.35*** (-13.20)	-0.36*** (-17.40)
(MA3sODA × Goveff)	0.66*** (6.63)	0.71*** (8.67)	0.74*** (13.40)
(MA3sODA × FMD)	0.04* (1.71)	0.50*** (8.95)	0.54*** (14.00)
(MA3sFDI)(−1)	-1.09*** (-70.10)	-1.06*** (-90.20)	-1.00*** (-58.40)
(MA3sFDI × Goveff)(−1)	2.27*** (57.10)	2.40*** (78.20)	2.12*** (58.80)
(MA3sFDI × FMD)(−1)	0.83*** (17.10)	0.46*** (13.50)	0.73*** (19.70)
(MA3lnGDPpc)	0.002*** (3.18)	0.002*** (2.66)	0.001 (1.16)
(MA3lnGDPpc × Afr)	-0.02*** (-19.70)	-0.02*** (-20.50)	-0.02*** (-15.70)
(MA3D)	-0.02*** (-15.30)	-0.02*** (-16.20)	-0.02*** (-10.90)
(σ5D)	-0.01*** (-5.35)	-0.004** (-2.06)	-0.01** (-2.24)
(MA3lnREER)	-0.003*** (-7.70)	-0.003*** (-7.88)	-0.003*** (-7.09)
(MA3open)	0.02*** (26.20)	0.01*** (22.70)	0.01*** (15.80)
(MA3grGDP)	0.05*** (20.20)	0.06*** (22.60)	0.06*** (21.30)
Constant	0.001*** (28.30)	0.001*** (31.90)	0.001*** (33.10)
No. of Observations	1316	1308	1303
Wald (Joint)	31880 [0.00]	42180 [0.00]	26480 [0.00]
Wald (Dummy)	799.80 [0.00]	1019 [0.00]	1096 [0.00]
Wald (MA3sODA terms)	456.20 [0.00]	412.70 [0.00]	646.70 [0.00]
Wald (MA3sFDI terms)	11540 [0.00]	8783 [0.00]	4017 [0.00]
Wald (MA3lnGDPpc terms)	463.50 [0.00]	622.20 [0.00]	298.90 [0.00]
Sargan test	82.77 [1.00]	84.33 [1.00]	81.38 [1.00]
m_2 test	-0.99 [0.32]	-0.96 [0.34]	-0.97 [0.33]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level, * indicates significance at 10% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Table 4.1.4.6: Regression results of the model (4.1.4) with MA3lnGDPpc Introducing Voacc and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables: | FMD =	M2	sCR	sCRpr
(MA3sODA)	-0.22*** (-13.50)	-0.21*** (-16.50)	-0.18*** (-11.00)
(MA3sODA × Voacc)	0.32*** (9.93)	0.25*** (9.08)	0.18*** (6.81)
(MA3sODA × FMD)	0.08*** (4.92)	0.46*** (8.05)	0.55*** (16.10)
(MA3sFDI)(−1)	-0.72*** (-58.60)	-0.71*** (-76.00)	-0.66*** (-45.40)
(MA3sFDI × Voacc)(−1)	1.16*** (73.90)	1.33*** (53.80)	1.05*** (35.40)
(MA3sFDI × FMD)(−1)	0.34*** (6.99)	-0.36*** (-7.42)	0.30*** (5.78)
(MA3lnGDPpc)	0.003*** (4.89)	0.005*** (6.03)	0.003*** (4.49)
(MA3lnGDPpc × Afr)	-0.02*** (-20.70)	-0.02*** (-19.80)	-0.02*** (-16.10)
(MA3D)	-0.02*** (-20.00)	-0.02*** (-16.50)	-0.02*** (-11.70)
(σ5D)	-0.003** (-2.30)	-0.002 (-1.36)	-0.003 (-1.27)
(MA3lnREER)	-0.003*** (-6.67)	-0.003*** (-6.70)	-0.003*** (-7.57)
(MA3open)	0.03*** (31.10)	0.03*** (33.90)	0.02*** (21.60)
(MA3grGDP)	0.06*** (16.50)	0.07*** (20.90)	0.07*** (24.40)
Constant	0.001*** (30.20)	0.001*** (27.10)	0.001*** (25.30)
No. of Observations	1316	1316	1316
Wald (Joint)	21610 [0.00]	317800 [0.00]	112600 [0.00]
Wald (Dummy)	912.30 [0.00]	733 [0.00]	638.10 [0.00]
Wald (MA3sODA terms)	795.50 [0.00]	690.60 [0.00]	460.60 [0.00]
Wald (MA3sFDI terms)	8532 [0.00]	5828 [0.00]	2323 [0.00]
Wald (MA3lnGDPpc terms)	808.10 [0.00]	401.50 [0.00]	258.70 [0.00]
Sargan test	86.97 [1.00]	82.12 [1.00]	79.72 [1.00]
m_2 test	-1.19 [0.24]	-1.19 [0.23]	-1.13 [0.26]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

4.2. Regression results

In all tables, Sargan test results show that null hypothesis is not rejected indicating that the instrumental variables are not correlated with the set of residuals and are valid to use. m_2 test results report that there is no second order serial correlation, and Wald test results verify that tested explanatory variables are not jointly insignificant.

Table 4.1.1. reports the regression results of (4.1.1) and alternative models with MA3HK or with MA3lnGDP and MA3lnGDPpc × Afr. In all three columns, the outcomes of aid are negative and significant which may be due to low governance statistics in countries receiving aid. The first column presents the results of the regression where MA3lnGDPpc is used as the degree of development index. The coefficient of lagged FDI is positive and significant at 1% level meaning that higher rates FDI received in the previous years will result in higher flows of FDI to that country. This consequence supports the main hypothesis proposed for (4.1.1). The coefficients of inflation and REER are both negative and significant confirming the expectations that higher inflation rates and real effective exchange rates within a country will scare away foreign investors ending with lower FDI ratios. Openness has a significantly positive coefficient representing the importance of openness of a country to trade on FDI flows; countries that trade goods and services will consequentially receive higher FDI. Coefficient of GDP growth also represents a positive significant relationship between GDP growth and FDI flows; that is, countries with higher GDP growth will attract more FDI.

The coefficient of inflation instability comes out to be positive and significant, which is opposite of the expectations where higher fluctuations in inflation rates affect FDI flows negatively. Also, coefficient of GDP per capita differs from what is expected. Significantly negative coefficient says that countries with higher GDP per capita will receive less FDI whereas countries with lower GDP per capita will receive more FDI.

In the second column of Table 4.1.1, MA3HK is utilized as proxy for level of development and inserted in place of MA3lnGDPpc. The second column reports that all of the coefficients except aid are parallel to the expectations. Coefficient of human capital is positive presenting the importance of development levels on FDI inflows. This result indicates that countries with higher HK will draw more FDI in future. The coefficients of inflation instability are negative and significant implying that lower inflation ratios in a country and stability in the economy, respectively, creates a more desirable environment for foreign investors. The rest of the results are similar to finding in the first column.

In the third column, MA3lnGDPpc × Afr is added in explanatory variables set and with this new variable the different behavior of African countries is captured. Coefficient of GDP per capita becomes positive and significant, while coefficient of the interactive term of GDP per capita with Afr appears with a significant negative sign. This can be interpreted as that GDP per capita influences FDI positively only if the country is not in Africa, and for African countries, higher GDP per person ceases FDI flows.

Interestingly, in Table 1, aid comes out with negative signs that are significant, while it is expected to be positive. These negative signs are

investigated in the subsequent model (4.1.2) whether they are due to low governance statistics in some countries getting aid and FDI.

Model (4.1.2) introduces the interaction terms of MA3sODA × Gov and MA3sFDI × Gov(−1) into (4.1.1). In this model six Gov indicators are used separately and the results are reported in Table 4.1.2. In each column the negative coefficient of aid does not offset positive coefficient of interactive term of aid with Gov. This implies that aid in the previous periods affects sFDI positively where governance is sound in a country, while the effect alters to negative where there is corruption, political instability, political pressure, restrictions on rights, rule of illegality, or other troubles in governance. The main hypothesis for (4.1.2) is addressing this very result, which tells that past aid does not necessarily attract FDI and a well governance is a must to have aid positively effectual on FDI.

Additionally, in each column interactive term of FDI with governance is positive and is not offset by negative coefficient of FDI. This is also analogous to the expectations that well governance is necessary for past FDI to positively influence current FDI. When there are problems in governance, the effect turns out to be negative and FDI begins to fade away.

Rather than using governance interaction terms, model (4.1.3) uses interaction terms of MA3sODA × FMD and MA3sFDI × FMD(−1) to examine the effect of financial market development on FDI flows. Three FMD indicators are utilized separately in (4.1.3) and Table 4.1.3. presents the results in three columns. In each column interactive term of aid with FMD has significant positive coefficient while aid has significant negative coefficient. However, negative aid does not offset interactive term of aid with FMD. This outcome is

similar to the result in (4.1.2) and clarifies the necessity of a well developed financial market in a country for past values of aid to be positively effective on FDI. Aid's effect on FDI need not be positive; or explicitly, aid cannot immediately draw FDI. What is needed is a developed financial market for aid to influence FDI positively.

Likewise lagged FDI and interactive term of lagged FDI with FMD have significant negative and positive signs respectively, indicating that current FDI can only be changed positively by past FDI if it is in company with a well developed financial market. The remaining of the coefficients corresponds to expectations except insignificant coefficients of σ5D.

