Foreign Direct Investment: A Comprehensive Study Comparing the Asian markets at Different Stages of Economic Development

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Abstract

This paper examines how the relationship between IFDI and its determinants change depending on different economic development stages in Asia - following *The Strategies of the Flying Geese and patterns of IFDI* and the previous work by *Jadhav (2012), Rashid et.al (2016)* and *Jaiblai and Shenai (2019)*. The sample consists of panel time-series data between 2000 and 2018 and comprises a total of 20 Asian countries, divided into four groups of economic development stages: emerging countries, developing countries, transition countries and LDCs. The empirical results reveal that: (i) an increase in exchange rate affects the relationship between IFDI more negative in transition countries as compared to LDCs, (ii) an increase in inflation rate affects the relationship between IFDI more positive in emerging countries as compared to developing countries, (iii) an increase in inflation rate affects the relationship between IFDI more positive in emerging countries as compared to LDCs, and (iv) there are larger differences in terms of inflation across countries which are much further apart in their economic development stages.

Keywords: IFDI, Economic Development Stage, Panel time-series data, Strategies of the Flying Geese, Patterns of IFDI

JEL Classification: F21, O11, C23

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Contents

1 Introduction

1.1 Background

The role of Foreign Direct Investment (FDI)[1] has been a continuous research topic since its rapid growth during the late 1980s — outrunning the growth rate of both world trade and world output. The following two decades caused a shift in FDI incentives from developed countries towards developing- [2] and transition countries[3], as the two latter showed signs of generating more promising growth potentials and investment returns. In turn, inflows of FDI (IFDI) has become a desirable source of external finance and capital formation, where spillover effects contribute to enhance economic growth. Thus, the global market for IFDI has become more competitive than ever, causing some countries to fall behind on attracting investments as they lack the sufficient resources and capacities that investors and other various stakeholders seek (Mallampally & Sauvant, 1999).

IFDI is widely accepted as an important financial factor for all countries with regard to their economic development (Denisia, 2010). It is as important as ever for developing countries and especially least developed countries (LDCs), being countries with development limitations due to historical, geographical and structural challenges (UNCTAD, n.d.a), to attract investments and promote exports. This is found necessary in order to support and improve economic diversification, structural transformation as well as industrialization (UNCTAD, 2019a). But the share of global IFDI going to LDCs is countered with fundamental issues, such as limited market size, weak business environments, bad infrastructure and high levels of risk (United Nations, 2011), which remain unsolved, causing lesser IFDI incentives to these countries. This, in turn, makes it harder for them to escape poverty and enhance economic development (iBid). Meanwhile, developing countries have continued to attract IFDI and moves closer towards achieving extended long-term economic growth (Iamsiraroj, 2016).

[1] An investment made by a company or entity based in one country, into a company or entity based in another country (Thomson Reuters, 2020).

[2] Countries having lower standard of living and/or industrial production well below the possible level with finance and technical support (IGI Global,n.d.).

[3] Countries which undergo a change in their economy from a centrally planned to a market economy (UNCTADstat, 2019).

During the 20th century, Asia had become a driver in the global economy and an attractive destination for IFDI. Its fast industrialization and remarkable integration into the world economy had created political and economic changes, caused by increased financial flows and world trade (Anbumozhi & Yao, 2017). In 2010, developing and transition countries accounted for more than half of global IFDI, where Asia stood as the leading recipient (UNCTAD, 2011). Among the developing countries in East Asia, China experienced significant growth since the opening of the economy in 1978. In more recent years, China has, together with India, moved away from their traditional economies, being reliant on agriculture and exporting raw materials (Billy, 2013). These countries have become the two biggest emerging markets in Asia where China is the largest recipient of IFDI in Asia, and the second largest recipient globally, after the United States (UNCTAD, 2019b). In turn, the attractiveness of China as a destination for IFDI relative to other Asian countries is much apparent. Developing countries like those included in the Association of Southeast Asian Nations (ASEAN)[4] have struggled with declining attractiveness as a location for FDI inflows, caused by their slow recovery from the financial crisis in 2007 (Masron & Yusop, 2012). Thus, during the last decade ASEAN made successive steps towards becoming a significant competitor for IFDI, where policy makers of several regions have incorporated strategies for increasing the levels of FDI inflows as part of their main long-term economic development strategy (Masron, 2012). On average, nearly all ASEAN countries have during the more recent years received higher IFDI, however, the volume is not spread homogeneously. As some countries are more favorable in the eyes of the investors with key contributors such as economic growth, improved investment environment and strengthened regional integration, they become the more obvious choice for IFDI. Singapore, Thailand, Malaysia, Indonesia and Vietnam, has been the largest recipients of IFDI, accounting for approximately 90 percent of total ASEAN inward flows (UNCTAD, 2018).

Transition economies have become increasingly more prone to receiving IFDI, competing amongst other to gain enough technology and capital to spur higher growth rates. However, the cumulative value of IFDI to transition economies in Asia has been very unequally distributed. Amongst the Central Asian countries, acronymed CA5[5], Kazakhstan holds the dominant share of IFDI and stands as the largest economy in Central Asia — over

[4]Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam (Vinayak, Thompson, & Tonby, 2014).

[5]Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan (Batsaikhan & Dabrowski, 2019).

twice the size as the four other Central Asian countries combined. Consequently, CA5 is oftentimes overlooked and largely unknown to the public as it rarely takes part in news cycles, counteracting their potential as an attractive destination for IFDI (Yergaliyeva, 2019).

1.2 Problem Discussion

IFDI acts as an important key factor for expanding a country's economic growth and mitigate poverty issues. However, there are several factors that influence the incentive to invest in a country which in turn makes it interesting to see how it can vary between regions and how the relationship between IFDI and its determinants differ depending on what economic development stage the recipient country is in.

Consequently, the rapid expansion of IFDI resulted in a lot of research being conducted in this line of field. Particularly in Asia, as it quickly escalated into becoming the world's largest recipient of IFDI, with top recipients like China and India, closely followed by the ASEAN countries. Thus, many Asian countries have different prerequisites for IFDI, where some countries have been left more in the shadows as they fail to attract sufficient investment incentives. Situated in this category is especially LDCs in South Asia such as Bangladesh, Afghanistan, Bhutan and Nepal but also countries belonging to ASEAN such as Cambodia, Myanmar and Laos. Also part of this category are five transition economies (Arazmuradov, 2015), known as the countries of post-Soviet Central Asia; Kazakhstan, Turkmenistan, Kyrgyzstan, Uzbekistan and Tajikistan (Batsaikhan & Dabrowski, 2019). These countries all face obstacles for further industrial growth, thus, to different degrees. However, increased levels of IFDI could be a way out but countries like these often find themselves being stuck in a *poverty trap*, where they are unable to get out of poverty due to lack of capital and resources necessary to upgrade the quality of their country. Hence, making them less likely to generate higher levels of FDI inflows (Ibid).

To compile the pieces, emerging countries, developing ASEAN countries, transition countries as well as the LDCs, are all in various stages of development. Where China and India are considered the world's largest emerging markets and attracts the highest levels of IFDI (Anon, 2007). Countries included in ASEAN are in general considered to be developing countries, attracting the second largest amounts of IFDI (UNCTAD, 2017b). Countries included in CA5 are transition countries, hence, also developing but is considered to generate

less IFDI incentives as compared to ASEAN. LDCs are developing countries with the lowest rating of socioeconomic development and human development. Thus, LDCs belong to the development stage which generally struggle the most in attracting IFDI (UNCTADstat, 2019).

Although IFDI is a well-researched area, a major portion of its theoretical groundwork is focused on the impact its determinants has on a specific country or sector and not on how the relationship between IFDI and its determinants change depending on countries economic development stage. Since policymakers must facilitate the process of IFDI, identifying the significant determinants that derive FDI inflows is imperative to increase investors incentives (Jadhav, 2012). We therefore find it important to fill this research gap as it will contribute to the understanding of how different economic development stages may impact the relationship between IFDI and its determinants and enable policymakers to get insight into the direction and motives of IFDI between these regions. Noteworthy, there is limited amount of research conducted on IFDI to CA5 compared to other regions (Batsaikhan & Dabrowski, 2019), which makes it interesting to incorporate these countries as a separate group in the analysis.

This uneven distribution of IFDI in Asia builds on the foundation of our thesis as we intend to answer the research question; *how does the relationships between IFDI and its determinants change between different stages of economic development?* Where we investigate factors that contribute to IFDI in countries within different stages of economic development, distributed between countries of emerging, developing, transition and LDCs inherency.

2 Literature Review

The subject of IFDI is—perhaps unsurprisingly— not an unexplored field in modern economic theory as it stands as a prominent source for developing nations further. This section presents a substantial body of previous research, literature and documentation, covering the many aspects and relationships of IFDI. Further, this section provides theoretical evidence from previous studies regarding strategies and patterns of IFDI. These strategies will be the backbone in the empirical part of the thesis, where assumptions will be reliant on suggestions provided in the strategies.

2.1 Strategic Motives of IFDI

There are various motives for why companies are investing into other countries, where four main categories are the most widely accepted frameworks within the field of FDI. These motives were first developed by Dunning (1993), where the four categories are *market-seeking FDI, resource-seeking FDI, efficiency-seeking FDI and strategic asset-seeking FDI* (Wadhwa & Reddy, 2011). For market-seeking motives, the aim is to penetrate the host markets in order to gain backward and forward linkages in the supply chain, as well as to gain technological spillovers (Ernst, 2005). The resource-seeking FDI has instead a focus on the natural resources available in the host country, where companies are seeking to invest in countries with cheap natural resources available (Ernst, 2005). Resource-seeking FDI factors also consider the availability and level of technology and infrastructure in the country, such as telecommunication, roads and ports (Wadhwa & Reddy, 2011). The third motive for FDI, being efficiency-seeking FDI, or vertical FDI (Ernst, 2005), aims to create competitiveness by utilizing lower costs of production, such as low labor costs (Wadhwa & Reddy, 2011). The fourth and last motive, strategic asset-seeking FDI, is based on that companies want to advance their regional or global strategy into foreign networks, through assets such as organizational capabilities, markets and technology (Wadhwa & Reddy, 2011; Faeth, 2009).

