Routledge
Taylor & Francis Group

Economic Research-Ekonomska Istraživanja

ISSN: 1331-677X (Print) 1848-9664 (Online) Journal homepage: https://www.tandfonline.com/loi/rero20

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To cite this article: Muhammad Abdul Kamal, Assad Ullah, Jiajia Zheng, Bowen Zheng & Huizhu Xia (2019) Natural resource or market seeking motive of China's FDI in asia? New evidence at income and sub-regional level, Economic Research-Ekonomska Istraživanja, 32:1, 3869-3894, DOI: 10.1080/1331677X.2019.1674679

To link to this article: https://doi.org/10.1080/1331677X.2019.1674679

Published online: 21 Oct 2019.

ECONOMIC RESEARCH-EKONOMSKA ISTRAŽIVANJA
2019, VOL. 32, NO. 1, 3869–3894
https://doi.org/10.1080/1331677X.2019.1674679

Natural resource or market seeking motive of China's FDI in asia? New evidence at income and sub-regional level

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ABSTRACT

Asia is a heterogeneous region including countries with distinct features in quite a few facets. This study is designed to unravel the motivations of Chinese FDI in 30 Asian countries (For list of countries see Appendix 1.) during 2003–2016. For estimation, we utilised the Random effect (RE), Fixed effect (FE) and System-GMM (SGMM) methodologies. We transpired that both market and natural resource (mineral richness) seeking motives of Chinese FDI in the whole sample analysis. With respect to income group, we confirmed the market seeking FDI in both high and middle-income countries whereas, mineral richness is priority for Chinese FDI in middle-income group. Thus, Chinese firms targeted middle income developing economies to acquire non-fuel natural resources. Analogously, on the regional basis, the results show that in all regression models, GDP is positive and significant predictor, characterising market seeking FDI by Chinese firms in West, East and South East Asia. In resource seeking motive, among the two types of natural resources, mineral richness affect Chinese FDI positively in East & South East Asia. In a nutshell, seeking market is the common motive for Chinese FDI in the entire sample, whereas the resource seeking motive varies across the income groups and regions.

ARTICLE HISTORY
Received 20 November 2018
Accepted 4 September 2019

KEYWORDS
Chinese FDI; market seeking FDI; resource seeking FDI; Asia

JEL CLASSIFICATIONS
F42; F74; F75

1. Background

One of the salient features of globalisation is the internationalisation of business. Internationalisation can occur in certain forms such as export, licencing, franchising and foreign direct investment (Aleksandruk & Forte, 2016). In recent times, the surge in outward foreign direct investment (OFDI) by emerging economies is a major trend and well documented in the literature (Al-Sadiq, 2013; Chang, 2011; Cuervo-Cazurra, Inkpen, Musacchio, & Ramaswamy, 2014; Luo, Xue, & Han, 2010; Ramamurti, 2013;

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Williamson, Ramamurti, Fleury, & Fleury, 2013). Nonetheless, in the last couple of decades, marked changes in the international business have been witnessed stirred by the internationalization of Asian emerging multinational enterprises (MNEs). In the past, most FDI in Asia came from western economies, but the favourable and conducive environment for investment in Asia has enabled economies in the region to invest and set up production in neighbouring countries (ADB, 2017). China's Outward Foreign Direct Investment (OFDI) has experienced significant growth since its entry into the World Trade Organization in 2001. China is the leading driver of developing nations' OFDI and accounts for 36% of the total OFDI (Global Investment Competitiveness Report 2017–2018). While on the basis of flows, China's OFDI has shown an upward surge from 10% of total developing countries OFDI in 2004 to 49% in 2015. In 2015, China's OFDI reached to a historical high of $145.67 billion and exceeded Japan becoming second source country of FDI (MOFCOM, 2016). Additionally, Asia has attracted a lion's share of $108.37 billion of total China's OFDI flows.

The reason for focussing on China's FDI in Asia is linked with several factors. Firstly, some unique characteristics are associated with location choice of OFDI by Chinese firms as drastic change can be observed in regional distribution, for instance, Asia is getting substantial share which has increased from 16% (1991) to 74.4% in (2015). Secondly, although investment decisions made by Chinese firms highly influence by government priorities and policies (Buckley et al., 2010), still neighbouring Asian region offers some advantages, e.g., massive reduction in FDI restrictions leading to integrated production and efficient marketing networks globally. Lastly, during the period 2003–2005, 65% of China's OFDI flows targeted primary sector, while in 2013–2015, 26% of OFDI targeted primary sector and 47% OFDI was poured into the service sector (Global Investment Competitiveness Report, 2017–2018). This provides an indication of the policy shift as a result of the transformation process of the Chinese economy. Resultantly, China's OFDI motivations, moving from initial natural resource seeking towards market and efficiency seeking and finally strategic asset seeking. Therefore, this study will provide novel results keeping in view the fact that the bulk of Chinese investment is concentrated in the Asian region.

The surge in OFDI with focus on Chinese firms has sparked an increase in research (Chang, 2014; Kang & Jiang, 2012; Kolstad & Wiig, 2012; Ramasamy, Yeung, & Laforet, 2012). In addition, studies on determinants and motivations of China's FDI are focussed from the perspective of the home country (Blomkvist & Drogendijk, 2013; Morck, Yeung, & Zhao, 2008) and host country (Buckley et al., 2007; Cheung & Qian, 2009; Kolstad & Wiig, 2012). However, previous empirical studies on the motivations of China's OFDI in general show inconsistent or even contradictory results. Part of empirical investigations signifies seeking market as the prime objective for Chinese firms (Cheng & Ma, 2010; Kolstad & Wiig, 2012), while other studies found that the relationship of China's FDI with natural resources is insignificant (Blomkvist & Drogendijk, 2013; Cheung & Qian, 2009). Several studies concluded that seeking market played a preponderant role in sourcing OFDI from China (Buckley et al., 2010; Kolstad & Wiig, 2012). A few studies at firm level confirmed asset seeking motivation of China's FDI (Amighini, Rabellotti, & Sanfilippo,