After using Gov and FMD interaction terms separately in models (4.1.2) and (4.1.3) respectively, model (4.1.4) utilizes MA3sODA × Gov and MA3sFDI × Gov(−1) together with MA3sODA × FMD and MA3sFDI × FMD(−1). However existence of high correlation among variables distort outcomes. The results are reported in Tables 4.1.4.1 to 4.1.4.6. The coefficients of aid are negative but do not counterbalance the coefficients of interactive terms of aid with Gov and FMD. This indicates that effect of aid on FDI is not always positive. The effect will be positive where governance and financial market is well built and progressing, and the effect will turn out to be negative where governance and financial market is in poor conditions. Hence, status of governance and financial market are two very important factors in determining the way of effect of aid on FDI.

Similarly, interactive terms of FDI with Gov and FMD are not offset by negative coefficient of FDI implying that the state of governance and financial

market are the key factors that control the volume and route of FDI flows generated from past FDI. The remaining of the variables generally confirms the expectations.

CHAPTER 5

CONCLUSION

In recent times, FDI is documented to be an important investing tool and many studies investigate the effects of FDI on economic growth. A branch of FDI literature also explored the determinants which may encourage or discourage FDI. However, there hardly is an agreement on the effects of these indicators and some variables such as financial aid are rarely utilized to explain FDI flows. The aid literature generally deals with the effect of aid on domestic investment and economic growth. The recent studies specifically inspected the influence of aid on economic variables under conditions such as characteristics of governance or financial markets.

Even though the literature on FDI or aid is broad in scope, there is no comprehensive research on aid to FDI causality, which constitutes the main motivation of this research. In this study, FDI was not only explained with the commonly employed variables, such as market size or exchange rates; but also with aid and lagged FDI. While the hypotheses on the control variables other than aid were based on the literature, the effect of aid on FDI is the focus of this study. The positive stimulus of aid on FDI was hypothesized to be subject to political and financial environment; specifically, aid's effect on FDI was not necessarily expected to be prompting, while sensible authority and reliable economic

institutions were proposed to be compulsory for aid to support FDI. Similarly, same conditions were required for lagged FDI to be positively effectual on FDI.

Since lagged values of FDI were utilized as right hand side variables, dynamic model estimation techniques were employed. The panel data set cover the period of 1960-2004, where available, and composed of 97 countries. Due to missing observations the panel is unbalanced. Instrumental variables methodology is applied to the models that are estimated with the computer software Ox.

Regression results verify the expectations on control variables. The actual and potential size of the economy was found to be positively effectual on FDI. However it is reported that GDP per capita affects the FDI flows negatively in Africa. The influence of openness on FDI was also observed to be promoting. Coefficient of inflation and inflation instability are noted to be negative and significant. Additionally, REER was realized to be hampering FDI. What is the actual value added to the literature is the outcome of the effects of lagged FDI and aid on FDI inflows.

The regression results of the basic model, in which no condition on the effects of aid or lagged FDI was imposed, presented negative effects of aid on FDI, and positive returns from lagged FDI. The subsequent model integrated the interaction terms of aid and lagged FDI with quality of governance and the coefficients of interaction terms were found to be positive, while the aid and lagged FDI terms were observed to be negatively influential. These outcomes match with the expectations of this study, as they indicate the necessity of governance of high performance for aid and lagged FDI to motivate more FDI.

In place of governance interaction terms, our third model employed the interaction terms of aid and lagged FDI with the quality of financial markets. The results again supported the hypothesis that more developed financial institutions constitutes a basis for aid and lagged FDI to attract more FDI inflows. In lack of reliable monetary establishments, financial aid diverts FDI, and previous FDI inflows also cause a retreat.

In the final model, in addition to the variables in the basic model, governance interaction terms and financial market interaction terms are integrated together. While some minor unexpected consequences came up due to high correlation among variables, majority of the results were analogous of what had been hypothesized: Sound political and financial institutions are essential for effective aid and emboldening past FDI. Aid and FDI does not work to amplify FDI in an environment where corruption is prevalent, political rights or civil liberties are not fully formed, government is outdated and instable, crime is widespread, financial bodies are immature and shallow. In contrast, aid and lagged FDI cause withdrawal of FDI in such backgrounds.

In conclusion, this study provides robust evidence that high quality of governance and financial institutions are required for positive causality from aid and past FDI to current FDI inflows. Countries who receive aid and FDI should improve their governance and financial markets to be able to attract FDI in the following years. If these countries do not strive to develop their governance and financial markets, FDI flows will slow down.

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APPENDICES

Appendix A: List of abbreviations, derivations, and sources of data

Name	Definition
Afr	$=1$ for countries in Africa; $=0$ elsewhere.
cGDP	Gross domestic product in constant local currency in units. Source: WDI Online, NY.GDP.MKTP.KN
Contcorr	Control of corruption index. See Gov_t.
CR	Total of deposit money banks claims in local currency in units. Source: IMF IFS CD-ROM 1.1.54, 22A..ZF; 22B..ZF; 22C..ZF; 22D..ZF; 22E..MZF; 22F..ZF; 22G..ZF.
CRpr	Deposit Money Banks Claims on Private Sector in local currency in units. Source: IMF IFS CD-ROM 1.1.54, 22D..ZF.
D_t	$=\left(\frac{\inf_t/100}{1+\inf_t/100}\right)$
$dlnREER_t$	$=\ln(REER)_t-\ln(REER)_{t-1}$
FDI	The net change in liabilities of foreign direct investment in current US dollars in units. Source: WDI Online, BN.KLT.DINV.CD.WD
FMD	Financial Market Development.
GDP	Gross domestic product in current local currency in units. Source: IMF IFS CD-ROM 1.1.54, 99B..ZF

Name	Definition
$GDPgr_t$	$= \frac{cGDP_t - cGDP_{t-1}}{cGDP_t}$
GDPus	Gross domestic product in current US dollars in units. Source: WDI Online, NY.GDP.MKTP.CD
Goveff	Governance efficiency index. See Gov_t.
$GovInd_{ti}$	Six governance indices provided for 1996, 1998, 2000 and 2002. Source: Kaufman et al. (2003), World Bank
Gov_t	$= \frac{\mu_i - \min(\Omega)}{\max(\Gamma)}$ $for\ \ \Omega = \{\mu_1, \mu_2, ..., \mu_n\}\ and$ $\Gamma = \{(\mu_1 - \min(\Omega)), (\mu_2 - \min(\Omega)), ..., (\mu_n - \min(\Omega))\}$
HK	Average years of secondary schooling. Data for a country at time t is taken to be the same for the subsequent years until the next available data point. Source: Barro and Lee (2000)
IMF IFS	International Financial Statistics of International Monetary Fund
inf	Annual percentage of inflation in consumer prices. Source: WDI Online, FP.CPI.TOTL.ZG
$lnGDPpc_t$	$= \ln\left(\frac{GDPus_t}{pop_t}\right)$
$lnREER_t$	$= \ln(REER_t)$
M	Imports of goods and services in local currency in units. Source: WDI Online, NE.IMP.GNFS.CN
M2	Money and quasi money in current local currency in units. Source: WDI Online, FM.LBL.MQMY.CN
MA*n*	Moving average over *n* years.
μ_i	$= \frac{GovInd_{1996i} + GovInd_{1998i} + GovInd_{2000i} + GovInd_{2002i}}{4}$

Name	Definition
ODA	The official development assistance and official aid in current US dollars in units. Source: WDI Online, DT.ODA.ALLD.CD
$open_t$	$= \frac{X_t + M_t}{GDP_t}$
Pols	Political stability index. See Gov_t.
pop	Population in units. Source: WDI Online, SP.POP.TOTL
REER	Real effective exchange rate index for 1995=100 in units. Source: IMF
Requal	Regulatory quality index. See Gov_t.
Rule	Rule of law index. See Gov_t.
$sCRpr_t$	= value of $\frac{CRpr_t}{GDP_t}$ normalized as in Gov_t.
sCR_t	= value of $\frac{CR_t}{GDP_t}$ normalized as in Gov_t.
$sFDI_t$	$= \frac{FDI_t}{GDPus_t}$
$sM2_t$	= value of $\frac{M2_t}{GDP_t}$ normalized as in Gov_t.
$sODA_t$	$= \frac{ODA_t}{GDPus_t}$
σk	Standard deviation over k years.
Voacc	Voice and accountability index. See Gov_t.
WDI Online	World Development Indicators Online of the World Bank
X	Exports of goods and services in local currency in units. Source: WDI Online, NE.EXP.GNFS.CN

Appendix B: Explanatory data averages

Appendix Table B.1: Explanatory data averages of continents

Continent	Region	sFDI	sODA	lnGDPpc	D	dlnREER	grGDP	sCRpr	sCR	sM2	sXnM	HK
Africa	1	0.02	0.12	6.01	0.12	-0.03	0.04	0.16	0.20	0.25	0.65	0.41
Americas	2	0.03	0.04	7.51	0.13	-0.02	0.04	0.29	0.34	0.38	0.79	1.25
Asia	3	0.02	0.05	7.00	0.11	-0.01	0.04	0.32	0.39	0.47	0.77	1.16
Australia	4	0.03	0.27	7.54	0.07	0.00	0.03	0.22	0.27	0.54	0.98	1.63
Europe	5	0.02	0.04	8.23	0.14	0.01	0.03	0.37	0.51	0.47	0.79	2.18