In various studies, market-seeking factors have been shown to be the most crucial factor for attracting IFDI to multiple countries. Commonly, one main factor that has been shown to have positive impact on IFDI is market size (Jadhav, 2012; Mohamed & Sidiropoulos 2010; Bevan & Estrin, 2004; Rashid, Bakar and Razak, 2016; Asiedu, 2006). However, in a study of ten sub-Saharan countries between 1990 to 2017, Jaiblai and Shenai (2019) made a contradictory founding where they found that markets of smaller size had a higher positive statistically significant impact on IFDI compared to markets of larger size. In their study, the authors analysed determinants of trade openness, inflation, infrastructure, exchange rates, income level and market size. The authors concluded that variables that have a statistically significant positive impact on IFDI belongs to countries with lower levels of income, smaller markets and with better infrastructure. The attractiveness of smaller markets for investments can be explained by the potential higher returns for investors in countries with lower GDP per capita, as these markets grow, where GDP per capita represents market size (Jaiblai & Shenai, 2019).

In addition to market size, other market-seeking factors have also been found to have positive impacts on IFDI. Jadhav (2012) studied the determinants of IFDI to the BRICS countries[6], conducted over a ten year period, 2000 to 2009. The author found that a majority of investment flows made by multinational enterprises into BRICS were made with market-seeking incentives, using variables such as political and institutional factors and their impact on IFDI. The main coefficient affecting IFDI, together with market size, was trade openness, which showed to have statistically significant positive effect on IFDI (Jadhav, 2012).

Furthermore, in a study made by Mottaleb and Kalirajan (2010), researching 68 lower-middle income countries as well as low-income developing countries, proved to have market-seeking incentives that increased companies willingness to provide IFDI to these countries. It was found that countries with higher levels of international trade, GDP growth rates and business-friendly environments are more keen to attract higher levels of IFDI incentives from foreign companies (Mottaleb & Kalirajan, 2010). In addition to the study made by Mottaleb and Kalirajan (2010), Mohamad and Sidiropoulos (2010) conducted a study on IFDI to MENA countries [7], indicating the importance of the size of the government as well as of the host country as important determinants for the level of IFDI. Also, institutional variables were shown to have positive correlation with IFDI (Mohamed & Sidiropoulos, 2010).

Bevan and Estrin (2004), focused on determinants of IFDI to 11 transition economies in Europe. They found that the proximity between the home and host country, as well as labor costs, were other important factors for multinational companies, besides market size, for deciding where to invest.

Rashid, et.al (2016) studied IFDI into the agricultural sector in three OIC countries [8] based on the explanatory variables of market size, inflation, poverty, infrastructure and exchange rate. All variables were found to have a statistically significant effect on IFDI to the agriculture sector and it was therefore suggested by the authors that the governments should put emphasis on all of these factors in order to enhance the levels of IFDI. However, two of these variables were found to have higher significance compared to the others, market

[6]Brazil, Russia, India, China and South Africa
[7]Middle East and North African countries
[8]Malaysia, Oman and Brunei

size and poverty (Rashid et. al., 2016).

Resource-seeking factors are also frequently studied in terms of IFDI, where natural resources have been seen as a critical determinant for the investment flows to MENA countries (Mohamed & Sidiropoulos, 2010), but also to countries in Sub-Saharan Africa (Asiedu, 2006). On the other hand, Jadhav (2012) found that the availability of natural resources had a statistically significant negative impact on IFDI and indicated how the regression estimation explaining FDI inflows to BRICS countries was better explained by market-seeking factors than resource-seeking ones.

To sum up the previous studies, different choices of determinants of IFDI have been analysed. Although, studies with market-seeking determinants appears to be more generally accepted as determinants of IFDI, hence, used to a larger extent. This concludes that the main IFDI determinants are macroeconomic factors (Funke, Ahmed & Arezki, 2005).

The different empirical findings confirm the possible range of key determinants of IFDI to host countries but also indicates how they may vary from one to another. Hence, IFDI incentives are affected by multiple factors as firms operate in complex and uncertain environments (Jadhav, 2012). However, as indicated by Jadhav (2012), Rashid et.al (2016) and Jaiblai and Shenai (2019), market-seeking determinants are shown to be the main factors for countries when attracting IFDI. For that reason, as well as to capture country-specific effects on IFDI, this study will mainly focus on the most prominent market-seeking determinants for IFDI, excluding resource-seeking, efficiency-seeking and strategic asset-seeking factors. Therefore, as an extension of previous studies by Jadhav (2012), Rashid et.al (2016) and Jaiblai and Shenai (2019), this study will analyze how the relationship between IFDI and its determinants of exchange rate, inflation rate, market size, infrastructure and political stability will change depending on which economic development stage that the recipient countries belongs to.

2.2 Strategy of the Flying Geese and Patterns of IFDI in Asia

Extensive research has been made concerning the uneven distribution of IFDI into Asian countries, and why some countries manage to successfully attract IFDI while other countries do not (Halaszovich & Kinra, 2018). For instance, the sub-regions of East Asia and South East neighboring countries have been successful in attracting IFDI, while regions such as South Asia, excluding India, is one of the least attractive destinations for IFDI (Halaszovich

& Kinra, 2018).

Dunning and Narula (1996), explain in their research the pattern of IFDI and how it affects the host economy. The authors describe that in line with the increased economic development that comes from IFDI, countries' locational assets expand. This provides the opportunity for countries to move away from mainly providing assets that are natural resource-intensive and labor-intensive, towards more capital- and knowledge-intensive assets as these countries are becoming more advanced economies (Dunning & Narula, 1996). When countries upgrade to provide a wider variety of assets, including also knowledge-intensive and capital-intensive, such countries can be seen as more attractive by multinational enterprises (MNEs) that are looking for countries with wider variety of assets (Narula, 2012). For instance, countries with knowledge assets might be more attractive for companies that are engaged in R&D activities (ibid). The increased inflows of FDI through backward and forward linkages further contribute to significant spillover effects that might further attract more IFDI through increased political and law organizations, improved business management and employment systems, as well as production methods (Kojima, 2000). In addition, it will also improve technical and managerial skills as well as local entrepreneurship (ibid), which can be seen as further beneficial assets for MNEs (Narula, 2012).

Such pattern of economic development and level of attracting IFDI has been described by Kaname Akamatsu in the 1930s, where the phrase *flying geese pattern of development* is used to describe the process of industrialization and economic growth through comparative advantage in latecomer economies in Asia (Permatasari, Wilantari & Lestari, 2019). The flying geese pattern is formatted as a reversed V, with one leading goose in the front, followed by several other geese contributing to the formation (Kojima, 2000). The countries that are following geese experience a *catching up* process aligned with comparative advantage (Dowling, 2000). For instance, Japan has acted as the leading goose in terms of providing the other countries in the region with technological know-how and capital through the expansion of IFDI and trade (Kojima, 2000; Dowling, 2000; Dowling & Chaeng, 2000). The other Asian countries that have been seen as "follower geese" include the Newly Industrializing Economies (NIEs)[9], which are seen as second-runner geese, followed by third-runner geese, consisting of ASEAN4[10] and China (Kojima, 2000; Sanidas, 2009), and

[9]Hong Kong, Singapore, South Korea and Taiwan (Akamatsu, 1935

[10]Malaysia, Thailand, Indonesia and the Philippines (Sanidas, 2009).

thereafter the latecomer countries of ASEAN (Kumagai, 2019). The flying geese model of development is still widely known in Asia and regarded as one of the main economic theories explaining Japan's underlying economic assistance to developing countries (Schröppel & Mariko, 2003). Thus, the FDI flows between the countries within the region are central for the overall IFDI to the following countries. According to the flying geese model, MNEs are moving their investments to the following countries in the model, creating the pattern of an inverse V (Rajan & Ramkishen, 2008).

Lately, China has become more distinctive in the model, and it is now said that there are two types of the flying geese model, with one model being *Japan-centric* and the other model being *China-centric* (Kasahara, 2019). The Japan-centric model has been focusing on the national development within Japan as well as on the regional development including the East Asian countries. In the model where China is in the center of the model, the scope ranges much wider than only within East Asia, incorporating more countries than only in the region of Eastern Asia (Kasahara, 2019). Now, according to Kasahara (2019), the leading goose of the flying geese paradigm has been shifted from Japan to China. Furthermore, the regional area that are considered following geese has "been widened from East Asia to Eurasia (and beyond)" (Kasahara, p. 1, 2019). It is further foreseen that the foreign policy of China will expand the flying geese paradigm to a much larger extent than in the case of Japan (Kasahara, 2019). Intra-region investments has been prominent for Japanese MNEs, where they have been investing into other countries in Asia. More recently, however, such investments have been more intensified from both Chinese, but also Indian, MNEs (Rajan & Ramkishen, 2008). Furthermore, with FDI outflows from Indian and Chinese MNEs being more intensified during recent years, their importance of providing investments to less developed countries in the region has become more prominent (Jain, Kundu & Newburry, 2015).

Further, there is research that try to explain how the pattern of the flying geese paradigm is present in Asia today. For instance, Dowling (2000) found that there is a shift in comparative advantage from Japan to NIEs and to the ASEAN4, being second- and third-runners after the leader goose being Japan, meaning that the flying geese pattern is present. Another study, made by Petri (2010), concludes that FDI flows within Asia is more consistent with this type of flying geese pattern, where Asian countries that are investing in other Asian countries favor host countries with relatively low level of technology achievement

but instead relatively high intellectual property rights regimes (ibid). On the other hand, countries outside of Asia, investing in other countries, do not follow this pattern but rather where high technological economies invest into other high technological economies (ibid).

2.3 Relevancy of Previous Research

The pattern of the flying geese will be central throughout this study, acting as a pillar to support our findings by providing explanations to potential differences between development stages in Asia. The leading goose in our study is the group of emerging countries, including China and India that have long been successful in attracting IFDI (Anon, 2007), where the trailing geese are the developing countries, followed by transition countries and LDCs (see Figure 1).

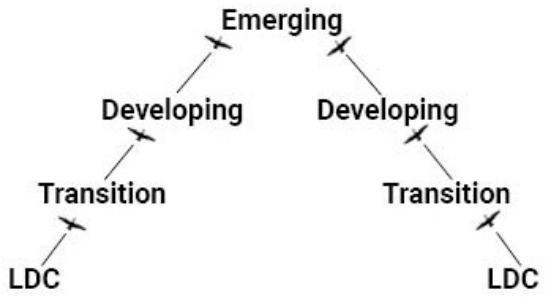

Figure 1: Flying Geese Model

The flying geese pattern in the formation of a reversed V, with emerging as the leading economic development stage in the front, followed by developing, transition and LDCs.