2013; Noorbakhsh, Paloni, & Youssef, 2001). In this regard, the economic literature relevant to OFDI from China suggests that specific features or motivations cannot be ascertained. Further, despite the fact that bulk of Chinese investment is directed to Asia, the extant research on Asia is limited and focus on selected locations like South East Asia, South Asia and Middle East e.g., studies conducted byKamal, Li, Akhmat, Bashir, and Khan (2014) and Miniesy and Elish (2017). This paper contributes to the growing literature on China's OFDI in the following ways. First, China's outward FDI has dramatically accelerated since this new century. A focus on this time period will help in gaining an understanding of the dynamic nature of China's outward FDI in general and its location choice, particularly in the Asian region. Second, essentially the determinants of FDI could vary across the countries and income groups (Mottaleb & Kalirajan, 2010); thus the estimated functions might suffer from the problem of parameter heterogeneity. To tackle the issue of parameter heterogeneity in estimated functions, estimation results are obtained at regional and income level of the countries. This enables us to propose some measures for FDI promotion in the sub-region given its peculiar characteristics. Finally, unlike previous studies that are based on data of short time and limited sample size (Kolstad & Wiig, 2012; Ramasamy et al., 2012), we collected data for a relatively long period from 2003 to 2016, constituting bigger sample size that includes 30 Asian countries.

The remainder of the paper is organised as follows. Section 2 presents a theoretical foundation for empirical analysis. Section 3 provides a descriptive overview of China's FDI flow in developing countries. Section 4 provides a descriptive overview of China's FDI flow in Asia. Section 5 describes the methodology, data, and variables construction. Section 6 presents results and discussion. Lastly, Section 7 showcases the conclusion.

2. Theoretical framework

In the extant literature, the firms' behaviour has been illustrated with various view-points and theoretical background. Fedderke and Romm (2006) viewed that policy and non-policy factors are the potential determinants of OFDI. Policy-related factors are trade restrictions or barriers, openness, product market rules and regulations, system and structure of the corporate tax, and infrastructural development, while non-policy factors comprise geographical proximity, cultural similarity, size of the market, factor endowments, institutional quality, and macroeconomic stability. Such an approach is well organised to investigate the FDI determinants. The literature also signifies 'Push and pull factors' influences firms' decisions for investment ventures (Calvo, Leiderman, & Reinhart, 1996; Fernandez-Arias, 1996). In a nutshell, push factors relevant to cyclical and structural conditions, while pull factors are more related to the socio-economic and political structure. Sekkat and Veganzones-Varoudakis (2007) have classified the determinants of OFDI into three groups: trade, business and investment climate; macroeconomic factors; and exchange market policies/regulations.

The fundamental theoretical framework for FDI determinants was developed by Dunning (1977) in the form of 'Eclectic (OLI) Paradigm' referred specifically the interplay of (both home and host) country-specific and firm-specific factors. This

paradigm posits that MNEs invest abroad to take three kinds of advantages: Ownership (O), Location (L) and internalisation (I) advantages (Dunning, 2001, 2009; Dunning & Lundan, 2008). Ownership advantages referred to access to natural resources and highly skilled human capital or sophisticated technology, the capacity and ability to innovate and differentiate products (Aleksandruk & Forte, 2016). Location advantages refer to differences in endowments between the countries or location attractiveness such as lower labour cost, transportation cost, market risk and potential demand (Miniesy & Elish, 2017; Rasciute & Downward, 2017). The internalisation factor explains that firms must engage and exploit the foreign opportunities of FDI in term of more return to investment rather than granting licences or making agreements with foreign firms (Aleksandruk & Forte, 2016; Miniesy & Elish, 2017). In line with the eclectic paradigm, seeking a foreign market, cost minimisation (efficiency gains), and resource acquirement are the key motives of Chinese MNEs engage in investment ventures. The surge in China's investment activities is also consistent with the theoretical concept of investment development path (IDP) propounded by Dunning (1982, 1986), which postulates that it is unlikely to perform investment in the initial phase of country's development. It is possible only when an economy reaches a certain threshold level of development, allowing the firms to accrue firm-specific assets and engage in OFDI (Barry, Görg, & Strobl, 2003).

Derived from location advantages and ascribed in Dunning's 'eclectic paradigm', the firms strive for four motivations, i.e., market seeking, resource seeking, efficiency seeking and strategic asset seeking (Dunning & Lundan, 2008). In literature, the terms such as 'determinants' and 'motivations' with respect to FDI are interrelated; however, determinants signify perspective of the country (host), while motivations are considered from the perspective of the home country firms (UNCTAD, 2003). Several studies have explored the determinates and motivations of China's OFDI based on Dunning's model (Amighini et al., 2013; Buckley et al., 2010; Cheung & Qian, 2009; Kolstad & Wiig, 2009; Zhang & Daly, 2011). Among the literature relevant to China's FDI, the market-seeking motivation is supported by Buckley et al. (2010), Cheng and Ma (2010), Cheung and Qian (2009), and Kolstad and Wiig (2009), while the resources seeking motive is supported by Cheung and Qian (2009). Empirical evidence performed at industry level affirms the strategic asset-seeking motivation of China's FDI both in the service and manufacturing sectors (Amighini et al., 2013; Noorbakhsh et al., 2001).

3. OFDI from China in asia: some stylized facts

The UNCTAD (2017) report showed that world's outflows of FDI reached $1.45 trillion in the year 2016, while China's OFDI flows and stock accounted for 13.5% and 5.2% of the global total respectively. China ranked 2nd among all countries in terms of FDI flows for two consecutive years, while it is ranked 6th now in 2016, rising from 8th in 2015 (see Table 1). China's outward FDI has increased for 14 years, and the flows in 2016 are 72 times to the flows in 2002.

In 2016, flows of China's OFDI to Asian region reached $130.27 billion accounting 66.4% of total China's OFDI flows (see Table 2). In particular, $114.23 billion went

Table 1. China's outward FDI flows and stock.