Appendix Table B.2: Explanatory data averages of countries

Code	Index	Country	Region	sFDI	sODA	lnGDPpc	D	dlnREER	grGDP	sCRpr	sCR	sM2	sXnM	HK
DZA	003	Algeria	1	0.00	0.01	7.11	0.09	-0.04	0.04	0.30	0.44	0.57	0.57	0.54
AGO	004	Angola	1	0.07	0.04	6.52	0.73	0.00	0.03	0.00	0.00	0.00	0.00	na
BEN	019	Benin	1	0.01	0.09	5.57	0.06	-0.01	0.03	0.17	0.18	0.21	0.47	0.20
BWA	024	Botswana	1	0.02	0.10	6.85	0.10	0.01	0.10	0.14	0.16	0.26	1.24	0.37
BFA	028	Burkina Faso	1	0.00	0.13	5.11	0.04	-0.02	0.04	0.13	0.14	0.17	0.41	na
BDI	029	Burundi	1	0.00	0.14	4.87	0.09	-0.02	0.03	0.07	0.10	0.15	0.30	0.13
CMR	031	Cameroon	1	0.01	0.04	6.21	0.07	-0.01	0.04	0.19	0.22	0.18	0.49	0.36
CPV	033	Cape Verde	1	0.02	0.28	7.00	0.05	0.01	0.06	na	na	na	na	na
CAF	035	Central African Republic	1	0.01	0.12	5.47	0.03	-0.03	0.02	0.11	0.13	0.17	0.54	0.23
TCD	036	Chad	1	0.01	0.11	5.28	0.04	-0.05	0.02	0.09	0.11	0.14	0.51	na
COM	040	Comoros	1	0.01	0.24	6.04	na	0.01	0.02	na	na	na	na	na

Code	Index	Country	Region	sFDI	sODA	lnGDPpc	D	dlnREER	grGDP	sCRpr	sCR	sM2	sXnM	HK
ZAR	041	Congo, Dem. Rep.	1	0.00	0.03	5.48	0.42	-0.08	0.00	0.04	0.05	0.03	0.18	na
COG	042	Congo, Rep.	1	0.03	0.07	6.46	0.04	-0.01	0.04	0.17	0.20	0.18	1.06	1.08
CIV	044	Cote d'Ivoire	1	0.01	0.04	6.42	0.06	-0.02	0.04	0.27	0.30	0.26	0.69	na
DJI	050	Djibouti	1	0.00	0.22	6.79	na	0.00	-0.01	na	na	na	na	na
EGY	054	Egypt, Arab Rep.	1	0.02	0.06	6.30	0.08	-0.01	0.05	0.24	0.51	0.62	0.49	1.09
GNQ	056	Equatorial Guinea	1	0.14	0.20	5.95	na	-0.04	0.13	0.13	0.14	0.13	1.22	na
ERI	057	Eritrea	1	0.04	0.26	5.05	na	0.05	0.06	na	na	na	na	na
ETH	059	Ethiopia	1	0.01	0.11	4.86	0.05	-0.04	0.03	0.08	0.14	0.27	0.29	na
GAB	064	Gabon	1	0.01	0.03	7.94	0.05	-0.04	0.05	0.15	0.20	0.17	0.93	na
GMB	065	Gambia, The	1	0.02	0.19	5.49	0.07	-0.03	0.04	na	na	na	na	0.30
GHA	068	Ghana	1	0.01	0.06	5.78	0.22	-0.07	0.03	0.05	0.10	0.20	0.40	0.79
GIN	072	Guinea	1	0.01	0.10	6.16	na	-0.01	0.04	na	na	na	na	na
GNB	073	Guinea-Bissau	1	0.01	0.39	5.22	0.23	-0.09	0.03	0.05	0.05	0.12	0.28	na
KEN	091	Kenya	1	0.00	0.06	5.59	0.09	-0.01	0.05	0.21	0.27	0.32	0.63	0.31
LSO	100	Lesotho	1	0.07	0.19	5.73	0.11	0.01	0.06	0.14	0.24	0.35	1.22	0.22
LBR	101	Liberia	1	-0.01	0.20	5.43	na	na	0.02	na	na	na	na	0.36
LBY	102	Libya	1	na	0.00	8.50	0.06	-0.07	0.08	0.19	0.27	0.42	0.78	na
MDG	107	Madagascar	1	0.00	0.08	5.51	0.11	-0.06	0.01	0.16	0.18	0.21	0.45	na
MWI	108	Malawi	1	0.01	0.17	4.94	0.19	-0.02	0.04	0.10	0.14	0.20	0.61	0.13
MLI	111	Mali	1	0.01	0.16	5.18	0.03	-0.04	0.03	0.15	0.17	0.20	0.51	0.07
MRT	114	Mauritania	1	0.00	0.20	5.86	0.06	-0.03	0.04	0.23	0.24	0.19	0.97	0.28
MUS	115	Mauritius	1	0.01	0.02	7.70	0.07	-0.01	0.06	0.31	0.39	0.51	1.11	0.92
MYT	116	Mayotte	1	na	na	na	na	na	na	na	na	na	na	na
MAR	121	Morocco	1	0.01	0.03	6.35	0.05	-0.02	0.04	0.21	0.31	0.47	0.52	na
MOZ	122	Mozambique	1	0.02	0.29	5.32	0.22	-0.03	0.04	0.11	0.18	0.44	0.54	0.07
NAM	124	Namibia	1	na	0.04	7.54	0.10	0.00	0.03	0.33	0.36	0.35	1.13	na

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NER	131	Niger	1	0.01	0.12	5.44	0.05	-0.03	0.02	0.11	0.12	0.12	0.48	0.06
NGA	132	Nigeria	1	0.02	0.01	5.58	0.14	-0.04	0.03	0.10	0.15	0.20	0.49	na
RWA	149	Rwanda	1	0.01	0.15	4.94	0.07	-0.01	0.04	0.05	0.07	0.13	0.26	0.11
STP	151	Sao Tome and Principe	1	0.01	0.57	5.98	na	-0.06	0.02	na	na	na	na	na
SEN	153	Senegal	1	0.01	0.10	6.04	0.05	-0.03	0.03	0.24	0.27	0.21	0.63	0.26
SYC	154	Seychelles	1	0.06	0.11	7.39	0.06	0.00	0.04	0.19	0.41	0.45	1.36	na
SLE	155	Sierra Leone	1	0.00	0.10	5.29	0.18	-0.03	0.01	0.05	0.08	0.17	0.49	0.25
SOM	160	Somalia	1	0.00	0.31	4.73	na	na	0.03	na	na	na	na	na
ZAF	161	South Africa	1	0.02	0.00	7.57	0.08	0.00	0.03	na	na	na	na	1.26
SDN	167	Sudan	1	0.01	0.04	5.75	0.21	-0.02	0.04	0.10	0.12	0.23	0.30	0.24
SWZ	169	Swaziland	1	0.04	0.07	6.55	0.09	0.00	0.05	0.21	0.22	0.29	1.60	0.46
TZA	174	Tanzania	1	0.01	0.18	5.34	0.15	-0.03	0.04	na	na	na	na	na
TGO	177	Togo	1	0.01	0.10	5.60	0.05	-0.03	0.04	0.18	0.19	0.27	0.85	0.35
TUN	180	Tunisia	1	0.02	0.04	6.87	0.05	-0.03	0.05	0.42	0.47	0.42	0.68	0.57
UGA	183	Uganda	1	0.01	0.10	5.40	0.25	-0.10	0.05	0.06	0.09	0.12	0.37	0.20
ZMB	196	Zambia	1	0.02	0.11	5.97	0.41	0.00	0.02	0.12	0.20	0.26	0.84	0.42
ZWE	197	Zimbabwe	1	0.00	0.03	6.32	0.13	-0.11	0.03	0.16	0.25	0.24	0.59	0.58
ATG	005	Antigua and Barbuda	2	na	0.02	8.43	na	0.00	0.05	0.49	0.63	0.64	1.63	na
ARG	006	Argentina	2	0.01	0.00	8.04	0.37	-0.03	0.02	0.20	0.26	0.25	0.18	1.17
ABW	008	Aruba	2	0.04	0.02	na	0.04	na	0.08	na	na	na	na	na
BHS	012	Bahamas, The	2	0.01	0.00	8.79	0.05	0.01	0.04	0.41	0.51	0.39	1.34	na
BRB	015	Barbados	2	0.01	0.01	8.00	0.07	0.00	0.03	0.38	0.50	0.51	1.29	2.75
BLZ	018	Belize	2	0.02	0.08	7.14	0.03	0.00	0.05	0.34	0.39	0.43	1.21	na
BMU	020	Bermuda	2	na	0.00	na	na	na	0.03	na	na	na	na	na
BOL	022	Bolivia	2	0.03	0.07	6.26	0.18	-0.02	0.03	0.19	0.19	0.23	0.56	1.23
BRA	025	Brazil	2	0.01	0.00	7.36	0.52	-0.01	0.05	0.25	0.33	0.24	0.17	0.75