With the shift in incentives behind IFDI (mentioned in section 1.1), from developed countries towards less developed, it is possible to connect the flying geese patterns to the market-seeking determinants. As explained in section 2.1, market-seeking determinants are crucial factors for attracting IFDI (Jadhav, 2012; Rashid et.al, 2016; Jaiblai & Shenai, 2019). Similar market-seeking factors to those examined by Jadhav (2012), Rashid et.al (2016) and Jaiblai & Shenai (2019), have been seen to be prominent for the intra-regional flows of FDI in Asia (Athukorala, 2014). Therefore, to determine how the relationship between IFDI and and its determinants change depending on different economic development stages,

market-seeking determinants will be used and analysed alongside the different patterns of the flying geese to help explain possible differences in their relation to IFDI.

To reach this objective, the comparison across economic development stages will follow the same pattern as *The Flying Geese Model*, seen in Figure 1. This means that LDCs will be compared to transition countries, transition countries will be compared to developing countries and developing countries will be compared to emerging countries. However, one exception to the model will be made, including a final comparison between the lowest and highest level of development stages (emerging versus LDCs). By comparing these groups, which differ the most in terms of their economic development stage[11] and IFDI, one can establish the major cause to these potentially large difference by investigating the underlying determinants of IFDI and how they change between various development stages, what is described by the model as the leading geese and the last geese in the lead. In turn, this will help to see if the strategy of the flying geese holds true, by suggesting that there should be larger differences across countries which are much further apart in terms of their economic development stages.

3 Adjustments and Definitions

3.1 Country Adjustments and Definitions

One of the major fundaments of this thesis surrounds countries *economic development stages*, thus, understanding its implications is truly important for grasping the outcome of the empirical analysis. The classification of which stage of economic development a country is in is based on three economic factors: a human asset index, gross national income (GNI) per capita and an economic vulnerability index. According to these indicators, the following classifications are used, explained in further details below, where emerging countries are the ones with highest levels in all indicators, followed by developing countries, transition countries, and lastly, LDCs with lowest values in all indicators (United Nations, 2014). As mentioned in section Section 1.1, IFDI is crucial for countries' economic development (Denisia, 2010), where it is an especially important factor for countries that are considered developing, including various levels of development stages, such as LDCs (UNCTAD, 2019a). Therefore, we find it most interesting to investigate what determines FDI inflows to countries that are in need of IFDI to a greater extent than countries that are already

[11] See section 3.1 for a description of the concept and implications behind economic development stages

considered developed. Hence, a group of developed countries [12], being countries at the highest development stage (United Nations, 2014) will be excluded from the analysis. Instead, the groups of countries included in the study are emerging countries, developing countries, transition countries and LDCs, which are explained in more detail below.

Emerging countries

Emerging economies are countries that are in the process towards becoming a developed country. In general, emerging economies are seen to be moving towards a free or mixed market and are often characterised by a fast growth (Sraders, 2020). Measured in GDP, China and India are, by far, two of the fastest growing economies in the world (May, Nölke & Ten Brink, 2019). China has experienced multiple decades of rapid growth (Barth & Caprio, 2009) and has been a leader among emerging economies as well as for the world economy as a whole since the global financial crisis in 2008 (Anon, 2018). The continuous significant growth has contributed to massive structural economic changes through urbanization, industrialization and integration with the global economy (Barth & Caprio, 2009). During recent years, India has been catching up and both countries are today emerging as remarkably powerful economic forces (Panigrahi & Joshi, 2019).

Developing ASEAN countries

The second group that will be used in the thesis is the developing countries included in ASEAN. The countries included in ASEAN are Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam (ASEAN, n.d.). However, three of the countries are considered to be LDCs and will therefore be excluded from this group and instead included as LDCs. These countries are Cambodia, Myanmar and Laos (Santos-Paulino, 2017). Furthermore, Singapore is by far the biggest recipient of IFDI amongst the ASEAN countries, where more than half of the IFDI to ASEAN goes to Singapore (Jusoh et al., 2019). Thus, Singapore can be assumed to be to big of an outlier to be valid for comparison, hence, will be excluded from this thesis. That means, the group of developing ASEAN countries included are: Indonesia, Brunei, Malaysia, Philippines, Thailand and Vietnam.

[12]Developed countries in Asia are Japan and Israel (UNCTADSTAT, 2019).

Transition countries

The five transition countries: Kazakhstan, Turkmenistan, Kyrgyzstan, Uzbekistan and Tajikistan, are often seen as one region with a common history. Despite, their differences in levels of political and economic development and ethnic and cultural aspects, all countries of the former Soviet Union, including CA5, have gone through important reforms in their economic systems after the elimination of the union (Arazmuradov, 2015). These reforms were similar in regards of their structure of the countries economies, for which large amounts of financing were needed to elevate them from poverty. Together with their integration in the global economy in the 90s, transition economies altered their economic policies through the elimination of barriers to investment and trade and begun to attract significant IFDI incentives (Dhakal, Mixon & Upadhyaya, 2007).

These historical similarities, together with the limited research on CA5 as they are countries often discarded in the field of FDI inflows has motivated us to treat CA5 as one group, contributing to unitary effects on IFDI and its determinants based on their development stage as transition economies.

Least Developed Countries (LDCs)

Countries that are within the group of LDCs are countries that are considered to have particular difficulties and disadvantages within their process of development, for the cause of their historical, geographical and structural challenges (UNCTAD, n.d.a). Three of the ASEAN countries are considered to be LDCs, namely, Cambodia, Myanmar and Laos (Santos-Paulino, 2017; UNCTAD, n.d.b). Therefore, they will be included in the group consisting of LDCs. In addition, other countries considered to be LDCs by UNCTAD (n.d.b), that are not small islands, are included in this group. Thus, the countries included in this group will be Cambodia, Myanmar, Laos, Bhutan, Bangladesh, Nepal and Afghanistan.

For a complete summary of all countries and development stages see Table I, which provides information about each development stage with categorical numbering[13] and all countries included in the analysis.

[13]Ranked from the highest level of development (1) to the lowest level of development (4)

Table I: Country Classifications

Development Stage	Countries
(1) Emerging Countries	China, India
(2) Developing ASEAN Countries	Indonesia, Brunei, Malaysia, Philippines, Thailand, Vietnamn
(3) Transition Countries	Kazakhstan, Turkmenistan, Kyrgyztan, Uzbekistan, Tajikistan
(4) Least Developed Countries (LDCs)	Cambodia, Myanmar, Laos, Bhutan, Bangladesh, Nepal, Afghanistan

3.2 Data Definitions and Hypothesis Development

The purpose of this section is to clarify the underlying definitions of the variables used in the sample and frame the hypotheses of this study, before discussing the different estimation methods. One key aspect of this thesis is *FDI inflows*, abbreviated as IFDI. Thus, IFDI can be measured in several different ways and capture significantly different effects. Firstly, there are two main types of IFDI, private IFDI and public IFDI. Private IFDI is investments made by companies into other countries, while public IFDI refers to investments made by governments into other countries (UNCTAD, 2010). The focus of this thesis is to investigate what drives the investments made by companies, and thereby our primary focus is on private investments.

Also, as pointed out by Jadhav (2012), some of these forms of IFDI is determined by strategic considerations, rather than local factors. Of relevance for this study is to look at annual IFDI and its determinants for each individual country, considering local factors affecting IFDI. The discussed studies by Jadhav (2012), Rashid et.al (2016) and Jaiblai and Shenai (2019) in Section 2, constructs the foundation for this thesis hypothesis developments, where the dependent and explanatory variables are based on the following assumptions:

1. IFDI

In line with Rashid et.al (2016) and Jaiblai and Shenai (2019), IFDI will be measured by the inflows of FDI in current USD billion, referred to the direct investment equity flows in the reported country.

2. Exchange Rate

Measuring exchange rate is achieved using the real exchange rates for the national Currency per USD, end of period rate, which indicates the yearly average exchange rate of a country's national currency against the USD (IMF,2020). Both Rashid, et.al (2016) and Jaiblai and

Shenai (2019), found that an increase in the exchange is negatively related to IFDI. Arguing that weaker currency in the host country tend to have a positive impact on IFDI as assets of the host country then becomes less expensive and it increases the purchasing power of their inwards investments in terms of local asset values. Thus, as more advanced countries commonly experience less depreciation in their exchange rates compared to developing countries, especially in regards to LDCs (Srivastava, 2012), the expected outcome is that an increase in exchange rate will have a more negative effect on IFDI the higher the development stage of the recipient country.

H1:The relationship between IFDI and exchange rate will become more negative the higher the development stage of the recipient country

3. Inflation Rate

Described as the most common measure for inflation, Consumer Price Index (CPI) measures inflation in regards to the annual growth rate index. It is based on how prices change in terms of a basket of goods and services, purchased by specific groups of households (OECD, 2018). While there does not seem to be complete consensus of the effect of inflation in attracting IFDI amongst researchers, Jadhav (2012) and Jaiblai and Shenai (2019) found that inflation positively impacts IFDI.

In their comparison across ten sub-Saharan economies, Jaiblai and Shenai (2019) points out how countries with less established income and smaller market size, commonly relates to higher inflation rates. As mentioned by Ha, Kose and Ohnsorge (2019), inflation performance has historically been quite fluctuated, though commonly, emerging countries experience the lowest levels of inflation, followed by developing countries and LDCs but still manage to attract high levels of IFDI. In line with Jaiblai and Shenai (2019) findings, a possible cause to why less developed countries with already high levels of inflation does not benefit from an increase to the same extent as more developed countries, is that too high inflation rates could instead counteract IFDI after reaching above a certain point. This, in turn, leads to steep declines in real incomes and causing wage demands to increase. Therefore, we believe that increasing inflation in countries which already have high levels of inflation could potentially be more disadvantageous. Consequently, the expected outcome is that an increase in inflation rate will have a more positive effect on IFDI the higher the development stage of the recipient country.

H2:The relationship between IFDI and inflation rate will become more positive the higher the development stage of the recipient country

4. Market Size

As in Jadhav's (2012) study, market size is measured individually for each country's GDP, where the indicator is real GDP at current market price, expressed in USD billion. This is in accordance to UNCTADs foundation for GDP and used as a proxy for the market-related economic determinant. Jadhav (2012) and Rashid et.al (2016) argue that countries with larger market size tend to attract more FDI inflows than their smaller counterparts. Thus, as emerging countries have less investment risk compared to LDCs, we expect an increase in market size to have a more positive effect on IFDI the higher the development stage due to increased purchasing power of the recipient country.