	China's OFDI flows		China's OFDI stock	
Year	OFDI ($bn)	Global ranking	OFDI ($bn)	Ranking
2002	2.70	26	29.90	25
2003	2.85	21	33.20	25
2004	5.50	20	44.80	27
2005	12.26	17	57.20	24
2006	21.16	13	90.63	23
2007	26.51	17	117.91	22
2008	55.91	12	183.97	18
2009	56.53	5	245.75	16
2010	68.81	5	317.21	17
2011	74.65	6	424.78	13
2012	87.80	3	531.94	13
2013	107.84	3	660.48	11
2014	123.12	3	882.64	8
2015	145.67	2	1097.86	8
2016	196.15	2	1357.39	6

Source: 2016 Statistical Bulletin of China's outward foreign direct investment.

Table 2. Regional distribution of China's OFDI flows, 2016.

Region	OFDI (in $bn)	% share
Asia	130.27	66.4
Latin America	27.23	13.9
North America	20.35	10.4
Europe	10.69	5.4
Oceania	5.21	2.7
Africa	2.4	1.2
Total	196.15	100.0

Source: 2016 Statistical Bulletin of China's outward foreign direct investment.

to Hong Kong, accounting for 87.7% of total investment in China. ASEAN countries received $10.28 billion OFDI, accounting 7.9% of China's total investment in Asia.

Table 3 shows the distribution of OFDI from China within the Asian region. Over the period of 2004–2015, the Middle East and East & South East regions have attracted the bulk of Chinese investment with a share of 24.61% and 27.70% respectively. For the same period and on the basis of Income level, Chinese investment is concentrated in the group of middle-income countries, getting a share of 49.60%. The distribution of China's OFDI based on natural resources such as oil and mineral richness provides further useful insights. As shown in Table 3, from the period 2004–2015, 25.45% of China's OFDI went to Asian oil-rich regions. Interestingly, the oil-rich region of the Middle East has less proportional share than East and South East Asia in attracting China's OFDI. Furthermore, on the basis of oil richness, middle-income countries took a large share as compared to high-income countries of Asia. Over the same period, mineral-rich countries in Asia received 43.43% of China's OFDI compared to 26.11% on a global basis. Southeast and Central Asia are the prime targets for China's FDI in the quest for natural resources.

Table 3 also provides a useful investment comparison of Chinese firms with the rest of the world in the Asian region over the period 2004–2015. On the basis of oil richness, world investment is mostly concentrated in the Middle East while Chinese investment is directed to East and South East region. Further, for the same period,

Table 3. Pattern of China's outward foreign direct investment in Asia.

	China's OFDI flows ($ billion)		World's FDI flows ($ billion)	
Region	2004–2015	2015	2004–2015	2015
Total world	771.2	145.7	16704.13	1594.32
Total Asia	539.80	108.37	4736	548.87
FDI flows to Asia (excluding China from the World and Hong Kong, Singapore and Macao from China, respectively)	64.00	9.74	3496.39	413.25
of which:				
Middle East	24.61	5.16	772.75	55.57
East and Southeast Asia	27.70	5.76	2175.51	298.78
Central Asia	5.32	−2.33	158.95	10.41
South Asia	6.37	1.15	389.18	48.49
High income Asian countries	12.20	3.77	2128.50	274.88
Middle income Asian countries	49.60	5.44	1350.86	137.67
Distribution of FDI on the basis of oil richness (in %)				
Asia	25.45	21.95	22.83	12.12
Middle East	9.72	9.65	12.40	4.21
East and Southeast Asia	10.37	10.46	7.08	6.68
Central Asia	5.36	1.84	3.35	1.23
High income Asian countries	9.50	16.22	11.52	3.80
Middle income Asian countries	14.29	3.88	10.32	7.46
Distribution of FDI on the basis of mineral richness (in %)				
Asia	43.43	37.14	26.11	17.18
Middle East	8.44	8.22	11.51	7.66
East and Southeast Asia	26.42	23.23	10.91	8.14
Central Asia	8.57	5.69	3.68	1.38
High income Asian countries	8.50	11.6	6.83	2.86
Middle income Asian countries	32.54	24.60	18.29	13.52

Source: UNCTAD, (2015) and MOFCOM (2015) Statistical Bulletin of China's Outward Foreign Direct Investment, World Bank (2015) 'World Development Indicators', and authors' compilation of data.

middle income received a large share of China's OFDI while high-income countries attracted a major part of the global investment. Similarly, on the basis of mineral richness, East and South Asia has attracted a predominant share of China's OFDI, while global investment went to the Middle East. In addition, middle-Income countries have attracted a larger share of OFDI, while high-income countries were the prime target of global investors.

4. Hypotheses development and literature review

Despite the fact that the motivations of Chinese MNEs are complicated and mixed, still, the traditional theory, i.e., eclectic paradigm, is significantly appropriate to illustrate the phenomenon (Miniesy & Elish, 2017). The internalisation of Chinese MNEs in the Asian region can be explained by considering the following three motivations behind outward FDI: market seeking, resource seeking, and efficiency seeking.

4.1. Market-seeking FDI

Market-seeking motivation is one of the primary objectives of MNEs and highly sensitive to variations in host country investment climate (Chakrabarti, 2001). The market-seeking motivation for China's OFDI is supported and evident from the

empirical studies conducted by Buckley et al. (2010), Cheng and Ma (2007), Cheung and Qian (2009), Kolstad and Wiig (2012) and Shan, Lin, Li, and Zeng (2018). A considerable market size (GDP) provide opportunities for foreign investors for the efficient utilisation of resources and to accrue economies of scales (Miniesy & Elish, 2017). The market size in host country influences the FDI location choice significantly, thus indicating a strong positive relationship with FDI inflows. In the case of a market seeking OFDI, considering an offensive strategy, firms seek new markets through horizontal expansion or secure the existing market position through economic relationship (Buckley et al., 2007). Alternatively, a defensive market seeking OFDI is utilised when a foreign country levies on restrictions, such as tariff and import quotas or better service provisions and differentiation by establishing a foreign unit adjacent to its local customers. Offensive motives are dominant factors behind China's OFDIs (Deng, 2004; Taylor, 2002). Market growth (GDP growth) in the host country also attract China's OFDI substantially by providing extensive profit-making opportunities. China in recent years is more integrated with the rest of the world, following an economic liberalisation policy, which has created a competitive environment for firms in the home market. Consequently, firms seek market-oriented OFDI in foreign markets due to diminishing profits in home markets (Taylor, 2002). In addition, search for the brand name and market expansion (i.e., a combined market power, size, and growth) also play a significant role in recent days' China's OFDI.