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CAN	032	Canada	2	0.02	na	9.29	0.04	-0.01	0.03	na	na	na	na	3.51
CYM	034	Cayman Islands	2	na	0.00	na	na	na	0.05	na	na	na	na	na
CHL	037	Chile	2	0.03	0.00	7.56	0.23	-0.02	0.04	0.32	0.37	0.29	0.45	1.55
COL	039	Colombia	2	0.01	0.01	6.83	0.15	-0.02	0.04	0.15	0.18	0.20	0.30	1.07
CRI	043	Costa Rica	2	0.02	0.02	7.31	0.11	-0.03	0.05	0.19	0.23	0.31	0.70	0.85
CUB	046	Cuba	2	na	na	na	na	na	0.04	na	na	na	na	na
DMA	051	Dominica	2	0.07	0.13	7.51	0.05	0.00	0.03	0.42	0.56	0.57	1.15	na
DOM	052	Dominican Republic	2	0.02	0.02	6.79	0.10	-0.04	0.05	0.14	0.20	0.23	0.53	0.66
ECU	053	Ecuador	2	0.00	0.00	11.71	0.18	-0.03	0.06	0.16	0.17	0.21	0.50	1.08
SLV	055	El Salvador	2	0.01	0.04	6.64	0.08	0.04	0.03	0.07	0.08	0.08	0.58	0.51
GRD	070	Grenada	2	0.06	0.07	7.57	0.06	0.01	0.04	0.48	0.60	0.68	1.18	na
GTM	071	Guatemala	2	0.01	0.01	6.76	0.08	-0.01	0.04	0.14	0.15	0.22	0.39	0.35
GUY	074	Guyana	2	0.04	0.11	6.38	0.06	-0.09	0.01	0.23	0.42	0.54	1.45	0.78
HTI	075	Haiti	2	0.00	0.07	5.45	0.09	0.02	0.01	0.09	0.09	0.25	0.39	0.39
HND	076	Honduras	2	0.01	0.06	6.33	0.08	-0.02	0.04	0.20	0.24	0.26	0.68	0.44
JAM	087	Jamaica	2	0.03	0.03	7.25	0.12	-0.01	0.02	0.22	0.31	0.36	0.88	1.00
MEX	117	Mexico	2	0.02	0.00	7.62	0.17	-0.01	0.05	na	na	na	na	0.98
ANT	127	Netherlands Antilles	2	-0.07	0.06	na	0.04	-0.01	-0.01	na	na	na	na	na
NIC	130	Nicaragua	2	0.01	0.13	6.24	0.32	-0.31	0.02	0.27	0.32	0.31	0.64	0.61
PAN	138	Panama	2	0.02	0.01	7.39	0.03	-0.02	0.05	0.48	0.51	0.39	0.76	1.47
PRY	140	Paraguay	2	0.01	0.02	6.73	0.11	-0.03	0.04	0.13	0.13	0.21	0.47	0.85
PER	141	Peru	2	0.01	0.01	6.97	0.27	0.05	0.03	0.12	0.17	0.23	0.37	1.26
PRI	145	Puerto Rico	2	na	na	8.51	na	na	0.05	na	na	na	na	na
KNA	164	St. Kitts and Nevis	2	0.14	0.05	7.39	0.04	0.05	0.05	0.57	0.86	0.79	1.36	na
LCA	165	St. Lucia	2	0.09	na	7.81	0.06	-0.01	0.04	0.53	0.60	0.58	1.34	na
VCT	166	St. Vincent and the Grenadines	2	0.06	0.08	6.73	0.05	-0.01	0.07	0.42	0.56	0.62	1.38	na

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SUR	168	Suriname	2	na	0.10	7.24	0.15	-0.03	0.01	0.26	0.30	0.59	0.93	na
TTO	179	Trinidad and Tobago	2	0.05	0.00	8.02	0.07	-0.01	0.04	0.23	0.29	0.35	0.89	1.53
USA	187	United States	2	0.01	na	9.34	0.04	0.00	0.03	na	na	na	na	4.13
URY	188	Uruguay	2	0.01	0.00	7.69	0.31	-0.01	0.01	0.28	0.32	0.38	0.35	1.50
VEN	191	Venezuela, RB	2	0.01	0.00	7.91	0.14	-0.03	0.02	0.19	0.21	0.28	0.51	0.87
AFG	001	Afghanistan	3	na	0.03	5.04	na	na	0.02	na	na	na	na	0.26
ARM	007	Armenia	3	0.04	0.09	6.47	0.22	0.04	0.00	0.08	0.09	0.11	0.80	na
AZE	011	Azerbaijan	3	0.12	0.05	5.89	0.37	0.01	0.00	na	na	na	na	na
BHR	013	Bahrain	3	na	0.02	9.14	0.04	-0.02	0.03	0.43	0.48	0.62	1.78	1.00
BGD	014	Bangladesh	3	0.00	0.05	5.32	0.05	-0.01	0.04	0.14	0.24	0.26	0.27	0.43
BTN	021	Bhutan	3	0.00	0.15	6.08	0.09	na	0.07	0.06	0.10	0.27	0.70	na
BRN	026	Brunei	3	na	0.00	9.53	na	0.00	0.02	na	na	na	na	na
KHM	030	Cambodia	3	0.03	0.10	5.13	0.04	-0.03	0.05	na	na	na	na	na
CHN	038	China	3	0.03	0.00	5.54	0.07	-0.06	0.08	0.93	0.96	0.85	0.31	1.30
CYP	047	Cyprus	3	0.02	0.02	8.60	0.04	-0.01	0.06	0.59	0.66	0.72	1.05	1.81
GEO	066	Georgia	3	0.03	0.07	6.52	0.16	na	0.01	na	na	na	na	na
HKG	077	Hong Kong, China	3	na	0.00	8.36	0.04	na	0.07	1.53	1.63	1.88	2.07	2.55
IND	080	India	3	0.00	0.01	5.47	0.07	-0.04	0.05	0.19	0.26	0.35	0.15	0.56
IDN	081	Indonesia	3	0.01	0.02	5.96	0.20	-0.04	0.06	0.31	0.40	0.27	0.45	0.57
IRN	082	Iran, Islamic Rep.	3	0.00	0.00	7.63	0.12	-0.05	0.03	0.22	0.25	0.41	0.40	0.73
IRQ	083	Iraq	3	na	0.00	7.16	na	na	0.01	na	na	na	na	0.54
ISR	085	Israel	3	0.01	0.03	8.63	0.20	-0.01	0.06	0.58	0.83	0.61	0.79	1.74
JPN	088	Japan	3	0.00	na	8.89	0.04	0.02	0.05	na	na	na	na	2.50
JOR	089	Jordan	3	0.01	0.14	7.06	0.06	-0.03	0.06	0.44	0.50	0.82	1.22	1.27
KAZ	090	Kazakhstan	3	0.06	0.01	7.30	0.27	0.06	-0.01	0.14	0.16	0.14	0.83	na
PRK	093	Korea, Dem. Rep.	3	na	na	na	na	na	na	na	na	na	na	na

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KOR	094	Korea, Rep.	3	0.00	0.01	7.51	0.08	0.00	0.08	0.41	0.43	0.35	0.55	2.35
KWT	095	Kuwait	3	0.00	0.00	9.26	0.04	-0.02	0.03	0.49	0.63	0.62	0.97	2.33
KGZ	096	Kyrgyz Republic	3	0.03	0.13	5.90	0.15	-0.02	0.00	0.06	0.07	0.14	0.82	na
LAO	097	Lao PDR	3	0.02	0.14	5.73	0.21	0.03	0.06	0.06	0.10	0.12	0.45	na
LBN	099	Lebanon	3	0.01	0.03	7.69	na	0.06	0.04	na	na	na	na	na
MAC	105	Macao, China	3	na	0.00	9.15	na	na	0.05	0.70	0.71	1.26	1.57	na
MYS	109	Malaysia	3	0.04	0.01	7.13	0.03	-0.02	0.07	0.46	0.58	0.57	1.22	1.34
MDV	110	Maldives	3	0.02	0.12	6.91	0.09	na	0.05	na	na	na	na	na
MNG	120	Mongolia	3	0.03	0.24	5.94	0.28	0.03	0.02	0.15	0.25	0.26	1.06	na
MMR	123	Myanmar	3	na	na	na	0.11	0.09	0.04	0.12	0.18	0.27	0.15	0.44
NPL	125	Nepal	3	0.00	0.07	4.94	0.07	-0.02	0.04	0.10	0.13	0.23	0.33	0.25
OMN	135	Oman	3	0.01	0.01	7.86	0.00	-0.04	0.10	0.21	0.25	0.26	0.91	na
PAK	136	Pakistan	3	0.00	0.03	5.60	0.07	-0.03	0.05	0.23	0.33	0.41	0.32	0.71
PHL	142	Philippines	3	0.01	0.01	6.16	0.09	-0.01	0.04	0.26	0.33	0.32	0.54	1.20
QAT	146	Qatar	3	na	0.00	9.62	0.03	0.00	na	0.31	0.36	0.42	0.80	na
SAU	152	Saudi Arabia	3	na	0.00	8.46	0.03	-0.04	0.06	0.17	0.20	0.33	0.88	na
SGP	156	Singapore	3	0.09	0.00	8.27	0.03	-0.01	0.08	0.72	0.84	0.76	na	1.55
LKA	163	Sri Lanka	3	0.01	0.05	5.91	0.08	-0.02	0.04	0.16	0.21	0.29	0.72	1.57
SYR	172	Syrian Arab Republic	3	0.00	0.04	6.73	0.08	-0.03	0.06	0.09	0.12	0.47	0.51	0.79
TJK	173	Tajikistan	3	0.01	0.08	5.90	na	0.27	-0.03	na	na	na	na	na
THA	175	Thailand	3	0.01	0.01	6.39	0.05	-0.01	0.07	0.43	0.53	0.52	0.59	0.56
TMP	176	Timor-Leste	3	na	0.45	6.08	na	na	-0.01	na	na	na	na	na
TUR	181	Turkey	3	0.00	0.00	7.35	0.25	-0.01	0.04	0.25	0.33	0.35	0.43	0.63
TKM	182	Turkmenistan	3	0.03	0.01	6.75	na	-0.30	0.01	na	na	na	na	na
ARE	185	United Arab Emirates	3	na	0.00	9.83	na	0.00	0.05	0.36	0.42	0.43	1.12	1.11
UZB	189	Uzbekistan	3	0.00	0.01	6.51	na	-0.04	0.01	na	na	na	na	na