H3:The relationship between IFDI and market size will become more positive the higher the development stage of the recipient country

5. Infrastructure

Jaiblai and Shenai (2019), mentioned the importance of infrastructure as a determinant for attracting IFDI. Thus, infrastructure can be measured in numerous ways such as telecommunication, technology and transport (World Bank, n.d.). However, the availability of data for technology and transport is vasty limited, hence, to insufficient for this thesis set of countries and timespan. Instead, the indicator of infrastructure is measured by the number of mobile cellular phones per 100 people — used as a proxy for efficiency-related economic determinants, in accordance to UNCTAD (Asongu, Uduak, Akpan, and Salisu, 2018). Since the number of inhabitants that have a mobile-broadband subscription are twice as high in developing countries compared to LDCs (Trendov, Varas & Zeng, 2019), an increase in the level infrastructure is assumed to have a more positive effect on IFDI the higher the development stage of the recipient country.

H4:The relationship between IFDI and infrastructure will become more positive the higher the higher the development stage of the recipient country

5. Political Stability

Described by Jadhav (2012), IFDI decisions are particularly focused on countries political stability. The variable of political stability is estimated based on the probability of political instability and/or violence originating from politics, including terrorism. Each country´s score is an estimate based on an aggregate indicator, in units of a standard normal distribution and ranges from -2.5 to +2.5. This range implies that the closer the value is to +2.5 the better the general public's perception is of the particular country's political stability. Meaning, there is limited or no terrorism, violence and governments being overthrown. The opposite however refers to values closer to -2.5, indicating relatively- to high levels of terrorism, violence and governments overthrown (Worldwide Governance Indicators, n.d.).

Apparent features amongst countries in different stages of economic development is that the less developed a country is, the more likely it is to suffer from political instability (Saeed, 2006). In addition, Jadhav (2012) found that political stability positively affects IFDI. Thus, together with the aforementioned and Jadhav (2012) founding that political stability positively affects IFDI, it is expected that an increase in political stability will have a more positive effect on IFDI the higher the development stage of the recipient country.

H5:The relationship between IFDI and political stability will become more positive the higher the development stage of the recipient country

4 Methodology

4.1 Data Description

The sample data for the empirical analysis is comprised of annual country-level data, to encompass those market-seeking factors which previous work has shown to be influential determinants for IFDI. The study will be conducted on an observation period over a total span of 19 years, raging from the years 2000 to 2018. The sample contains a total of 20 countries (see Section 3.1 for more detailed description of the included countries), which are split up into four groups based on their development stage, covering groups of: emerging, developing, transition and LDCs. All data for IFDI and its determinants will be gathered individually for each country, mostly sourced from *The World bank* (World Bank's World Leading Indicators base), but also from *Thomson Reuters Eikon*, *Worldwide Governance Indicator* and *The International Monetary Fund* (IMF). All international

databases covering compilations of cross-country comparable data and yearly financial information and developments (World Bank, n.d; Thomson Reuters Eikon, n.d.; IMF, 2020).

Considering the time span, financial stress is incorporated between 2007 to 2009, using a financial stress index would therefore be favourable to capture this effect and minimize excessive data fluctuation. However, most financial indexes are currently defined for the US; the most common *VIX index*. A related index would be the *China VIX*, but it is limited in regards to it being China-specific and is not available for the whole period of the study (Aric, 2017). Hence, a financial stress index will be excluded from the model.

Looking at the summery statistics in table A2 (Appendix A), one can get a feel of the overall sample and variable trends. Where log of IFDI, among others, range from 12.04 USD billion to 26.4 USD billion, with an average of 20.7 USD billion and a standard deviation of 2.53 USD billion.

The sample further contains two type of data issues: *missing values* and *outliers*. The first case of missing values consists of observations where some countries have insufficient data availability for some years[14]. Afghanistan has missing values for variables of market size, exchange rate and inflation, between the years 2000 to 2002. Where one explanation could be the US invasion of Afghanistan (Timeline, 2020). The second case of missing values concerns Bhutan, where there is no data available for IFDI between 2000 to 2001. This is due to the fact that IFDI was not allowed until the year of 2002 (Ministry of Economic Affairs, 2019). The third case of missing values applies to all countries, where data availability for political stability is missing for 2001.

Regarding the second issue, outliers, these are created as a result of the creation of the regression model variables, observations of this kind are often excluded from the data set in order to maintain a representative data description of the final sample. However, in some instances excluding outliers could lead to distortion of the final sample (see Section 4.2 for more details).

Overall, the 20 countries accounted for, covers approximately 42 percent of the total amount of the Asian countries, distributed between countries of different development stages. How representative the sample is to the whole population can be hard to estimate. However, it

[14]See Appendix table A2 for the total number of observations in each variable

does capture a significant amount of countries in Asia and constitutes enough raw data to be deemed representative for the purpose of this study.

4.2 Model Specifications

In order to specify an appropriate regression model; one that fits the sample and answers the research question—*how does the relationships between IFDI and its determinants change between different stages of economic development?*; a *base model* will first be estimated. Followed by four similar but separate models with dummy coded interaction terms.

The analysis will be based on panel time-series data[15], in order to capture an estimated effect over time. The inputs used will be based on data from 2000 to 2018, this since we want cover a time-span close to the present, containing periods of both economic stability and economic instability such as the financial crisis of 2007. All models are constructed using multiple linear regression and are comprised of 20 Asian countries. As a final note, the primary focus of the thesis lies with the coefficients of the explanatory variables and the interaction terms, the base model is included strictly for control.

A complete picture of all variables, abbreviations and sources of the variables are compiled in table II.

Table II: Variable measurements

Variable	Abbreviation	Unit of Measurement	Sources
Inflows of Foreign Direct Investment	LIFDI	Log of IFDI, net inflows (current USD)	World Bank
Exchange Rate	LEXC	National Currency Per U.S. Dollar	International Monetary Fund
Inflation	INFL	CPI (annual %)	World Bank & Thomson Reuters
Market Size	LMARK	Log of GDP (current USD)	World Bank
Infrastructure	LINFR	Log of Mobile Cellular Subscriptions (per 100 people)	World Bank
Political Risk	POLS	Standard Normal Distribution (-2.5 to 2.5)	Worldwide Governance Indicator

The base model (see Equation 1) will be estimated to capture the true validity of the whole sample at once, regardless of the different economic development stages. All variables are carefully chosen, based on previous literature and data availability for the selected time period. Similar to Rashid et.al (2016) and Jaiblai and Shenai (2019), logs of IFDI, exchange rate, market size and infrastructure are incorporated as the residuals tend to be more normally distributed under such conditions (see Appendix B, Figure 2-3 for comparison).

[15]Refers to multi-dimensional data, concerning measurements over time (Blundell & Matyas, 1992)

$$\begin{aligned} \text{LIFDI}_{it} = \alpha_{it} \ + \ \beta_1 \text{LEXC}_{it} \ + \ \beta_2 \text{INFL}_{it} \ + \ \beta_3 \text{LMARK}_{it} \\ + \ \beta_4 \text{LINFR}_{it} \ + \ \beta_5 \text{POLS}_{it} \ + \ \varepsilon_{it} \end{aligned} \tag{1}$$

where:

$$\begin{aligned} \text{LIFDI}_{it} &= \text{Log of Inflows of Foreign Direct investment}_{it} \\ \text{LEXC}_{it} &= \text{Log of Exchange Rate}_{it} \\ \text{INFL}_{it} &= \text{Inflation Rate}_{it} \\ \text{LMARK}_{it} &= \text{Log of Market Size}_{it} \\ \text{LINFR}_{it} &= \text{Log of Infrastructure}_{it} \\ \text{POLS}_{it} &= \text{Political Stability}_{it} \\ i &= \text{country} \\ t &= \text{year} \end{aligned}$$

The aim of the other four models is to capture the true causal effects of development stages on the relationship between IFDI and its determinants with dummy coded interaction terms, which are constructed by separately multiplying the IFDI determinants with each of the dummy coded economic development stages. The interaction terms are denoted with the first letters of the determinant it is multiplied with along with the economic development stages being compared. These interaction terms will produce positive coefficients when the relationships are affected positively by the development stage and negative coefficients when the relationships are affected negatively.

The interaction models will be divided between the four development groups [16], ranging from the lowest development stages to the highest[17]. First, LDCs are compared against transition countries (Equation 2), denoted as development stage *LvT*. Where these development stage have been assigned 0 and 1, respectively. Secondly, in Equation 3, transition countries are compared to developing countries, denoted as development stage *TvD*. Dummy coded as 0

[16] See Table I for an overview of the different countries and their development stages

[17] See Section 3.1 for clarification of the rankings

and 1, respectively. In Equation 4, developing countries are compared against emerging countries, denoted as development stage *DvE*, and dummy coded as 0 and 1, respectively. Lastly, a fourth model is incorporated to control for the potential effects between the lowest development stage (LDCs) and the highest (emerging), denoted as *LvE* (see Equation 5). As mentioned under section 2.3, the main idea is to compare patterns between two development stages following each other in the same lead as in Figure 1, with one exception[18]. Meaning that further comparison across development stages will be excluded from the analysis. Noteworthy, as a final step all combinations of development stages are then multiplied separately with each determinant to attain the interaction effect and distinguish their potential effect on IFDI.