China is often taking advantage of the host country openness (TO), which is quite in line with the theory of international business. According to the theoretical concept propounded by (Vernon, 1966), countries which are more appropriate to the global trade and investment pattern, ultimately will attract more foreign investment. China is making substantial investment and trade activities in offshore destinations merely because of trade barriers in host countries like a tariff import quotas for Chinese exports (Taylor, 2002). Thus, the study offers the first set of hypotheses on the market seeking motive of China's OFDIs:

Hypothesis 1a: China's OFDI location choice is positively associated with the market size of the host country.

Hypothesis 1 b: China's OFDI location choice is positively linked with market openness of the host country.

4.2. Resource-seeking FDI

One of the prime motives of China's FDI is to gain access to natural resources, and for a growing economy like China's, it is essential to acquire primary resources or scarce inputs (Tan, 2013; Urdinez, Masiero, & Ogasavara, 2014; Zhan, 1995). To secure such resources, the Chinese government has poured into substantial OFDI in different locations (Zhan, 1995). Key locations to seek natural resources include Africa, Australia, Middle East, Latin America, Asia, Canada, and Russia (Gao, 2009), while main segments include minerals, petroleum, timber and fisheries where China has lower per capita availability (Wu & Sia, 2002). The theory of internalisation also supports the utilisation of natural resources on the basis of control of equity. Some of

the acquisitions by Chinese firms also provide evidence acquiring natural resources (Deng, 2004), evident in its decision to engage China National Petroleum Corporation (CNPC) to acquire Canada based Petro Kazakhstan in 2005 and EnCana's (Canada) oil assets in Ecuador. A plethora of studies have supported resource seeking motive for China's FDI, particularly in developing countries including Africa, MENA and Asia (Buckley et al., 2010; Cheung & Qian, 2009; Huang & Wang, 2011; Kang & Jiang, 2012). As resource seeking motive is important for China's OFDIs, this research work posits that:

Hypothesis 2 (a): China's OFDI location choice is positively related to the endowments of natural resources (non-fuel) of the host country.

Hypothesis 2 (b): China's OFDI location choice is positively associated with the endowments of natural resources (fuel) of the host country.

4.3. Efficiency-seeking FDI

Firms having a comparative advantage in economies of scale with an objective to acquire cheap factors of production undertake efficiency seeking OFDI (Dunning, 2001). Efficiency-seeking approach has been explained in terms of differences in cost associated with business dealings in the home and host markets. Thus, locations with a low cost of labour should receive more FDI (Sethi, Guisinger, Phelan, & Berg, 2003). Some scholars and economists argued that there is a minute incentive for Chinese firms to carry production activities abroad with such motive, chiefly because Chinese domestic market offers plenty of labour with low cost, land and other necessary inputs, i.e., raw material (Deng, 2004, 2007). Thus, it is quite economical to produce domestically with available low-cost labour, especially at coastal regions of the country. It is also argued that efficiency oriented FDI may not be the prime objective for Chinese investing firms abroad (Buckley, Cross, Tan, Xin, & Voss, 2008). However, in recent time, this motive is quite relevant to China's FDI, as the cost of production in the domestic market is rising persistently; and according to some estimations, the labour cost will rise by 30–50% in upcoming 3–5 years (Wei, 2010). Countries with low GDP per capita may signal low labour cost rather than purchasing power of consumers. Inflation is often used as an alternative variable to capture efficiency seeking motivation of FDI. Inflation exhibits macroeconomic instability, the cost of production in host countries, and inflicts a risk to firms operating in the host economy. Further, control of corruption is another variable used as a proxy to capture the efficiency-seeking FDI.

Availability of human capital in the form of skilled workers regarded as a great advantage to the firms in their investment adventures in developing countries (Kinda, 2013). An educated workforce has been assumed as an important factor especially for the firms seeking efficiency motive of FDI (Okafor, Piesse, & Webster, 2017). Theory of economics purports that human capital in the shape of education is one of the potent determinants for the influx of FDI (Dunning, 1977). Most of the studies considered various types of measures as proxies for human capital, of which school enrolment ratios and literacy rate are consistently used (Asiedu, 2002; Azemar &

Desbordes, 2009; World Bank, 2018a; Kinda, 2013; Kumari & Sharma, 2017; Okafor et al., 2017). The significance of efficiency entails the following hypotheses:

Hypothesis 3a: China's OFDI location choice is negatively connected to the inflation rate of the host country.

Hypothesis 3 b: China's OFDI location choice is positively related to the human development of the host country.