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VNM	192	Vietnam	3	0.04	0.03	5.60	0.03	-0.12	0.07	0.16	0.18	0.29	0.87	na
WBG	193	West Bank and Gaza	3	na	0.17	7.16	na	na	-0.01	na	na	na	na	na
YEM	194	Yemen, Rep.	3	0.01	0.05	5.99	0.22	0.08	0.05	0.05	0.08	0.47	0.65	na
AUS	009	Australia	4	0.02	na	9.02	0.05	0.00	0.04	na	na	na	na	2.90
FJI	060	Fiji	4	0.02	0.03	7.15	0.06	-0.01	0.04	0.22	0.26	0.39	1.02	0.77
PYF	063	French Polynesia	4	na	0.10	8.93	na	na	0.04	na	na	na	na	na
KIR	092	Kiribati	4	na	0.39	6.24	na	-0.01	0.01	na	na	na	na	na
MHL	113	Marshall Islands	4	na	0.48	7.32	na	0.04	0.03	na	na	na	na	na
FSM	118	Micronesia, Fed. Sts.	4	na	0.39	7.44	na	na	0.02	na	na	na	na	na
NCL	128	New Caledonia	4	na	0.12	8.87	na	na	0.04	na	na	na	na	na
NZL	129	New Zealand	4	0.03	na	8.72	0.06	0.01	0.03	na	na	na	na	2.66
MNP	133	Northern Mariana Islands	4	na	na	na	na	na	na	na	na	na	na	na
PLW	137	Palau	4	na	0.65	8.74	na	na	0.01	na	na	na	na	na
PNG	139	Papua New Guinea	4	0.03	0.14	6.38	0.08	-0.01	0.04	0.19	0.28	0.33	0.87	0.18
WSM	150	Samoa	4	0.01	0.26	6.83	0.07	-0.02	0.04	na	na	na	na	na
SLB	159	Solomon Islands	4	0.03	0.23	6.15	0.10	-0.02	0.04	na	na	na	na	na
TON	178	Tonga	4	0.01	0.22	6.83	0.07	0.01	0.02	0.14	0.16	0.26	0.86	na
VUT	190	Vanuatu	4	0.08	0.24	6.98	0.05	-0.01	0.02	0.34	0.38	1.16	1.17	na
ALB	002	Albania	5	0.02	0.13	6.57	0.19	0.02	0.02	na	na	na	na	na
AUT	010	Austria	5	0.01	na	8.85	0.04	0.00	0.03	0.68	0.87	na	0.05	4.02
BLR	016	Belarus	5	0.01	0.01	7.48	0.62	0.04	0.00	0.10	0.20	0.21	1.27	na
BEL	017	Belgium	5	0.02	na	8.94	0.04	0.00	0.03	0.31	0.62	na	0.03	1.79
BIH	023	Bosnia and Herzegovina	5	0.02	0.26	6.79	na	-0.03	0.23	0.52	0.52	na	0.93	na
BGR	027	Bulgaria	5	0.02	0.02	7.49	0.28	0.07	0.01	0.24	0.66	0.56	0.90	na
HRV	045	Croatia	5	0.04	0.00	8.25	0.38	0.06	0.00	0.38	0.57	0.37	1.03	na
CZE	048	Czech Republic	5	0.05	0.00	8.40	0.06	0.03	0.01	0.63	0.72	0.71	1.20	na

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DNK	049	Denmark	5	0.02	na	9.17	0.05	0.00	0.03	0.38	0.46	0.51	0.64	3.34
EST	058	Estonia	5	0.06	0.01	8.16	0.15	0.09	0.01	0.20	0.29	0.41	1.60	na
FIN	061	Finland	5	0.01	na	8.95	0.06	0.00	0.03	0.53	0.55	na	0.09	2.27
FRA	062	France	5	0.01	na	9.01	0.05	0.00	0.03	na	na	na	na	2.34
DEU	067	Germany	5	0.01	na	9.49	0.03	0.00	0.02	na	na	na	na	4.64
GRC	069	Greece	5	0.01	na	8.13	0.09	0.01	0.04	0.37	0.55	na	0.00	1.43
HUN	078	Hungary	5	0.02	0.01	7.63	0.10	0.02	0.03	0.30	0.37	0.48	0.81	0.99
ISL	079	Iceland	5	0.00	na	9.15	0.15	0.00	0.04	0.43	0.45	0.34	0.75	1.81
IRL	084	Ireland	5	0.04	na	8.47	0.06	0.01	0.05	0.40	0.52	na	1.39	2.14
ITA	086	Italy	5	0.00	na	8.66	0.07	0.01	0.03	na	na	na	na	1.71
LVA	098	Latvia	5	0.04	0.01	7.95	0.19	0.08	0.03	0.16	0.24	0.29	1.05	na
LTU	103	Lithuania	5	0.03	0.01	7.89	0.19	0.04	-0.01	0.13	0.18	0.22	1.04	na
LUX	104	Luxembourg	5	na	na	9.28	0.04	0.00	0.04	0.88	0.91	na	0.05	na
MKD	106	Macedonia, FYR	5	0.03	0.04	7.51	0.08	-0.03	0.00	na	na	na	na	na
MLT	112	Malta	5	0.04	0.04	7.90	0.03	-0.01	0.06	0.56	0.66	1.51	1.63	1.20
MDA	119	Moldova	5	0.03	0.04	6.55	0.14	0.07	-0.02	0.12	0.25	0.27	1.22	na
NLD	126	Netherlands	5	0.03	na	8.95	0.04	0.00	0.03	na	na	na	na	2.14
NOR	134	Norway	5	0.01	na	9.23	0.05	0.00	0.04	0.46	0.59	0.54	0.76	2.87
POL	143	Poland	5	0.03	0.01	8.04	0.19	0.02	0.03	0.16	0.25	0.42	0.53	1.20
PRT	144	Portugal	5	0.02	na	7.82	0.09	0.00	0.04	0.70	0.84	na	0.00	0.94
ROM	147	Romania	5	0.01	0.01	7.35	0.44	-0.02	0.00	0.31	0.52	0.35	0.58	na
RUS	148	Russian Federation	5	0.01	0.00	7.84	0.39	0.07	0.02	na	na	na	na	na
SVK	157	Slovak Republic	5	0.02	0.01	8.08	0.08	0.02	0.01	0.48	0.63	0.63	1.27	na
SVN	158	Slovenia	5	0.01	0.00	9.05	0.11	-0.01	0.02	0.31	0.42	0.40	1.20	na
ESP	162	Spain	5	0.02	na	8.25	0.08	0.00	0.04	na	na	na	na	1.26
SWE	170	Sweden	5	0.02	na	9.25	0.05	-0.01	0.03	0.43	0.63	na	0.60	3.52

Code	Index	Country	Region	sFDI	sODA	lnGDPpc	D	dlnREER	grGDP	sCRpr	sCR	sM2	sXnM	HK
CHE	171	Switzerland	5	0.02	na	9.36	0.03	0.01	0.02	na	na	na	na	3.49
UKR	184	Ukraine	5	0.01	0.01	6.97	0.50	-0.02	-0.04	0.09	0.19	0.22	0.80	na
GBR	186	United Kingdom	5	0.02	na	8.80	0.06	0.01	0.02	na	na	na	na	1.90
YUG	195	Yugoslavia, Fed. Rep.	5	0.00	0.10	6.95	na	na	0.05	na	na	na	na	0.76

Note: The countries are alphabetically ordered within regions of land indicated in Appendix Table B.1.