$$\begin{aligned} \text{LIFDI}_{it} = \alpha_{it} &+ \beta_1 \text{LEXC}_{it} + \beta_2 \text{INFL}_{it} + \beta_3 \text{LMARK}_{it} + \beta_4 \text{LINFR}_{it} \\ &+ \beta_5 \text{POLS}_{it} + \beta_6 \text{LE\_LvT}_{it} + \beta_7 \text{I\_LvT}_{it} + \beta_8 \text{LM\_LvT}_{it} \\ &+ \beta_9 \text{LI\_LvT}_{it} + \beta_{10} \text{P\_LvT}_{it} + \beta_{11} \text{Development Stage}_{tLvT} \\ &+ \varepsilon_{it} \end{aligned} \tag{2}$$

$$\begin{aligned} \text{LIFDI}_{it} = \alpha_{it} &+ \beta_1 \text{LEXC}_{it} + \beta_2 \text{INFL}_{it} + \beta_3 \text{LMARK}_{it} + \beta_4 \text{LINFR}_{it} \\ &+ \beta_5 \text{POLS}_{it} + \beta_6 \text{LE\_TvD}_{it} + \beta_7 \text{I\_TvDr}_{it} + \beta_8 \text{LM\_TvD}_{it} \\ &+ \beta_9 \text{LI\_TvD}_{it} + \beta_{10} \text{P\_TvD}_{it} + \beta_{11} \text{Development Stage}_{tTvD} \\ &+ \varepsilon_{it} \end{aligned} \tag{3}$$

$$\begin{aligned} \text{LIFDI}_{it} = \alpha_{it} &+ \beta_1 \text{LEXC}_{it} + \beta_2 \text{INFL}_{it} + \beta_3 \text{LMARK}_{it} + \beta_4 \text{LINFR}_{it} \\ &+ \beta_5 \text{POLS}_{it} + \beta_6 \text{LE\_DvE}_{it} + \beta_7 \text{I\_DvE}_{it} + \beta_8 \text{LM\_DvE}_{it} \\ &+ \beta_9 \text{LI\_DvE}_{it} + \beta_{10} \text{P\_DvE}_{it} + \beta_{11} \text{Development Stage}_{tDvE} \\ &+ \varepsilon_{it} \end{aligned} \tag{4}$$

$$\begin{aligned} \text{LIFDI}_{it} = \alpha_{it} &+ \beta_1 \text{LEXC}_{it} + \beta_2 \text{INFL}_{it} + \beta_3 \text{LMARK}_{it} + \beta_4 \text{LINFR}_{it} \\ &+ \beta_5 \text{POLS}_{it} + \beta_6 \text{LE\_LvE}_{it} + \beta_7 \text{I\_LvE}_{it} + \beta_8 \text{LM\_LvE}_{it} \\ &+ \beta_9 \text{LI\_LvE}_{it} + \beta_{10} \text{P\_LvE}_{it} + \beta_{11} \text{Development Stage}_{tLvE} \\ &+ \varepsilon_{it} \end{aligned} \tag{5}$$

[18]See description in section 2.3

where:

$$\begin{aligned}
\text{LE_Development Stages for comparison}_{it} &= \text{Log of Exchange Rate}_{it} * \text{Development Stage}_t \\
\text{I_Development Stages for comparison}_{it} &= \text{Inflation Rate}_{it} * \text{Development Stage}_t \\
\text{LM_Development Stages for comparison}_{it} &= \text{Log of Market Size}_{it} * \text{Development Stage}_t \\
\text{LI_Development Stages for comparison}_{it} &= \text{Log of Infrastructure}_{it} * \text{Development Stage}_t \\
\text{P_Development Stages for comparison}_{it} &= \text{Political Stability}_{it} * \text{Development Stage}_t \\
i &= \text{country} \\
t &= \text{year}
\end{aligned}$$

In some instances the explanatory variables contains *missing values* (see section 4.1 for a more detailed description). The variables in this sample can be regarded as *Missing at Random*, meaning that there are errors in the data entry process where the missing data is not directly related to the observation being studied. These kinds of missing values carry with them the statistical advantage of remaining unbiased. Thus, no actions will be made to mitigate these values, instead they will be treated as missing in the final sample (Roy, 2019).

Further, during adjustments and calculations the explanatory variables sometimes create vastly unrealistic values, *outliers*, which could cause difficulties in estimating valid results. To avoid the aforementioned, these outliers could be removed through truncating all variables to three times their interquartile range[19]. However, in our study removing the outliers is not an appropriate approach as we deal with countries with vast differences. Thus, omitting them would unable the model to capture a result closer to the true value of the relationship between IFDI and its explanatory variables in different development stages.

4.3 Operationalization

The next ordeal is to estimate an appropriate estimation method. There are three available alternatives: *pooled regression, fixed-effects regression* and *random-effects regression.* Considering the sample contains time-series panel data, some sort of panel model is deemed necessary for attaining validity in the results. First, whether the regression is pooled or

[19] Acronym for lower outer fence and upper outer fence, used for detecting extreme outliers (NIST, 2019)

random will be decided by the *Breusch* and *Pagan Lagrangian Multiplier Test*[20]. The test provides significant output, implying that there are significant differences between groups, i.e. countries, menaing that the regression is random. Second, the decision between a regression with random-effects- or fixed- effects, is determined with the *Hausman Test*.[21] This test on the other hand, shows that there is no correlation between the residuals and the regressors. Thus, random-effects regression is the final and most appropriate model. Important to note is that both tests are conducted on the base model (see Equation 1).

By estimating the most appropriate model—in this case the *random-effects regression*— the next step is to examine the validity of the results. This is first carried out by diagnosing the residuals for normality, testing if the residuals are normally distributed. Looking at Figure 2 in Appendix B, the base model generates reasonably normally distributes residuals thus with a slightly negative skew[22], presumably due to the presence of the outliers. In turn, this strengthens the inference aspect of the estimation. The second step is to diagnose the residuals for the potential of heteroskedasticity, looking at the potential presence of constant variance. Figure 4 in Appendix B reveals that heteroskedasticity is present, something which could create problems of unreliable standard errors and confidence intervals. To mitigate these errors, *Clustered-robust standard errors* are implemented.

Thirdly, the regressors are tested for multicollinearity issues by inspecting their pairwise correlation and the correlation between the five measures of IFDI. Stated by Dohoo, Ducrot, Fourichon, Donald and Hurnik (1997), this issue is likely to have an effect on the estimation when pairwise correlations are 0.8 or above. However, as can be seen from table A1 in Appendix A this is not the case for any of the regressors in the sample.

5 Regression Analysis

As seen in table III, the base model (see Equation 1) explains 54.83 percent of the variance in the data. Further, the model estimates that all determinants, except exchange rate, are statistically significant at 5 percent level of significance. Where: (i) one percentage increase in inflation rate increase IFDI by 0.0139 percentage points, (ii) one percent increase in market size and infrastructure increases IFDI by 0.9299 and 0.1480 percent, respectively,

[20] H_0: There exists no significant differences between groups

[21] H_0:There exists no correlation between the rediduals and the regressors

[22] Indicating dispersed central tendency where mode is greater than the mean and median (CFI, 2020)

and (iii) one percent increase in political stability increases IFDI by 49.91 percent. Thus, important to note is that exchange rate, while not statistically significant, is still in line with findings in previous studies[23] as it holds a negative relation to IFDI.

Table III: Determinants of IFDI: An evaluation of the Base Model

Random-effect regression model with clustered-robust standard errors. IFDI is defined as log of IFDI measured as the net inflows in current USD billion. Exchange rate is defined as the log of National Currency Per U.S. Dollar. Inflation is defined by annual CPI in percentage. Market size is defined by the log of GDP in current USD. Infrastructure is proxied using the log of mobile cellular subscriptions per 100 people and political stability in units of a standard normal distribution, ranging from -2.5 to 2.5.

LIFDI	**Coefficient**	**Standard Error**	**P-Value**	**95% Confidence Interval**	**95% Confidence Interval**
LEXC	-0.0133	0.0328	0.684	-0.0775	0.0509
INFL	0.0139	0.0068	0.039	0.0007	0.0271
LMARK	0.9299	0.0804	0.000	0.7725	1.0875
LINFR	0.1480	0.0539	0.006	0.0423	0.2537
POLS	0.4991	0.1893	0.008	0.1281	0.8700
_Cons	-2.3754	2.0220	0.240	-6.3384	1.5877

R^2= 0.5485
Adjusted R^2= 0.5483
Number of observations= 313

When analysing Table IV the four interaction models (see Equation 2 to Equation 5) do not estimate completely similar statistical significance levels across all IFDI determinants. The model of LDCs and transition countries estimates that only inflation and market size is statistically significant at 5 percent level of significance. Exchange rate and political stability is statistically significant at 10 percent level of significance, while infrastructure is not statistically significant at the given levels. Looking at transition vs developing, the model estimates that only inflation and market size are statistically significant determinants for IFDI at 5 percent level of significance. Further, both market size and political stability are statistically significant at 5 percent level of significance for the model including developing and emerging countries. Whereas, the model of LDC and emerging countries estimates that all determinants but exchange rate and infrastructure are statistically significant at 5 percent level of significance. Thus, what can be seen as pervading in all four models, is the statistical significance of market size on IFDI at 5 percent level of significance, even at 1

[23]See description of exchange rate under section 3.2

percent level of significance. While all determinants of IFDI are not statistically significant, their effect on IFDI are generally in line with the previous findings by Jadhav (2012), Rashid et.al (2016) and Jaiblai and Shenai (2019).

Next, examining the effect of economic development stages on IFDI and its determinants in Table IV, it is apparent that only one interaction coefficient is statistically significant between the development stages of LDCs and transition—the exchange rate—which estimates that the relationship between IFDI and exchange rate is expected to decrease by 0.3949 percentage points more in transition countries as compared to LDCs.

In regards to the comparison across developing and transition countries, there is no statistical evidence supporting their effect on the relationship between IFDI and its determinants.

Compared to the aforementioned, two interaction coefficients are statistically significant between the development stages of developing and emerging countriese—the exchange rate and the inflation rate. Where the former estimates that the relationship between IFDI and exchange rate is expected to decreases by 0.2248 percentage points more in emerging countries as compared to developing countries. In case of the latter, the model estimates that the relationship between IFDI and inflation rate is expected to increase by 0.061 percentage points more in emerging countries as compared to developing countries. Lastly, examining the effect on IFDI between LDCs and emerging countries, inflation is estimated to be the only statistically significant interaction coefficient. The model predicts that the relationship between IFDI and inflation rate is expected to increase by 0.0726 percentage points more in emerging countries as compared to LDCs.

Table IV: Determinants of IFDI: An Evaluation across different Development Stages between 2000 to 2018

Output results from the four interaction models (see Equation 2 to Equation 5). Each interaction term is denoted with (inter) after the determinant. IFDI is defined as log of FDI measured as the net inflows in current USD billion. Exchange rate is defined as the log of National Currency Per U.S. Dollar. Inflation is defined by annual CPI in percentage. Market size is defined by the log of GDP in current USD. Infrastructure is proxied using the log of mobile cellular subscriptions per 100 people and political stability in units of a standard normal distribution, ranging from -2.5 to 2.5.