4.4. Control variables

We controlled for certain factors that affect location decisions of Chinese MNEs in prior research. Infrastructural facilities like transportation, telecommunication, airports, internet access, and water supply are important predictors of FDI. Countries with good infrastructure facilities attract more foreign investments, thereby exerting a positive impact on FDI inflows (Kamal et al., 2014; Liu, Tang, Chen, & Poznanska, 2017). Institutional factors are important determinants of FDI, notably in the context of developing countries. The high sunk cost of FDI is associated with uncertainties, makes investors highly sensitive in their investment decisions. Following the method of (Yasmeen, Li, Hafeez, & Ahmad, 2018), we utilised the data of World Development Indicators (WDI) to calculate the institution index. Prior to computing the index, it is pertinent to convert all six dimensions of governance into the same scale for aggregation. The single indicator index for the purpose of normalisation is utilised as follows:

$$X_i = \frac{[INS_i - INS_{min}]}{[INS_{max} - INS_{min}]}$$

Where, X_i refers to six dimensions of institutions i.e., control of corruption, political stability, voice & accountability, government effectiveness, regularity quality and rule of law. $INST_i$ is institutional indicator value of a country. $INST_{max}$ and T_{min}, are maximum and minimum values of each institutional indicator, respectively. After assigning equal weights to all indicators, the aggregate Institution Index (INSI) value is computed as follows:

$$INSI = \sum_{i=1}^{6} X_i/6$$

There exists bourgeoning literature on the nexus between the exchange rate and FDI, with risks being a major channel (Cushman, 1985; Froot & Stein, 1991). High exchange rate volatility aggravates the cost of collecting information for the firms, which may offset the profit to some extent. The general conclusion is that currency devaluation in host countries propel inward FDI. Conversely, an appreciation retards the influx. Table 4 reports the theoretical justifications, description and data sources of the variables used in empirical estimation.

Table 4. Summary of some empirical findings on determinants of OFDI from China.

	Effects	
Variable	Positive	Negative
Market size	(Amighini et al., 2013; Buckley et al., 2010; Chang, 2014; Chen, Dollar, & Tang, 2015; Cheng & Ma, 2007; Duanmu, 2012; Kolstad & Wiig, 2012; Liu et al., 2017; Shan et al., 2018; Zhang, Wei, & Liu, 2013)	(Wang & Shao, 2016)
Trade openness	(Hurst, 2011; Kang & Jiang, 2012; Liu et al., 2017; Miniesy & Elish, 2017; Wang & Shao, 2016)	(Kolstad & Wiig, 2012; Ramasamy et al., 2012; Shan et al., 2018)
Natural resources (fuel/ ores & metals)	(Buckley et al., 2010; Chang, 2014; Cheung & Qian, 2009; Huang & Wang, 2011; Hurst, 2011; Kang & Jiang, 2012)	(Blomkvist & Drogendijk, 2013; Shan et al., 2018)
Inflation	(Buckley et al., 2010; Hurst, 2011; Kang & Jiang, 2012; Kolstad & Wiig, 2012; Miniesy & Elish, 2017)	(Ramasamy et al., 2012; Shan et al., 2018; Soumaré, Gohou, & Kouadio, 2016)
Human capital	(Amighini et al., 2013)	
Infrastructure	(Amighini et al., 2013; Soumaré et al., 2016)	(Liu et al., 2017; Shan et al., 2018)
Institutional quality	(Duanmu, 2012; Huang & Wang, 2011)	(Buckley et al., 2010; Hurst, 2011; Kang & Jiang, 2012; Kolstad & Wiig, 2012; Liu et al., 2017; Shan et al., 2018)
Exchange rate[2]	(Blomkvist & Drogendijk, 2013; Buckley et al., 2010; Chang, 2014; Han, Chu, & Li, 2014)	

Source: authors' compilation.

5. Methodology and Data

5.1. Model specification and data

Based on the theoretical perspectives discussed above, we propose the following main model for the empirical specification.

$$OFDI_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \gamma_t + \eta_i + \nu_{it} \tag{1}$$

Where, $OFDI_{it}$ is China's FDI in country 'i' in time 't' and X_{it} represent variables to capture the motivations of China's OFDI. Z_{it} represents a set of control of variables (infrastructure, institutional variables, trade variable). η_i represents unobserved country effects that is constant over time, while γ_t is an unobserved period effect which is common across countries. Finally, ν_{it} is a component that varies across countries and time. We then specify a liner model as;

$$\begin{aligned} lnOFDI_{it} = \beta_{1i} + \beta_2 lnGDP_{it} + \beta_3 TO_{it} + \beta_4 NR_{it} \; + \; \beta_5 FL_{it} + \beta_6 INF_{it} + \beta_7 EDU_{it} \\ + \; \beta_8 lnINFR_{it} \; + \beta_9 INSI_{it} + \beta_{10} ER_{it} + \; \mu_{it} \end{aligned} \tag{2}$$

OFDI is the stock of China's outbound foreign direct investment in 30 Asian countries over the period of 2003–2016. We used the data published by the Ministry of Commerce (MOFCOM) in various issues of the 'Statistical Bulletin of China's Outward Foreign Direct Investment'. The major constraint faced by researchers analysing China's OFDI is the paucity and reliability of the data. The choice of the time

Table 5. Description of variables.

Variables	Description	Data source
OFDI	The stock of China's outward FDI to each Asian country (US $ millions)	MOFCOM (2016)
GDP	GDP of the country(constant = 2010)	World Bank (2018a)
TO	Trade openness in the host country (trade % of GDP)	World Bank (2018a)
NR	Resource endowment rate (annual ratio of ores and metals to total merchandise export)	World Bank (2018a)
FL	Fuel export as % of total merchandise exports in the host country	World Bank (2018a)
INF	Inflation rate measured by the consumer price index (CPI)	World Bank (2018a)
EDU	Education is measured by the primary school enrolment (% of gross)	World Bank (2018a)
INFR	Individuals using the Internet (% of the population)	World Bank (2018a)
INSI	Institutional composite index	World Bank (2018b)
X_1	Control of corruption	World Bank (2018b)
X_2	Political stability	World Bank (2018b)
X_3	Voice & accountability	World Bank (2018b)
X_4	Government effectiveness	World Bank (2018b)
X_5	Regularity quality	World Bank (2018b)
X_6	Rule of law	World Bank (2018b)
ER	The host country's official annual average exchange rate against RMB	World Bank (2018a)

of 2003–2016 is useful and justified for this analysis. First, this published data in the specific format is consistent with the standard of the OECD and International Monetary Fund. Second, China's OFDI has been rapidly increasing after the 'going out global strategy' introduced by the Chinese government in 2003. Table 5 provides the description and data sources of all the variables used in this study.