Appendix C: Cross correlations

		a	aa	ab	ac	ad	ae	af	ag	ah	ai	b	ba	bb	bc	bd	be	bf	bg	bh	bi	c	d	e	f	g	h	i	j
MA3 (sODA) t	a	1.00	0.91	0.87	0.90	0.95	0.91	0.89	0.68	0.73	0.72	-0.06	-0.06	-0.10	-0.11	-0.09	-0.11	-0.06	-0.03	-0.08	-0.09	-0.34	-0.33	0.23	0.02	0.07	0.00	0.01	-0.06
MA3 (sODA x Pols) t	aa	0.91	1.00	0.92	0.94	0.95	0.94	0.94	0.75	0.77	0.76	-0.01	0.01	-0.06	-0.06	-0.05	-0.06	-0.03	-0.02	-0.05	-0.07	-0.32	-0.28	0.27	0.00	0.04	0.00	0.10	0.00
MA3 (sODA x Rule) t	ab	0.87	0.92	1.00	0.96	0.95	0.97	0.90	0.78	0.83	0.79	0.00	-0.02	-0.02	-0.03	-0.03	-0.04	0.03	0.04	-0.03	-0.05	-0.29	-0.26	0.19	-0.04	0.00	-0.03	0.16	-0.01
MA3 (sODA x Contcorr) t	ac	0.90	0.94	0.96	1.00	0.95	0.97	0.91	0.73	0.76	0.74	-0.02	-0.04	-0.04	-0.03	-0.05	-0.05	0.01	0.03	-0.03	-0.05	-0.28	-0.24	0.17	-0.03	0.00	-0.04	0.13	-0.01
MA3 (sODA x Regual) t	ad	0.95	0.95	0.95	0.95	1.00	0.97	0.91	0.72	0.78	0.76	-0.03	-0.05	-0.08	-0.08	-0.07	-0.08	-0.02	-0.01	-0.07	-0.08	-0.33	-0.33	0.22	0.01	0.06	0.00	0.05	-0.04
MA3 (sODA x Goveff) t	ae	0.91	0.94	0.97	0.97	0.97	1.00	0.90	0.75	0.78	0.76	-0.03	-0.04	-0.06	-0.06	-0.06	-0.06	-0.01	0.00	-0.06	-0.08	-0.30	-0.29	0.18	-0.01	0.03	-0.03	0.09	-0.02
MA3 (sODA x Voacc) t	af	0.89	0.94	0.90	0.91	0.91	0.90	1.00	0.77	0.79	0.76	0.00	-0.02	-0.02	-0.02	-0.02	-0.03	0.05	0.10	0.01	-0.01	-0.29	-0.20	0.10	-0.01	0.03	-0.01	0.13	-0.05
MA3 (sODA x sM2) t	ag	0.68	0.75	0.78	0.73	0.72	0.75	0.77	1.00	0.85	0.82	0.09	0.02	0.06	0.05	0.07	0.05	0.15	0.24	0.08	0.06	-0.17	-0.17	0.05	-0.03	-0.01	-0.08	0.24	0.00
MA3 (sODA x sCR) t	ah	0.73	0.77	0.83	0.76	0.78	0.78	0.79	0.85	1.00	0.95	0.10	0.03	0.07	0.06	0.08	0.05	0.17	0.19	0.13	0.10	-0.15	-0.18	0.11	-0.03	-0.01	-0.02	0.28	-0.02
MA3 (sODA x sCRpr) t	ai	0.72	0.76	0.79	0.74	0.76	0.76	0.76	0.82	0.95	1.00	0.09	0.03	0.06	0.04	0.07	0.04	0.14	0.18	0.11	0.10	-0.17	-0.18	0.10	-0.07	-0.02	-0.05	0.25	0.00
MA3 (sFDI) t-1	b	-0.06	-0.01	0.00	-0.02	-0.03	-0.03	0.00	0.09	0.10	0.09	1.00	0.94	0.78	0.70	0.91	0.81	0.82	0.73	0.68	0.66	0.10	0.11	-0.04	-0.15	-0.08	-0.09	0.39	0.16
MA3 (sFDI x Pols) t-1	ba	-0.06	0.01	-0.02	-0.04	-0.05	-0.04	-0.02	0.02	0.03	0.03	0.94	1.00	0.84	0.75	0.92	0.85	0.85	0.75	0.69	0.66	0.19	0.18	-0.06	-0.20	-0.13	-0.12	0.39	0.22
MA3 (sFDI x Rule) t-1	bb	-0.10	-0.06	-0.02	-0.04	-0.08	-0.06	-0.02	0.06	0.07	0.06	0.78	0.84	1.00	0.98	0.96	0.99	0.93	0.87	0.89	0.88	0.26	0.31	-0.17	-0.22	-0.18	-0.14	0.44	0.12
MA3 (sFDI x Contcorr) t-1	bc	-0.11	-0.06	-0.03	-0.03	-0.08	-0.06	-0.02	0.05	0.06	0.04	0.70	0.75	0.98	1.00	0.91	0.98	0.89	0.84	0.88	0.87	0.28	0.33	-0.17	-0.21	-0.19	-0.14	0.41	0.09
MA3 (sFDI x Regual) t-1	bd	-0.09	-0.05	-0.03	-0.05	-0.07	-0.06	-0.02	0.07	0.08	0.07	0.91	0.92	0.96	0.91	1.00	0.97	0.94	0.86	0.85	0.84	0.19	0.23	-0.14	-0.19	-0.14	-0.12	0.43	0.15
MA3 (sFDI x Goveff) t-1	be	-0.11	-0.06	-0.04	-0.05	-0.08	-0.06	-0.03	0.05	0.05	0.04	0.81	0.85	0.99	0.98	0.97	1.00	0.92	0.87	0.88	0.87	0.24	0.29	-0.17	-0.21	-0.17	-0.13	0.43	0.13
MA3 (sFDI x Voacc) t-1	bf	-0.06	-0.03	0.03	0.01	-0.02	-0.01	0.05	0.15	0.17	0.14	0.82	0.85	0.93	0.89	0.94	0.92	1.00	0.89	0.87	0.84	0.23	0.25	-0.18	-0.20	-0.16	-0.12	0.42	0.08
MA3 (sFDI x sM2) t-1	bg	-0.03	-0.02	0.04	0.03	-0.01	0.00	0.10	0.24	0.19	0.18	0.73	0.75	0.87	0.84	0.86	0.87	0.89	1.00	0.94	0.91	0.23	0.26	-0.16	-0.22	-0.20	-0.12	0.48	0.14
MA3 (sFDI x sCR) t-1	bh	-0.08	-0.05	-0.03	-0.03	-0.07	-0.06	0.01	0.08	0.13	0.11	0.68	0.69	0.89	0.88	0.85	0.88	0.87	0.94	1.00	0.98	0.25	0.27	-0.16	-0.21	-0.20	-0.12	0.40	0.11
MA3 (sFDI x sCRpr) t-1	bi	-0.09	-0.07	-0.05	-0.05	-0.08	-0.08	-0.01	0.06	0.10	0.10	0.66	0.66	0.88	0.87	0.84	0.87	0.84	0.91	0.98	1.00	0.23	0.27	-0.18	-0.21	-0.20	-0.11	0.38	0.12
MA3 (human capital) t	c	-0.34	-0.32	-0.29	-0.28	-0.33	-0.30	-0.29	-0.17	-0.15	-0.17	0.10	0.19	0.26	0.28	0.19	0.24	0.23	0.23	0.25	0.23	1.00	0.77	-0.43	-0.17	-0.25	-0.20	0.17	-0.10
MA3 (lnGDPpc) t	d	-0.33	-0.28	-0.26	-0.24	-0.33	-0.29	-0.20	-0.17	-0.18	-0.18	0.11	0.18	0.31	0.33	0.23	0.29	0.25	0.26	0.27	0.27	0.77	1.00	-0.41	-0.14	-0.26	-0.17	0.23	-0.04
MA3 (lnGDPpc x Afr) t	e	0.23	0.27	0.19	0.17	0.22	0.18	0.10	0.05	0.11	0.10	-0.04	-0.06	-0.17	-0.17	-0.14	-0.17	-0.18	-0.16	-0.16	-0.18	-0.43	-0.41	1.00	0.02	0.06	0.15	-0.02	-0.02
MA3 (D) t	f	0.02	0.00	-0.04	-0.03	0.01	-0.01	-0.01	-0.03	-0.03	-0.07	-0.15	-0.20	-0.22	-0.21	-0.19	-0.21	-0.20	-0.22	-0.21	-0.21	-0.17	-0.14	0.02	1.00	0.60	0.05	-0.16	-0.26
STD5 (D) t	g	0.07	0.04	0.00	0.00	0.06	0.03	0.03	-0.01	-0.01	-0.02	-0.08	-0.13	-0.18	-0.19	-0.14	-0.17	-0.16	-0.20	-0.20	-0.20	-0.25	-0.26	0.06	0.60	1.00	0.06	-0.13	-0.16
MA3 (lnREER) t	h	0.00	0.00	-0.03	-0.04	0.00	-0.03	-0.01	-0.08	-0.02	-0.05	-0.09	-0.12	-0.14	-0.14	-0.12	-0.13	-0.12	-0.12	-0.12	-0.11	-0.20	-0.17	0.15	0.05	0.06	1.00	-0.05	-0.05
MA3 (openness) t	i	0.01	0.10	0.16	0.13	0.05	0.09	0.13	0.24	0.28	0.25	0.39	0.39	0.44	0.41	0.43	0.43	0.42	0.48	0.40	0.38	0.17	0.23	-0.02	-0.16	-0.13	-0.05	1.00	0.12
MA3 (gcGDP) t	j	-0.06	0.00	-0.01	-0.01	-0.04	-0.02	-0.05	0.00	-0.02	0.00	0.16	0.22	0.12	0.09	0.15	0.13	0.08	0.14	0.11	0.12	-0.10	-0.04	-0.02	-0.26	-0.16	-0.05	0.12	1.00

Appendix D: Regression results with human capital

Appendix Table D.1: Regression results of the model (4.1.2) with MA3HK Introducing the interaction terms of MA3sODA and MA3sFDI with Gov