Variables	LDC vs Transition	Transition vs Developing	Developing vs Emerging	LDC vs Emerging
Log (EXC)	0.1842*	-0.1747	0.0437	0.1308
	(0.10)	(0.13)	(0.05)	(0.10)
Inflation	0.0139**	0.0459***	0.0173	0.0124**
	(0.01)	(0.02)	(0.01)	(0.01)
Log (MARK)	1.1566***	1.0141***	1.0173***	1.2047***
	(0.17)	(0.11)	(0.12)	(0.20)
Log (INFR)	0.0081	0.0981	0.0914	0.0262
	(0.11)	(0.10)	(0.10)	(0.11)
Political Stability	0.5132*	0.5712	0.4409***	0.5881**
	(0.28)	(0.45)	(0.12)	(0.29)
Exchange rate (inter)	-0.3949**	0.2269	-0.2248**	-0.1447
	(0.17)	(0.14)	(0.11)	(0.12)
Inflation (inter)	0.0303	-0.0312	0.0618***	0.0726***
	(0.02)	(0.02)	(0.02)	(0.01)
Market size (inter)	0.0972	-0.0614	0.0361	0.0045
	(0.06)	(0.04)	(0.03)	(0.06)
Infrastructure (inter)	0.0098	0.0193	-0.0603	-0.0718
	(0.15)	(0.12)	(0.11)	(0.13)
Political stability (inter)	-0.3407	-0.1865	0.3176	0.142
	(0.64)	(0.48)	(0.27)	(0.35)
Constant	-8.6188**	-3.1977	-4.7034*	-9.4430**
	(3.51)	(2.30)	(2.75)	(4.45)

*, **, and *** reflect the significance at the 10%, 5% and 1% level, respectively.
Values in brackets indicates the standard deviation.

Overall, these statistically significant findings are generally consistent with our hypotheses (see Section 3.2). As mentioned in Section 3.2, exchange rate has a negative relation to IFDI. This can be explained by the findings of Rashid, et.al (2016) and Jaiblai and Shenai (2019) — where an increase in exchange rate negatively impacts IFDI as assets of the host country would then become more expensive and decrease the purchasing power of the investors. This supports the fact that countries in more advanced economic development stages would benefit less from an increase in exchange rate as they commonly experience lower levels of depreciation in comparison to less advanced countries. In line with Jaiblai and Shenai (2019) findings, the opposite holds for inflation which has a positive relationship

to IFDI. In accordance to the hypothesis of inflation, Table IV has provided statistical evidence indicating that the relationship between IFDI and inflation rate becomes more positive the higher the development stage. One plausible explanation for this can be that the expectations of inflation are influenced by a variety of factors, for instance the inflation history as well as the level of credibility of the central bank in the country. If the credibility of a central bank's commitment to its nominal anchor[24] is high, temporary shocks of the inflation rate will not affect the inflation expectations as much as if the credibility is lower. Such credibility has historically been seen to be more difficult to obtain in low-income countries due to a variety of factors (Ha et al., 2019). Thus, it is reasonable to believe that an increase in inflation will impact investors in MNEs to a lesser extent when they are investing in more developed countries and thus, reduces the chance of investors being subject for greater risks.

Further noteworthy, when comparing across LDCs and emerging countries, which are much further apart from each other in their economic development stages, inflation affects the relationship between IFDI and its determinants to a higher extent. This relationship supports the assumptions made in the strategies of the flying geese, as it suggests that the relationship between IFDI and inflation tends to be more affected when comparing development stages with larger differences. As suggested in section 3.2 under inflation rate, by Jaiblai and Shenai (2019), an increase in the inflation rate could counteract less developed countries with normally high levels of inflation. These large differences in inflation can be seen in the Appendix, table V, which strengthens the assumption that LDCs normally experience higher levels of inflation as compared to more developed countries. Consequently, this points to the assumption that LDCs might experience too high levels of inflation to benefit from an additional increase, as compared to emerging countries. Also, in accordance to the strategies of the flying geese, it is important to bear in mind that when countries are farther away from each other in terms of development stages, there are commonly large differences of not just one but a variety of economic and political factors that influence the decision of MNEs to invest. Such as weak business environment, government regulations and higher level of risk, which oftentimes affect LDCs more negatively compared to more developed countries (United Nations, 2011).

[24] A nominal anchor is used by central banks in order to tie down price levels in the country, for instance through targeting the money supply. This works if the central bank can manage the money supply and if the growth of money is stable in relation to inflation over time (Jahan, n.d.).

Presumably, when countries in different development stages are moving closer to each other, market seeking determinants of IFDI might be less important as a central factor when taking a decision of where to invest. Instead, there might be other, more efficiency-seeking factors that have a larger impact on where to invest. This is in line with the arguments provided by Dunning (1999; 2002); that motives of IFDI has changed from being market-seeking to more efficiency-seeking. This shift become clearer as markets become more similar to each other (UNCTAD, 1996), which coincide with the pattern of the flying geese.

Another interesting finding is that no statistical evidence could be found to support that transition and developing countries had any effects on the relationship between IFDI and its determinants. One explanation to this can be seen in table V, which points to the fact that the differences between the variables of developing and transition countries are not large enough to have a statistically significant impact on IFDI. The Strategy of the Flying Geese can be used to clarify the potential of this occurrence in a more profound way, referred to by Dowling (2000) as the *catching up process*. This process describes how countries follow the footsteps of the countries being in the development stage above them (see subsection 2.2). Thus, when they are catching up to countries that are more developed and the countries in higher development stages are investing more into the following countries, it could be assumed that the relationship between IFDI and its determinants are less affected across countries with notable similarities.

As for the other interaction coefficients, there is no statistical evidence that an increase in neither market size, infrastructure nor political stability have an effect on IFDI when comparing across the different development stages. The reason to this occurrence probably has more than just one answer. However, as can be seen in table V, these determinants are generally similar across the compared development stages, which could be a potential indicator that the difference between them is not large enough to have a statistically significant impact on IFDI at any of the given levels of significance.

Table V: Summary Statistics Across Economic Development Stages

IFDI is defined as the log of IFDI measured as the net inflows in current USD billion. Exchange rate is defined as the log of National Currency Per U.S. Dollar. Inflation is defined by annual CPI in percentage. Market size is defined by the log of GDP in current USD. Infrastructure is proxied using the log of mobile cellular subscriptions per 100 people and political stability in units of a standard normal distribution, ranging from -2.5 to 2.5.

Variables	Obervations	Mean	Standard Deviation	Min Value	Max Value
LDC Log of IFDI	126	18.92	2.13	12.04	22.13
LDC Log of Exchange Rate	133	5.39	2.33	1.69	9.28
LDC Inflation Rate	128	7.03	0.04	-18.11	57.07
LDC Log of Market Size	131	23.18	1.45	19.87	26.34
LDC Log of Infrastructure	128	2.50	2.28	-3.55	4.94
LDC Political Stability	126	-0.82	1.07	-2.50	1.28
Transition Log of IFDI	93	20.15	1.83	15.35	23.57
Transition Log of Exchange Rate	65	4.09	2.19	0.79	9.03
Transition Inflation Rate	93	7.36	6.23	0.15	38.59
Transition Log of Market Size	95	23.41	1.45	20.57	26.19
Transition Log of Infrastructure	93	2.94	2.35	-3.98	5.19
Transition Political Stability	90	-0.50	0.63	-1.96	0.78
Developing Log of IFDI	110	21.87	1.48	17.92	23.95
Developing Log of Exchange Rate	114	4.70	3.65	0.20	10.03
Developing Inflation Rate	114	3.66	3.79	-2.31	23.12
Developing Log of Market Size	114	25.59	1.33	22.45	27.67
Developing Log of Infrastructure	114	4.07	1.15	-0.01	5.19
Developing Political Stability	108	-0.26	0.96	-2.09	1.39
Emerging Log of IFDI	38	24.63	1.30	21.99	26.39
Emerging Log of Exchange Rate	38	2.96	1.02	1.81	4.25
Emerging Inflation Rate	38	4.27	3.17	-0.73	11.99
Emerging Log of Market Size	38	28.49	0.98	26.87	30.24
Emerging Log of Infrastructure	38	3.34	1.47	-1.08	4.75
Emerging Political Stability	36	-0.80	0.38	-0.21	-0.21

Together, these findings brings practical implications for policy makers, who can obtain additional knowledge to how the relationship between IFDI and its determinants change when comparing across economic development stages. Where the exchange rate and the inflation rate are found to be the primary determinants for changes in IFDI. Presumably, this indicates that MNEs puts more emphasis into these two factors when opting investment decisions into countries of different economic development stages. Thus, policy makers in less developed countries could presumably benefit from handling their historically high levels of inflation as investors are more likely to prefer to invest in countries which display a more stable economic environment, as they are then less likely to become subjects for greater risks.

Additionally, though it is possible that other countries in different economic development stages across the globe experience similar patterns to those described in the catching up process, it is not reasonable to assume that these findings can be as applicable in a global context. Instead, there might be other patterns of development, as well as other main determinants, in other regions that play a more crucial role and affect the attraction of IFDI differently. Thus, the results may only hold true for the Asian countries in question as the interaction between countries of different development stages in various regions might differ. For instance, the results presented here may not hold true for countries with more diverse differences. However, since the countries included in the study represents 42 percent of the Asian market, the results could be considered a good estimation of how patterns may look like in Asia in general. Also, the catching up process of the flying geese has been present in the Asian region historically, while such processes might look different in other regions outside of Asia. Furthermore, the importance of the significant determinants of IFDI may change between regions, where market-seeking determinants may be more or less important for IFDI incentives in relation to other determinants.

6 Conclusion

This paper examines how the relationship between IFDI and its determinants change depending on different economic development stages in Asia — following *The Strategies of the Flying Geese and patterns of IFDI* and the previous work by *Jadhav (2012), Rashid et.al (2016)* and *Jaiblai and Shenai (2019).* Although, IFDI have come to represent a well-researched area in the field of international business, much of its theoretical groundwork is based on the impact its determinants has on a specific country, sector or development stage; quite a unilateral approach to today´s international business settings where countries range between several different stages of development. This raises the question of how the relationship between IFDI and its determinants change depending on countries in different economic development stages.

The sample is comprised of panel time-series data for 20 Asian countries between 2000 to 2018, covering approximately 42 percent of the total amount of Asian countries, distributed between four economic development stages. Five models are formulated to address the research question; a *base model* and four similar but separate *interaction models*. The base model is included for robustness control, regardless of development stages. The four other

interaction models are aimed to capture the true causal effect of economic development stages on the relationship between IFDI and its determinants, comparing dummy coded interaction terms across: LDCs and transition (LvT), transition and developing (TvD), developing and emerging (DvE) and LDCs and emerging (LvE).