5.2. Estimation technique

For the purpose of this study, balanced panel data of 30 Asian countries have been taken. The panel data techniques namely pooled ordinary least square (POLS), random effects (REs) and fixed effects (FEs) are the most common in literature. We have not considered the FE method because the time span (2003–2016) for our analysis is short and the number of countries (30) is relatively large and thus the use of fixed effects is limited. However, the results of FEs are also reported for robustness. Year dummy variables (over 2003–2016) are not included in the model because most of the year dummies are not significant. For the choice between POLS and REs, the Lagrangian multiplier test was conducted, and the REs model was selected as the model specification. Random effects model is also known as an error component model, thus Instead of treating β_{1i} as fixed in Equation (2), we assume that it is a random variable with a mean value of β_1 (no subscript i here). The intercept value for an individual country can be expressed as;

$$\beta_{1i} = \beta_1 + \varepsilon_i \tag{3}$$

Where ε_i is a random error term with a mean value of zero and a variance of σ_ε^2.

For the panel data of 30 countries under the study, the common mean value for the intercept is equal to β_1. The individual differences in the intercept values of each country are reflected in the error term ε_i.

Substituting Equation (3) into Equation (2), we obtain:

$$lnOFDI_{it} = \beta_1 + \beta_2 lnGDP_{it} + \beta_3 TO_{it} + \beta_4 NR_{it} + \beta_5 FL_{it} + \beta_6 INF_{it} + \beta_7 EDU_{it} + \beta_8 ln\ INFR_{it} + \beta_9 INSI_{it} + \beta_{10} \mathrm{ER_{it}} + \mu_{it} + \varepsilon_i \quad (4)$$

or

$$lnOFDI_{it} = \beta_1 + \beta_2 lnGDP_{it} + \beta_3 TO_{it} + \beta_4 NR_{it} + \beta_5 FL_{it} + \beta_6 INF_{it} + \beta_7 EDU_{it} + \beta_8 lnINFR_{it} + \beta_9 INSI_{it} + \beta_{10} \mathrm{ER_{it}} + w_{it} \quad (5)$$

where,

$$w_{it} = \mu_{it} + \varepsilon_i \quad (6)$$

w_{it} is composite error term and comprises of two components: ε_i, which is the cross-section, or individual-specific, error component, and μ_{it}, which is the combined time series and cross-section error component and is sometimes called the idiosyncratic term because it varies over cross-section (i.e., countries) as well as time (Gujarati, 2009).

Essentially, determinants of FDI could vary across the countries and income groups (Mottaleb & Kalirajan, 2010); thus the estimated functions might suffer from the problem of parameter heterogeneity. To tackle the issue of parameter heterogeneity in estimated functions, we use Equation (1) separately for high income, middle-income countries and also for West Asia and South East Asian countries. Finally, for robustness of purposes, we perform a sensitivity analysis by including variables step by step into estimated models. In addition, the REs estimation method with clustered standard errors corrected at the country level is applied to overcome the possible serial correlation in our static analysis. These techniques control as much as possible for error and bias in our models (Mottaleb & Kalirajan, 2010).

6. Results & discussion

6.1. Descriptive statistics and multicollinearity test

Table 6 shows the descriptive statistics and correlation results for the selected data set. The descriptive provides an insight into the nature and distribution of data. The values of standard deviation suggest that the variables are worth including in the regressions. It can be observed that among all variables, the highest correlation is that of 0.63 between infrastructure and variable of the institution, which is significant at 5% level of significance. Although, the correlation matrix depicts the significant relationship between some variables, however, none of such correlation is high enough to cause the problem of multicollinearity. Variance inflation test (VIF) in Table 7 supports the correlation test, and the average VIFs is well below the threshold hold of 10 (Neter, Wasserman, & Kutner, 1985), indicating that our regression results are free from multicollinearity issue.

Table 6. Descriptive statistics.

Variables	Mean	SD	Ln FDI	Ln GDP	TO	NR	FL	INF	EDU	LN INFR	INSI	ER	LN DIS
Ln FDI	4.78	2.65	1.00										
Ln GDP	25.37	1.71	0.43	1.00									
TO	89.17	41.00	−0.04	−0.35	1.00								
NR	5.50	11.49	0.03	−0.35	0.16	1.00							
FL	33.92	37.63	−0.12	−0.07	0.09	−0.13	1.00						
INF	5.90	6.27	0.13	−0.08	−0.13	0.07	0.08	1.00					
EDU	104.14	9.07	0.12	−0.13	−0.05	0.06	−0.13	0.04	1.00				
LN INFR	2.89	1.35	0.21	0.37	0.23	−0.01	0.12	−0.37	−0.17	1.00			
INSI	5.12	1.32	−0.08	0.32	0.19	0.02	−0.01	−0.49	−0.13	**0.63**	1.00		
ER	111.76	25.90	0.22	0.01	−0.20	−0.08	0.18	−0.11	0.17	−0.11	−0.45	1.00	

Note: Correlations 0.12 and above are significant at $p < 0.05$.

Table 7. Variance Inflation Test.

	VIF Values					
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
LN GDP	1.21	1.58	1.71	1.77	1.82	1.84
TO	–	1.42	1.43	1.43	1.43	1.43
NR	–	–	1.11	1.14	1.18	1.18
FL	–	–	–	1.11	1.15	1.18
INF	–	–	–	–	1.45	1.46
EDU	–	–	–	–	–	1.11
LN INFR	1.81	1.99	2.00	2.05	2.06	2.08
INSI	2.28	2.30	2.30	2.30	2.75	2.77
ER	1.38	1.39	1.40	1.44	1.48	1.55
Mean VIF	**1.67**	**1.74**	**1.66**	**1.60**	**1.66**	**1.62**

**Source:* Authors' calculations

6.2. Results of the Levin-Lin-Chu panel unit root test

The null hypothesis of common unit root is tested against the alternative hypothesis of the common stationary root. The results of the Levin-Lin-Chu panel unit root test are reported for the full sample, income-wise and region-wise in the following Tables 8–10, respectively. The results indicate that the t-statistics associated with all variables are significant both at levels and first difference. In other words, all the variables are stationary both at levels and first difference.