Dependent Variable: sFDI

Explanatory Variables:	Gov =	Pols	Rule	Contcorr	Requal	Goveff	Voacc
(MA3sODA)		-0.16*** (-8.51)	-0.22*** (-6.66)	-0.23*** (-8.01)	-0.56*** (-16.40)	-0.29*** (-9.00)	-0.14*** (-9.76)
(MA3sODA × Gov)		0.24*** (7.44)	0.57*** (6.12)	0.75*** (7.46)	0.96*** (14.20)	0.71*** (8.10)	0.23*** (7.78)
(MA3sFDI)(−1)		-0.44*** (-15.00)	-0.18*** (-5.83)	0.08*** (3.37)	-1.35*** (-37.80)	-0.38*** (-14.50)	-0.38*** (-18.40)
(MA3sFDI × Gov)		1.22*** (29.10)	0.97*** (13.90)	0.50*** (8.45)	2.46*** (49.60)	1.36*** (26.40)	1.19*** (29.20)
(MA3HK)		0.01*** (10.20)	0.01*** (9.90)	0.01*** (14.30)	0.01*** (10.60)	0.01*** (12.20)	0.01*** (12.40)
(MA3D)		-0.02*** (-21.20)	-0.02*** (-21.70)	-0.02*** (-23.40)	-0.02*** (-11.10)	-0.02*** (-15.70)	-0.02*** (-18.80)
(σ5D)		-0.01*** (-7.52)	-0.02*** (-11.80)	-0.02*** (-10.80)	-0.01*** (-8.94)	-0.02*** (-12.90)	-0.01*** (-6.59)
(MA3lnREER)		-0.004*** (-4.89)	-0.01*** (-7.12)	-0.005*** (-6.65)	-0.005*** (-10.10)	-0.005*** (-7.02)	-0.004*** (-5.24)
(MA3open)		0.02*** (15.30)	0.02*** (15.90)	0.02*** (26.50)	0.02*** (25.20)	0.02*** (20.20)	0.02*** (17.50)
(MA3grGDP)		0.04*** (6.78)	0.04*** (5.67)	0.04*** (6.24)	0.04*** (7.96)	0.04*** (5.34)	0.04*** (7.61)
Constant		0.0004*** (5.70)	0.0004*** (5.66)	0.0004*** (6.40)	0.0005*** (11.10)	0.0004*** (5.56)	0.0003*** (5.13)
No. of observation		1013	1013	1013	1013	1013	1013
Wald (joint)		14050 [0.00]	10520 [0.00]	42300 [0.00]	16640 [0.00]	18090 [0.00]	13790 [0.00]
Wald (dummy)		32.54 [0.00]	32.06 [0.00]	40.92 [0.00]	122.40 [0.00]	30.88 [0.00]	26.32 [0.00]
Wald (MA3sODA terms)		93.74 [0.00]	52.77 [0.00]	65.68 [0.00]	493.20 [0.00]	146.30 [0.00]	137.90 [0.00]
Wald (MA3sFDI terms)		3226 [0.00]	1724 [0.00]	2133 [0.00]	4455 [0.00]	2173 [0.00]	1473 [0.00]
Sargan test		63.67 [1.00]	63.18 [1.00]	61.85 [1.00]	61.62 [1.00]	60.52 [1.00]	64.11 [1.00]
m_2 test		0.03 [0.98]	0.13 [0.89]	0.21 [0.84]	-0.22 [0.83]	0.12 [0.90]	-0.07 [0.94]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Appendix Table D.2: Regression results of the model (4.1.3) with MA3HK Introducing the interaction terms of MA3sODA and MA3sFDI with FMD

Dependent Variable: sFDI

Explanatory variables:	FMD = M2	sCR	sCRpr
(MA3sODA)	-0.03*** (-3.95)	-0.004 (-0.66)	-0.04*** (-5.16)
(MA3sODA × FMD)	-0.03** (-2.21)	-0.14*** (-3.29)	0.32*** (9.76)
(MA3sFDI)(−1)	0.07*** (4.85)	0.12*** (16.50)	0.15*** (10.80)
(MA3sFDI × FMD)(−1)	1.27*** (12.00)	1.32*** (16.80)	1.00*** (14.30)
(MA3HK)	0.005*** (4.42)	0.01*** (5.95)	0.01*** (8.31)
(MA3D)	-0.02*** (-16.20)	-0.01*** (-15.30)	-0.01*** (-9.49)
(σ5D)	-0.02*** (-8.30)	-0.02*** (-6.80)	-0.01*** (-6.89)
(MA3lnREER)	-0.01*** (-5.97)	-0.01*** (-6.88)	-0.005*** (-12.30)
(MA3open)	0.02*** (30.90)	0.02*** (17.90)	0.02*** (17.10)
(MA3grGDP)	0.06*** (8.53)	0.08*** (10.90)	0.08*** (11.00)
Constant	0.0002*** (3.31)	0.0002** (2.16)	0.0002*** (3.14)
No. of Observations	1011	1003	1003
Wald (Joint)	21020 [0.00]	12330 [0.00]	16810 [0.00]
Wald (Dummy)	10.95 [0.00]	4.65 [0.03]	9.84 [0.00]
Wald (MA3sODA terms)	73.61 [0.00]	150 [0.00]	111.20 [0.00]
Wald (MA3sFDI terms)	2669 [0.00]	3208 [0.00]	3396 [0.00]
Sargan test	63.10 [1.00]	64.72 [1.00]	63.09 [1.00]
m_2 test	0.28 [0.78]	0.25 [0.80]	0.19 [0.85]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level and ** indicates significance at 5% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Appendix Table D.3.1: Regression results of the model (4.1.4) with MA3HK Introducing Pols and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables:	FMD = M2	sCR	sCRpr
(MA3sODA)	-0.12*** (-7.31)	-0.17*** (-11.60)	-0.17*** (-6.78)
(MA3sODA × Pols)	0.18*** (5.29)	0.32*** (11.40)	0.26*** (4.99)
(MA3sODA × FMD)	-0.02 (-1.33)	-0.09* (-1.84)	0.28*** (4.48)
(MA3sFDI)(−1)	-0.62*** (-22.50)	-0.50*** (-29.30)	-0.46*** (-17.20)
(MA3sFDI × Pols) (−1)	1.44*** (30.30)	1.10*** (28.00)	1.01*** (18.50)
(MA3sFDI × FMD)(−1)	0.27* (1.92)	0.89*** (6.37)	0.92*** (7.42)
(MA3HK)	0.01*** (5.89)	0.01*** (5.41)	0.01*** (8.18)
(MA3D)	-0.02*** (-22.60)	-0.02*** (-14.80)	-0.01*** (-20.10)
(σ5D)	-0.01*** (-5.90)	-0.01*** (-7.18)	-0.01*** (-6.80)
(MA3lnREER)	-0.004*** (-4.10)	-0.004*** (-3.73)	-0.005*** (-7.76)
(MA3open)	0.02*** (16.60)	0.02*** (12.60)	0.02*** (11.60)
(MA3grGDP)	0.04*** (5.77)	0.04*** (4.31)	0.05*** (6.43)
Constant	0.0004*** (7.19)	0.0003*** (4.00)	0.0003*** (4.40)
No. of Observations	1011	1003	1003
Wald (Joint)	9829 [0.00]	9621 [0.00]	22100 [0.00]
Wald (Dummy)	51.65 [0.00]	16.03 [0.00]	19.35 [0.00]
Wald (MA3sODA terms)	93.80 [0.00]	140.50 [0.00]	315.70 [0.00]
Wald (MA3sFDI terms)	5314 [0.00]	3015 [0.00]	4206 [0.00]
Sargan test	61.39 [1.00]	57.07 [1.00]	61.35 [1.00]
m_2 test	0.00 [1.00]	0.05 [0.96]	0.02 [0.98]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level, * indicates significance at 10% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n+1)^{th}$ and all subsequent lags of MA3sFDI.

Appendix Table D.3.2: Regression results of the model (4.1.4) with MA3HK Introducing Rule and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables:	FMD = M2	sCR	sCRpr
(MA3sODA)	-0.27*** (-6.25)	-0.25*** (-4.73)	-0.25*** (-5.18)
(MA3sODA × Rule)	0.80*** (6.18)	0.79*** (4.26)	0.67*** (4.61)
(MA3sODA × FMD)	-0.22*** (-4.95)	-0.22 (-1.03)	0.29*** (6.87)
(MA3sFDI)(−1)	-0.39*** (-8.94)	-0.25*** (-5.70)	-0.27*** (-7.32)
(MA3sFDI × Rule)(−1)	0.89*** (9.29)	0.59*** (7.58)	0.52*** (4.73)
(MA3sFDI × FMD)(−1)	1.52*** (8.56)	1.67*** (3.67)	1.88*** (12.50)
(MA3HK)	0.01*** (4.73)	0.003*** (2.97)	0.01*** (7.30)
(MA3D)	-0.02*** (-17.60)	-0.02*** (-10.80)	-0.02*** (-16.10)
(σ5D)	-0.02*** (-11.20)	-0.01*** (-3.49)	-0.01*** (-4.65)
(MA3lnREER)	-0.004*** (-4.55)	-0.003 (-0.97)	-0.005** (-2.16)
(MA3open)	0.02*** (10.80)	0.02*** (6.22)	0.01*** (6.94)
(MA3grGDP)	0.03*** (4.67)	0.05*** (8.27)	0.05*** (5.92)
Constant	0.0005*** (7.30)	0.001*** (4.16)	0.0003*** (3.02)
No. of Observations	1011	1003	1003
Wald (Joint)	7395 [0.00]	3170 [0.00]	5383 [0.00]
Wald (Dummy)	53.34 [0.00]	17.31 [0.00]	9.10 [0.00]
Wald (MA3sODA terms)	40.62 [0.00]	35.49 [0.00]	78.41 [0.00]
Wald (MA3sFDI terms)	2741 [0.00]	1257 [0.00]	1279 [0.00]
Sargan test	59.01 [1.00]	62.92 [1.00]	57.17 [1.00]
m_2 test	0.19 [0.85]	0.18 [0.85]	0.09 [0.93]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level and ** indicates significance at 5% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n+1)^{th}$ and all subsequent lags of MA3sFDI.