The empirical results for the base model reveals that all determinants of IFDI except exchange rate are statistically significant and in line with earlier literature. Which entailed, that the chosen market-seeking determinants were appropriate determinants for IFDI. When estimating the four interaction models, the results of the determinants statistical significance levels vastly differed across the compared development stages. The results offer statistical evidence that (i) an increase in exchange rate affects the relationship between IFDI more negative in transition countries as compared to LDCs, (ii) an increase in inflation rate affects the relationship between IFDI more positive in emerging countries as compared to developing countries, (iii) an increase in inflation rate affects the relationship between IFDI more positive in emerging countries as compared to LDCs and, (iv) there are larger differences in terms of inflation across countries which are much further apart in their economic development stages. Overall, these findings are in line with the strategies of the flying geese and patterns of IFDI and previous literature, and assists in providing evidence supporting the hypothesis statements, that; the relationship between IFDI and exchange rate will become more negative the higher the development stage of the recipient country and that the relationship between IFDI and inflation will become more positive the higher the development stage of the recipient country.

Additionally, the comparison across transition countries and developing countries had no effect on the relationship between IFDI and its determinants. It is learned that when recipient countries does not differ enough in terms of their determinants, the effect of the comparison across economic development stages fails to provide statistical evidence of their effect on IFDI.

In sum, many theories of IFDI attempts to find plausible explanations for the motives behind companies' investment decisions, including findings that can offer policy-makers valuable information and tools to enhance IFDI, by anticipating what determinants that has the largest effect on IFDI in the area of study. One practical contribution of the findings in this study is that it has provided empirical data on the effects on IFDI in different economic

development stages. This information is important given that no comparable studies could be found – recounting how the relationship between IFDI changes between different economic development stages in Asia. The study demonstrated that IFDI incentives cannot fully be explained by market-seeking factors alone as many of them become insignificant when comparing across economic development stages. Possibly, policy - and investment preferences have number of different, sometimes conflicting interests; resulting in diverse motives behind IFDI incentives between regions.

6.1 Future Research

We strongly encourage further research and development of this field, both for reevaluation, as well as for expansion purposes. One suggested area for improvement could be to adjust the collected sample; instead of limiting the sample to account for only economic development stages within Asia, one could could extend it to include other types of development stages and/or other countries, which could potentially display greater differences. Another idea could be to broaden the range of the comparison and not limiting the analysis to examine the changes across four economic development stages.

A third area for improvement concerns the sample size, one could gather more data by including more determinants of IFDI, not exclusive to market-seeking factors, and/or analyse countries that are not limited by insufficient data availability. Lastly, in regards to the models robustness, it leaves room to fully handle the issue of heteroskedasticity. Also, by including other countries outside of Asia, excessive data fluctuations caused by the financial crisis of 2007 to 2009 could potentially be captured by including an appropriate financial distress index to help cancel this effect.

7 References

Akamatsu, K. 1935. *Waga kuni yomo kogyohin no boeki suzei* [The trend of trade in woolen products of our country]. Nagoya: Nagoya Higher Commercial School, 13(1): 129-212. (In Japanese.)

Anbumozhi and Yao, 2017. Remaking Energy Policies for Global Sustainability: The Case of Flying Geese Model and Path Dependencies in East Asia. *EIRA Discussion Paper Series.*

Anon, 2007. *Emerging economies and the transformation of international business; Brazil, Russia, India and China.* Reference and Research Book News, 22(2), pp.Reference and Research Book News, May 2007, Vol.22(2).

Anon, 2018. CHINA. *In Emerging Market Economies and Financial Globalization: Argentina, Brazil, China, India and South Korea.* London, UK; New York, NY, USA: Anthem Press, p. 137.

Arazmuradov, A., 2015. *Can Development Aid Help Promote Foreign Direct Investment? Evidence from Central Asia.* Economic Affairs, 35(1), pp.123–136.

Aric, 2017. *Regional Outlook, Linkages, and Vulnerabilities.* Asia Regional Integration Center.

ASEAN, n.d. *ASEAN Member States.* Association of Southeast Asian Nations. Available: `https://asean.org/asean/asean-member-states/` [2020-02-25]

Asiedu, E., 2006. Foreign Direct Investment in Africa: The Role of Natural Resources, Market Size, Government Policy, Institutions and Political Instability. *World Economy*, 29(1), pp.63–77.

Asongu, S., Uduak S. Akpan, and Salisu R., 2018. .Department of Economics, University of South Africa.

Athukorala, P.-C., 2014. Intra-regional FDI and Economic Integration in South Asia: Trends, Patterns and Prospects. *South Asia Economic Journal*, 15(1), pp.1–35.

Barth, J.R., Caprio, G. and Triphon, P., 2009. *The transformation of China from an emerging economy to a global powerhouse. In China's emerging financial markets.*

Batsaikhan, U. and Dabrowski, M., 2017. Central Asia twentyfive years after the breakup

of the USSR. *Russian Journal of Economics*, 3(3), pp.296–320.

Bevan, A.A. and Estrin, S., 2004. The determinants of foreign direct investment into European transition economies. *Journal of Comparative Economics*. 32(4), pp.775–787.

Blundell, R and Matyas, R., 1992. *Panel data analysis: An introductory overview*. Structural Change and Economic Dynamics.

CFI, 2020. *Negatively Skewed Distribution*. Corporate Finance Institution. Available:[2020-04-13]

Denisia, V., 2010. Foreign Direct Investment Theories: An Overview of the Main FDI Theories. *European Journal of Interdisciplinary Studies*, 2(2), pp.104–110.

Dhakal, D., Mixon, F. and Upadhyaya, K., 2007. *Foreign Direct Investment and Transition Economies: Empirical Evidence from a Panel Data Estimator*. Economic Bulletin, Vol. 6, No. 33 pp. 1-9

Dohoo, I., Ducrot, C., Fourichon, C., Donald, A. and Hurnik, D., 1997. *An overview of techniques for dealing with large numbers of independent variables in epidemiologic studies*. Preventive Veterinary Medicine, 29(3), pp. 221-239

Dowling, M., and Cheang, C. T., 2000. Shifting comparative advantage in Asia: New tests of the "flying geese model". *Journal of Asian Economics*, 11.

Dunning, J.H. and Narula, R., 1996. "The investment development path revisited: some emerging issues", in Dunning, J.H. and Narula, R. (Eds), *Foreign Direct Investment and Governments: Catalysts for Economic Restructuring*, Routledge, London.

Dunning, J.H., 1999. Globalization and the Theory of MNE Activity. *University of Reading, Discussion Papers in International Investment and Management 264*. Reading.

Dunning, J. H., 2002. Determinants of Foreign Direct Investment: Globalization Induced Changes and the Role of FDI Policies. Paper presented at the Annual Bank Conference on Development Economics in Europe, Oslo, mimeo.

Ernst, C., 2005. The FDI-Employment Link in a Globalizing World: The Case of Argentina, Brazil and Mexico. *International Labour Organization*, Employment Strategy Paper 2005/17

Faeth, I., 2009. Determinants of foreign direct investment – a tale of nine theoretical models.

Journal of Economic Surveys, 23(1), pp.165–196.

Funke, N., Ahmed, F. and Arezki, R., 2005. The Composition of Capital Flows: Is South Africa Different? *IMF Working Papers*, 05(40), p.1.

Ginzburg, A. and Simonazzi, A., 2005. Patterns of industrialization and the flying geese model: the case of electronics in East Asia. *Journal of Asian Economics*, 15(6), pp.1051–1078.

Ha, M., Kose, A. and Ohnsorge, F. 2019. *Inflation in Emerging and Developing Economies: Editors Evolution, Drivers, and Policies*. International Bank for Reconstruction and Development /World Bank Group.

Halaszovich, T.F. and Kinra, A., 2018. The impact of distance, national transportation systems and logistics performance on FDI and international trade patterns: Results from Asian global value chains. *Transport Policy*, pp.Transport Policy, 9/2018.

Ho, C.S.F and Rashid, A.H.M., 2013. Panel Analysis of FDI in Fast Emerging ASEAN Countries. *Terengganu International Finance and Economics Journal Volume 3, Issue 2: 11-24, 2013*

Iamsiraroj, S., 2016. The foreign direct investment–economic growth nexus. *International Review of Economics and Finance,* 42, pp.116–133.

IMF, 2020. *International Financial Statistics (IFS).*Available: `https://data.imf.org/?sk\=4C514D48-B6BA-49ED-8AB9-52B0C1A0179B&sId=1438865921483` [2020-04-06]

Jadhav, P., 2012. Determinants of foreign direct investment in BRICS economies: Analysis of economic, institutional and political factor. *Procedia - Social and Behavioral Sciences*, 37(C), pp.5–14.

Jahan, S., n.d. *Inflation Targetig: Holding the Line. Central banks use interest rates to steer price increases towards a publicly announced goal.*

Jaiblai, P. and Shenai,V., 2019. The Determinants of FDI in Sub-Saharan Economies: A Study of Data from 1990-2017. *International Journal of Financial Studies.*

Jain, N.K., Kundu, S.K. Newburry, W., 2015. Efficiency`[U+2010]`Seeking Emerging Market Firms: Resources and Location Choices. *Thunderbird International Business Review*, 57(1),

pp.33–50.

Jusoh, S., S. Hamanaka, I. Ramli, and D. Narjoko (2019). *Towards a Strong Services Sector and An Open Investment Environment in ASEAN*. Pangestu, Integrated and Connected Seamless ASEAN Economic Community, Jakarta, ERIA, pp. 96–126.

Kasahara, S., 2019. A Critical Evaluation of the Flying Geese Paradigm: The Evolving Framework of the Model and Its Application to East Asian Regional Development and Beoynd. *Erasmus University Rotterdam.*

Kojima, K., 2000. The "flying geese" model of Asian economic development: origin, theoretical extensions, and regional policy implications. *Journal of Asian Economics*, 11(4), pp.375–401.

Kumagai S. (2019). *The Middle-Income Trap in the ASEAN-4 Countries from the Trade Structure Viewpoint*. Emerging-Economy State and International Policy Studies. Springer, Singapore

Mallampally, P. and Sauvant, K.P. 1999. *Foreign Direct Investments in Developing Countries*, Finance and Development: A Quarterly Magazine of IMF. Retrieved May 20, 2016. Available `http://www.imf.org/external/pubs/ft/fandd/1999/03/mallampa.htm` [2020-02-20]

Masron, T., 2012. *Promoting intra-ASEAN FDI*. School of Management, Universiti Sains Malaysia

Masron, T. and Yusop, Z., 2012. *The ASEAN investment area, other FDI initiatives, and intra-ASEAN foreign direct investment*. Crawford School of Economics and Government.