6.3. Results for the full sample

Table 11 exhibits the results of the full sample, using both REs, FEs & SGMM techniques. However, only the results of REs method have been discussed in this section. In column 1–6, the variables of interest are added stepwise along with control variables in estimated models to show the robustness of the findings. Before discussing the factors influencing OFDI from China, it is pertinent to mention that FDI that goes into offshore financial centres[1] will typically be invested elsewhere, these host economies are not the ultimate destination of the FDI. In order to avoid the influence of FDI that went to tax havens/offshore financial centers, we have intentionally dropped Hong Kong, Singapore and Macau from our sample to present reliable results. In such case, the language variable which captures the effect of similar culture and customs, also become irrelevant in sample analysis, thus, has been dropped.

Table 8. Levin-Lin-Chu panel unit root/stationarity test (full sample).

At Levels			At first Difference	
Variables	Intercept	Trend & Intercept	Intercept	Trend & Intercept
OFDI	−6.75***	−22.93***	−15.34***	−12.88***
GDP	−7.90***	−0.35	−4.25***	−9.31***
TO	−3.75***	−5.01***	−8.15***	−8.58***
NR	−2.04***	−3.48***	−6.30***	−9.99***
FL	2.01*	−1.65	−1.52*	−2.92***
INF	−4.01***	−5.60***	−14.61***	−14.44***
EDU	7.12**	9.45***	−3.89**	−7.54***
INFR	−8.02***	−3.29***	−6.09***	−8.32***
INSI	−2.19***	−4.89***	−7.35***	−8.04***
ER	−2.88***	−5.09***	−7.49***	−8.90***

*$p < .10$; **$p < 0.05$; ***$p < 0.001$.

Table 9. Levin-Lin-Chu panel unit root/stationarity test (income group).

At levels (High income)			At first difference (High income)		At levels (Middle income)		At first difference (Middle income)	
Variables	Intercept	Trend & intercept	Intercept	Trend & intercept	Intercept	Trend & intercept	Intercept	Trend & intercept
OFDI	−6.61***	−2.57***	−13.69***	−8.18***	−4.92***	−5.87***	−8.29***	−11.04***
GDP	−5.38***	−1.58*	−3.65***	−5.04***	−6.35***	−0.24	−3.44***	−8.19***
TO	−3.36***	−3.78***	−4.94***	−4.81***	−2.92***	−2.53***	−6.44***	−7.45***
NR	−0.31	−0.94*	−1.32*	−1.53**	−2.24**	−3.98***	−7.19***	−12.10***
FL	0.20**	−0.36	−2.51***	−3.41***	0.99	0.54	−2.70***	−3.56***
INF	−2.62***	−3.30***	−6.97***	−6.77***	−1.84**	−4.26***	−12.07***	−12.09***
EDU	3.12*	7.43**	−1.89*	−6.19**	−1.34	−3.54**	−8.91*	−11.33***
INFR	−4.67***	0.94	−0.37	−4.43***	−6.48***	−4.02***	−6.30***	−6.80***
INSI	−0.96	−1.26	−4.50***	−3.87***	−2.34***	−4.47***	−5.30***	−6.36***
ER	−3.03***	−4.71***	−5.10***	−4.76***	−2.99***	−3.08***	−5.71***	−8.02***

*$p < .10$; **$p < 0.05$; ***$p < 0.001$.

Table 10. Levin-Lin-Chu panel unit root/stationarity test (region-wise).

At levels (West Asia)			At first difference (West Asia)		At levels (East & Southeast Asia)		At first difference (East & Southeast Asia)	
Variables	Intercept	Trend & Intercept	Intercept	Trend & Intercept	Intercept	Trend & Intercept	Intercept	Trend & Intercept
OFDI	−5.16***	−2.62***	−14.18**	−10.31***	−3.23***	−0.42	−3.11***	−5.67***
GDP	−5.70***	0.98	−1.28*	−4.81***	−5.63***	−1.26	−3.49***	−5.63***
TO	−1.68**	−4.29***	−4.41***	−4.40***	−2.55***	−1.91**	−6.25***	−6.01***
NR	−2.06**	−3.40***	−6.06***	−5.41***	0.25	−1.73**	−1.41*	−1.94**
FL	4.07	2.86**	−2.43	2.40**	−0.63	0.12	−3.65***	−4.67***
INF	−3.05***	−3.35***	−7.14***	−6.77***	−1.91**	−4.77***	−10.18***	−9.30***
EDU	−4.13**	−3.67*	−5.87***	−9.17***	−1.76	−3.31**	−8.42**	−7.90***
INFR	−4.26***	−2.01**	−2.68***	−6.08***	1.14	−0.06	−2.95***	−3.51***
INSI	−1.22	0.40	−3.23***	−4.61***	−1.84**	−1.14	−1.77**	−2.29***
ER	−1.20	−3.01***	−4.37***	−5.05***	−3.55***	−3.21***	−4.90***	−5.97***

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Regression results of all six REs models suggest that China's OFDI in Asia is driven by the size or GDP of the host market, thus supporting the market seeking motive formulated in Hypothesis 1(a). The Market size carried strong magnitude and found significant at 1% level, suggesting that a big market size depicts greater opportunities

Table 11. Motivations of China's FDI in Asian countries (full sample).