Appendix Table D.3.3: Regression results of the model (4.1.4) with MA3HK Introducing Contcorr and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables:	FMD =	M2	sCR	sCRpr
(MA3sODA)		-0.23*** (-4.98)	-0.25*** (-7.21)	-0.28*** (-7.99)
(MA3sODA × Contcorr)		0.89*** (5.02)	1.04*** (7.03)	0.99*** (7.17)
(MA3sODA × FMD)		-0.25*** (-6.06)	-0.40*** (-3.01)	0.19*** (3.91)
(MA3sFDI)(−1)		-0.16*** (-4.51)	-0.12*** (-3.00)	-0.15*** (-5.87)
(MA3sFDI × Contcorr)(−1)		0.52*** (6.60)	0.30*** (4.64)	0.26*** (3.35)
(MA3sFDI × FMD)(−1)		1.39*** (7.66)	1.96*** (8.60)	1.95*** (18.20)
(MA3HK)		0.01*** (7.54)	0.01*** (5.14)	0.01*** (9.66)
(MA3D)		-0.02*** (-20.60)	-0.02*** (-17.70)	-0.02*** (-19.30)
(σ5D)		-0.02*** (-11.60)	-0.02*** (-5.98)	-0.01*** (-4.76)
(MA3lnREER)		-0.003*** (-5.11)	-0.004*** (-2.83)	-0.004*** (-2.35)
(MA3open)		0.02*** (20.60)	0.01*** (11.70)	0.01*** (14.60)
(MA3grGDP)		0.04*** (6.49)	0.05*** (8.97)	0.05*** (6.57)
Constant		0.0004*** (7.14)	0.0005*** (4.49)	0.0004*** (3.93)
No. of Observations		1011	1003	1003
Wald (Joint)		7538 [0.00]	3553 [0.00]	9933 [0.00]
Wald (Dummy)		51.03 [0.00]	20.14 [0.00]	15.48 [0.00]
Wald (MA3sODA terms)		41.18 [0.00]	55.99 [0.00]	91.90 [0.00]
Wald (MA3sFDI terms)		2054 [0.00]	1031 [0.00]	2768 [0.00]
Sargan test		59.55 [1.00]	61.13 [1.00]	56.70 [1.00]
m_2 test		0.25 [0.80]	0.24 [0.81]	0.13 [0.90]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Appendix Table D.3.4: Regression results of the model (4.1.4) with MA3HK Introducing Requal and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables:	FMD = M2	sCR	sCRpr
(MA3sODA)	-0.50*** (-11.50)	-0.54*** (-7.04)	-0.54*** (-7.65)
(MA3sODA × Requal)	0.84*** (8.68)	0.96*** (5.99)	0.89*** (6.47)
(MA3sODA × FMD)	-0.09 (-1.62)	-0.29* (-1.79)	0.19** (2.04)
(MA3sFDI)(−1)	-1.43*** (-30.40)	-1.19*** (-24.80)	-1.18*** (-30.20)
(MA3sFDI × Requal)(−1)	2.36*** (29.30)	2.02*** (33.80)	1.98*** (28.50)
(MA3sFDI × FMD)(−1)	0.96*** (5.51)	0.99*** (3.97)	1.04*** (9.70)
(MA3HK)	0.01*** (6.24)	0.01*** (5.65)	0.01*** (7.95)
(MA3D)	-0.02*** (-9.13)	-0.02*** (-8.32)	-0.01*** (-9.57)
(σ5D)	-0.01*** (-6.35)	-0.01*** (-2.64)	-0.01** (-2.08)
(MA3lnREER)	-0.003*** (-2.89)	-0.002 (-1.57)	-0.003*** (-2.34)
(MA3open)	0.02*** (25.70)	0.02*** (22.20)	0.02*** (19.70)
(MA3grGDP)	0.03*** (4.54)	0.03*** (3.58)	0.03*** (4.02)
Constant	0.0004*** (6.24)	0.0004*** (5.39)	0.0004*** (5.41)
No. of Observations	1011	1003	1003
Wald (Joint)	20800 [0.00]	11050 [0.00]	9513 [0.00]
Wald (Dummy)	38.98 [0.00]	29.08 [0.00]	29.23 [0.00]
Wald (MA3sODA terms)	584.70 [0.00]	173.60 [0.00]	288.40 [0.00]
Wald (MA3sFDI terms)	4982 [0.00]	2652 [0.00]	3868 [0.00]
Sargan test	53.95 [1.00]	55.34 [1.00]	57.44 [1.00]
m_2 test	-0.19 [0.85]	-0.13 [0.90]	-0.18 [0.85]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level, ** indicates significance at 5% level and * indicates significance at 10% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Appendix Table D.3.5: Regression results of the model (4.1.4) with MA3HK Introducing Goveff and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables:	FMD = M2	sCR	sCRpr
(MA3sODA)	-0.32*** (-5.79)	-0.40*** (-8.26)	-0.36*** (-8.90)
(MA3sODA × Goveff)	0.86*** (5.73)	1.14*** (8.29)	0.90*** (7.91)
(MA3sODA × FMD)	-0.26*** (-4.99)	-0.45*** (-3.90)	0.22*** (3.05)
(MA3sFDI)(−1)	-0.48*** (-10.80)	-0.41*** (-9.95)	-0.42*** (-12.70)
(MA3sFDI × Goveff)(−1)	1.19*** (12.80)	0.74*** (11.90)	0.78*** (9.03)
(MA3sFDI × FMD)(−1)	1.15*** (7.50)	2.32*** (13.60)	1.91*** (27.90)
(MA3HK)	0.01*** (6.15)	0.01*** (5.06)	0.01*** (8.38)
(MA3D)	-0.02*** (-13.50)	-0.02*** (-13.00)	-0.01*** (-11.70)
(σ5D)	-0.02*** (-11.80)	-0.01*** (-5.53)	-0.01*** (-4.72)
(MA3lnREER)	-0.004*** (-5.34)	-0.005*** (-4.81)	-0.005*** (-2.55)
(MA3open)	0.02*** (16.00)	0.02*** (10.80)	0.01*** (12.90)
(MA3grGDP)	0.03*** (4.66)	0.04*** (4.77)	0.04*** (5.31)
Constant	0.0004*** (6.49)	0.0004*** (4.48)	0.0003*** (2.97)
No. of Observations	1011	1003	1003
Wald (Joint)	11550 [0.00]	8631 [0.00]	9149 [0.00]
Wald (Dummy)	42.08 [0.00]	20.06 [0.00]	8.84 [0.00]
Wald (MA3sODA terms)	43.73 [0.00]	98.18 [0.00]	116.90 [0.00]
Wald (MA3sFDI terms)	3421 [0.00]	903.10 [0.00]	2640 [0.00]
Sargan test	56.80 [1.00]	58.20 [1.00]	55.85 [1.00]
m_2 test	0.17 [0.87]	0.17 [0.87]	0.08 [0.94]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.

Appendix Table D.3.6: Regression results of the model (4.1.4) with MA3HK Introducing Voacc and FMD interaction terms of MA3sODA and MA3sFDI

Dependent Variable: sFDI

Explanatory variables:	FMD = M2	sCR	sCRpr
(MA3sODA)	-0.09*** (-3.73)	-0.14*** (-6.81)	-0.12*** (-5.25)
(MA3sODA × Voacc)	0.11*** (2.39)	0.27*** (7.22)	0.17*** (3.59)
(MA3sODA × FMD)	-0.03* (-1.82)	-0.09* (-1.89)	0.32*** (7.24)
(MA3sFDI)(−1)	-0.59*** (-25.70)	-0.47*** (-27.50)	-0.45*** (-17.50)
(MA3sFDI × Voacc)(−1)	1.35*** (31.30)	1.08*** (31.00)	0.99*** (25.20)
(MA3sFDI × FMD)(−1)	0.75*** (5.86)	1.18*** (14.60)	1.18*** (15.00)
(MA3HK)	0.01*** (8.02)	0.01*** (7.23)	0.01*** (9.65)
(MA3D)	-0.02*** (-20.50)	-0.02*** (-15.40)	-0.01*** (-17.50)
(σ5D)	-0.01*** (-5.66)	-0.01*** (-3.73)	-0.01*** (-4.75)
(MA3lnREER)	-0.004*** (-4.54)	-0.004*** (-2.93)	-0.01*** (-6.35)
(MA3open)	0.02*** (21.40)	0.02*** (11.00)	0.02*** (12.20)
(MA3grGDP)	0.04*** (7.04)	0.05*** (5.61)	0.06*** (8.02)
Constant	0.0003*** (5.85)	0.0003*** (4.39)	0.0002*** (3.39)
No. of Observations	1011	1003	1003
Wald (Joint)	12830 [0.00]	11790 [0.00]	19670 [0.00]
Wald (Dummy)	34.26 [0.00]	19.28 [0.00]	11.47 [0.00]
Wald (MA3sODA terms)	124.20 [0.00]	87.38 [0.00]	104.20 [0.00]
Wald (MA3sFDI terms)	2657 [0.00]	2010 [0.00]	2598 [0.00]
Sargan test	59.91 [1.00]	60.61 [1.00]	62.47 [1.00]
m_2 test	-0.08 [0.93]	-0.03 [0.97]	-0.06 [0.95]

Note: Numbers in parentheses are the t-ratios; numbers in brackets are the p-values; *** indicates significance at 1% level, * indicates significance at 10% level. Instrument variables are the explanatory variables in each column except MA3sFDI(−1); and GMM-type instrument includes the $(n + 1)^{th}$ and all subsequent lags of MA3sFDI.