May, A. and Brink, T., 2019. Public-private coordination in large emerging economies: the case of Brazil, India and China. *Contemporary Politics*, 25(3), pp.276–291.

Ministry of Economic Affairs, 2019. *Foreign Direct Investment Policy 2019*. Ministry of Economic Affairs Royal Government of Bhutan.

Mohamed, S. and Sidiropoulos, M., 2010. Another look at the determinants of foreign direct investment in MENA countries: An emprirical investigation. *Journal of Economic Development,* 35(2), pp.75–95.

Mottaleb, K.A. and Kalirajan, K., 2010. Determinants of Foreign Direct Investment in Developing Countries: A Comparative Analysis. *Margin: The Journal of Applied Economic Research,* 4(4), pp.369–404.

Narula, R., 2012. "Do we need different frameworks to explain infant MNEs from developing countries?", *Global Strategy Journal*, Vol. 2 No. 3, pp. 188-204.

NIST, 2019. *What are outliers in the data?* Available: `https://www.itl.nist.gov/div898/handbook/prc/section1/prc16.htm` [2020-03-18]

OECD, 2008. *Policy Brief: The Social Impact of Foreign Direct Investment.*

OECD, 2018. *Inflation (CPI).* Available: `https://data.oecd.org/price/inflation-cpi.htm` [2020-03-14]

Panigrahi, A., Joshi, V., 2019. India vs. China: Past, Present, Future. *Journal of the Gujarat Research Society.*

Permatasari, I., Wilantari, N., and Lestari, K., 2019. *The Dynamics of Changing Comparative Advantage in ASEAN-4: Flying Geese Model.* Faculty of Economics and Business, University of Jember.

Petri, P.A., 2012. The determinants of bilateral FDI: Is Asia different? *Journal of Asian Economics*, 23(3), pp.201–209.

Rajan, Ramkishen, 2008. Trends and Drivers of Bilateral FDI Flows in Developing Asia. , 112008.

Rashid, I.M.A., Bakar, N.A. Razak, N.A.A., 2016. Determinants of Foreign Direct Investment (FDI) in Agriculture Sector Based on Selected High-income Developing Economies in OIC Countries: An Empirical Study on the Provincial Panel Data by Using Stata, 2003-2012. *Procedia Economics and Finance*, 39, pp.328–334.

Roy, B., 2019. *All about missing data handling.* Towards Data Science. Available: `https://towardsdatascience.com/all-about-missing-data-handling-b94b8b5d2184` [2020-03-31]

Saeed, K., 2006. *The dynamics of economic growth and political instability in developing countries.* Worcester Polytechnic Institute.

Sanidas, E., 2009. Patterns and distances of catch-up in trade: China and East Asia. *China Economic Journal,* 2(1), pp.105–118.

Santos-Paulino, A.U., 2017. *The Asian Economic Integration Cooperation Agreement: lessons for economic and social development.* UNCTAD Research Paper No. 3.

Schröppel, C. and Mariko, N., 2003. The Changing Interpretation of the Flying Geese Model of Economic Development. *Japanstudien*, 14:1, 203-236

Sraders, A., 2020. *What Are Emerging Markets? Characteristics and List.* Available: https://www.thestreet.com/markets/emerging-markets/what-are-emerging-markets-14819803 [2020-02-03]

Srivastava, S., 2012. *The emerging economies and changing prospects of the multicurrency global order: Avenues and challenges in times ahead.* International Conference on Emerging Economies - Prospects and Challenges.

Thomson Reuters Eikon, n.d. *Thomson Reuters* Available: `https://eikon.thomsonreuters.com/index.html` [2020-03-14]

Timeline, 2020. *The US War in Afghanistan.* Available: `https://www.cfr.org/timeline/us-war-afghanistan` [2020-03-18]

Trendov, M., Varas, S. and Zeng, M., 2019. *Digital Technologies in Agriculture and Rural Areas - Status Report.* Rome. 157 pp. License: cc by-nc-sa 3.0 igo.

United Nations, 2014. *Country Classification: Data sources, country classifications and aggregation methodology.*

United Nations, 2011. *Foreign Direct Investment.* Briefing Paper 3.

UNCTAD, 1996. *World Investment Report 1996.* United Nations, New York.

UNCTAD, 2010. *Partnering Public and Private Investment for Development.*

UNCTAD, 2017a. *The Asian Economic Integration Cooperation Agreement: Lessons for Economic and Social Development.* UNCTAD Research Paper No. 3.

UNCTAD, 2017b. *ASEAN Investment Report 2017: Foreign Direct Investment and Economic Zones in ASEAN.*

UNCTAD, 2018. *ASEAN Investment Report 2018: Foreign Direct Investment and the Digital Economy in ASEAN.*

UNCTAD, 2019a. *World Investment Report 2019: Special Economic Zones.*

UNCTAD, 2019b. *Global foreign direct investment slides for third consecutive year.* Available: https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2118[2020-02-05]

UNCTADstat, 2019. *Development Status Groups and Composition.*

UNCTAD, 2011, *Global and Regional FDI Trends in 2010.* UNCTAD Global Investment Trends Monitor, No. 5.

UNCTAD, n.d.a. *Least Developed Countries (LDCs).* Available: https://unctad.org/en/Pages/ALDC/Least%20Developed%20Countries/LDCs.aspx [2020-03-04]

UNCTAD, n.d.b. *UN List of Least Developed Countries.* Available: http://unctad.org/en/pages/aldc%20Countries/UN-list-of-Least-Developed-Countries.aspx. [2020-03-04]

Vinayak, V., Thompson, F. and Tonby, O., 2014. *Understanding ASEAN: Seven things you need to know.* McKinsey & Company.

Wadhwa, K. & Reddy, S.S., 2011. Foreign Direct Investment into Developing Asian Countries: The Role of Market Seeking, Resource Seeking and Efficiency Seeking Factors. *International Journal of Business and Management*, Canadian Center of Science and Education Vol 13, No 8. August 2018.

World Bank, n.d. *World Develoment Indicators* Available:http://datatopics.worldbank.org/world-development-indicators/ [2020-03-13]

World Bank, 2019a. *Inflation, GDP Deflator (Annual %).* Available:https://datacatalog.worldbank.org/inflation-gdp-deflator-annual-1 [2020-03-12]

World Bank, 2019b. *Foreign direct investment, net inflows (BoP, current US$)).* Available: https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD [2020-03-14]

Worldwide Governance Indicators, n.d. *Worldwide Governance Indicators.*

Yergaliyeva, A., 2019. *Central Asia has potential to attract $170 billion in FDI in 10*

years. Available: https://astanatimes.com/2019/04/central-asia-has-potential-to-attract-170-billion-in-fdi-in-10-years/ [2020-02-22]

A Tables

Table A1: Correlations Matrix for Multicollinearity Detection

Correlation Matrix overview of each determinant of IFDI. Where exchange rate is defined as the log of National Currency Per U.S. Dollar. Inflation is defined by annual CPI in percentage. Market size is defined by the log of GDP in current USD. Infrastructure is proxied using the log of mobile cellular subscriptions per 100 people and political stability in units of a standard normal distribution, ranging from -2.5 to 2.5.

	LEXC	INFL	LMARK	LINFR	POLS
LEXC	1.0000				
INFL	0.4602	1.0000			
LMARK	-0.2941	-0.1787	1.0000		
LINFR	-0.2991	-0.3021	0.3869	1.0000	
POLS	-0.0414	-0.2095	-0.1366	0.2533	1.0000

Table A2: Summary Statistics Base Model

IFDI is log of IFDI measured as the net inflows in current USD billion. Exchange rate is defined as the log of National Currency Per U.S. Dollar. Inflation is defined by annual CPI in percentage. Market size is defined by the log of GDP in current USD. Infrastructure is proxied using the log of mobile cellular subscriptions per 100 people and political stability in units of a standard normal distribution, ranging from -2.5 to 2.5.

Variable	Observations	Mean	Standard Deviation	Min Value	Max Value
LIFDI	367	20.70789	2.530503	12.04355	26.39634
LMARK	378	24.49865	2.179165	19.86634	30.24169
LEXC	350	4.660387	2.818304	.2017156	10.03561
LINFR	373	3.179089	2.043427	-3.981347	5.195694
INFL	373	5.803552	6.310912	-18.10863	57.07451
POLS	360	-.5733333	.9187657	-2.50	1.39

B Figures

Figure 2: Normality for the base model

Contains the distribution of standardized residuals (gray areas), compared against a normal plot (black area). Standardized values are generated with a mean of 0 and standard deviation of 1. The residuals are established from the base model model (see Equation 1) and generated with the Tobit model for random effects.

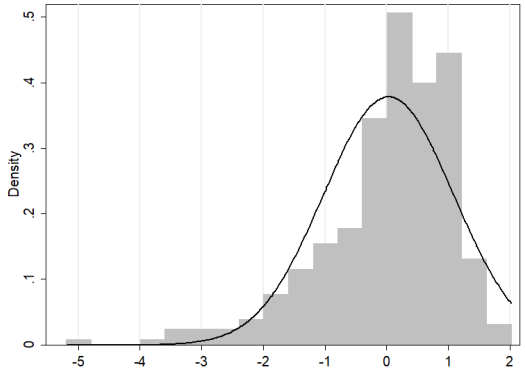

Figure 3: Normality for base model without Logs

Contains the distribution of standardized residuals (gray areas), compared against a normal plot (black area). Standardized values are generates with a mean of 0 and standard deviation of 1. The residuals are established from the Base model without Logs and generated with the Tobit model for random effects.

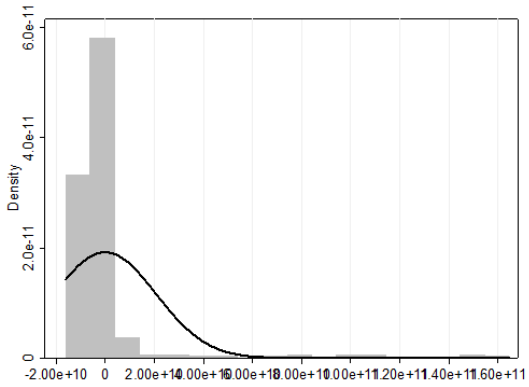

Figure 4: Heteroskedasticity Analysis

Standardized residuals (y-axis) compared to standardized predicted values (x-axis). The standardized values are created with a mean of 0 and standard deviation of 1. All values are established from the base model (see Equation 1), values are generated with the Tobit model for random effects.