	RE (1)	RE (2)	RE (3)	RE (4)	RE (5)	RE (6) All variables	FE (7) All variables	GMM (8) All Variables
Market Seeking Variables								
ln (GDP)	1.73*** (6.32)	1.71*** (6.46)	1.76*** (7.79)	1.78*** (7.81)	1.70*** (7.44)	1.71*** (7.27)	2.99*** (8.24)	0.89*** (7.11)
Trade openness		0.01 (1.51)	0.01 (1.32)	0.02 (1.30)	0.01 (1.13)	0.01 (1.09)	0.01 (1.11)	0.01 (1.56)
Resource Seeking Variables								
Natural resources			0.08*** (3.51)	0.07*** (3.25)	0.08*** (3.17)	0.07*** (2.86)	0.04 (1.53)	0.05* (1.67)
Fuel				0.01 (0.32)	0.01 (0.19)	0.02 (0.24)	−0.01* (−1.69)	−0.01 (−1.52)
Efficiency Seeking Variables								
Inflation					0.02 (0.90)	0.01 (0.82)	0.01 (0.85)	0.05 (1.42)
Primary Education						0.02 (1.00)	0.01 (0.15)	0.04 (1.59)
Control Variables								
ln (infrastructure)	0.97*** (4.65)	0.96*** (4.72)	0.93*** (4.70)	0.92*** (4.67)	0.94*** (4.74)	0.91*** (4.58)	0.57*** (3.05)	0.56* (2.05)
Institutions	−0.98*** (−2.73)	−1.00*** (−2.91)	−1.01*** (−2.95)	−0.99*** (−2.92)	−0.96*** (−2.78)	−0.93*** (−2.72)	−0.42 (−0.82)	−0.76** (−2.06)
Exchange Rate	0.02** (2.11)	0.01 (1.56)	0.01 (1.53)	0.02 (1.63)	0.01 (1.43)	0.01 (1.62)	0.03*** (3.43)	0.01 (0.87)
Constant	−34.91*** (−5.13)	−35.40*** (−5.49)	−36.88 (−6.60)	−37.50*** (−6.57)	−35.81*** (−6.26)	−38.23*** (−6.58)	−67.86*** (−8.05)	−22.89*** (−3.46)
R^2	0.25	0.26	0.30	0.30	0.31	0.32	0.21	
LM-test (*p*-value)	0.00	0.00	0.00	0.00	0.00	0.00	–	
Wald Chi^2	155.67	163.20	190.80	197.34	186.35	196.09	–	
Prob > Chi^2	0.00	0.00	0.00	0.00	0.00	0.00	–	
F-value	–	–	–	–	–	–	26.88	
Prob > F	–	–	–	–	–	–	0.000	
AR(2) test (*p*-value)								0.33
Hansan test (*p*-value)								0.96

*$p < 0.10$; **$p < 0.05$; ***$p < 0.001$. (z-values and t-ratios are in parentheses).

for Chinese investors in the Asian region. In sum, we can extend a general narration that while seeking market expansion in the Asian region; Chinese firms may aim to serve the domestic market in the host country rather than establishing FDI bases for export expansion to the rest of world market. Thus, the market seeking motivation is realised by capitalising domestic big market opportunities in host economies. This result may explain the insignificance of the more conventional variable of trade openness, not exactly capturing the market seeking motive of OFDI from China.

We observed that among the two types of natural resources discussed in this paper, ores and metals are the prime targets for China's OFDI, and our results accept hypothesis 2(a). There are a number of other plausible explanations of China's focus on ores and metals and her lack of interest in fuel resources; (i) Industrial sector demand for ore and metal in China is growing; (ii) China has abundant fuel reserves and she is investing substantially in alternate sources, like renewable energy, in order to satisfy domestic requirements; (iii) To maintain stable supply of fuel, China is now investing globally and trying to be less reliant on volatile Middle East; (iv) China has a comparative disadvantage in sophisticated technology and equipment used in extracting natural resources in conventional locations like the Middle East and thus has been crowded out by the US and EU OFDI.

The efficiency-seeking FDI measured via inflation and primary education, yielded insignificant results. Primary education representing human development renders insignificant positive relationship with OFDI. Among the control variables, infrastructural development has a strong positive link with OFDI from China, and the finding is consistent with prior studies conducted by (Asiedu, 2002; Cheng & Kwan, 2000; Kamal et al., 2014). Infrastructural facilities boost export performance by reducing transportation cost, rising efficiency and productivity, ultimately have a positive impact on FDI, particularly on vertical FDI. ASEAN countries with better infrastructure facilities have already achieved tremendous export performance, thus also a motivating factor for inward FDI flows. The institutional index is showing quality of institutions in the host countries is negatively associated with OFDI and yield a significant result in all estimated models. In general, Chinese firms take advantage of the poor institutional environment in the host countries, and this result dully conforms to previous empirical studies, e.g., (Buckley et al., 2010; Kolstad & Wiig, 2012; Ramasamy et al., 2012). Chinese investment has unique characteristics and may not be retarded by the adverse institutional environment (Buckley et al., 2007; Kolstad & Wiig, 2012). Moreover, they consider that natural resources play a role in the flow of China's OFDI. Kolstad and Wiig (2012) found that the interaction effect of institutions and natural resources for non-OECD countries is positive and significant, which indicates that host countries with an abundance of natural resources and poor institutions might be attractive for OFDI from China. This conclusion strengthens the argument that China's OFDI is attracted to the economies with a weaker institutional framework. Exchange rate exhibits a positive relationship with FDI from China. However, such an association is not found significant for all regression models.

6.4. Results on the basis of income groups

Estimation results justified splitting the full sample into two income groups', i.e., high-income and middle-income groups. Interestingly, the results for the two income groups (Table 12) sharply differ from those obtained from the full sample and also among the two groups, particularly in pursuit of natural resources. This implies that location choice for Chinese firms in their investment ventures vary with respect to income groups.

Table 9 presents the estimated functions that explain the influx of OFDI from China to both income groups. GDP is positive and significant in REs, FEs and SGMM estimation for high and middle-income countries. Thus, market seeking motive is mainly realised by facilitating host Asian countries. Most importantly, results for seeking natural resources are more insightful. Among the two types of natural resources, ores and metals yield a positive and significant result for middle-income countries, while it is insignificant for high-income countries. Thus, Chinese firms targeted middle-income economies to acquire non-fuel natural resources. We did not find favorable results for efficiency-seeking FDI in both income groups. Likewise, full sample, infrastructural variable yield positive and significant result in income groups as well. Interestingly, the variable of the institution is inversely related to OFDI from China in middle-income countries and produced significant results. We can draw an important conclusion that natural resources (ores and metals) are the principal target of Chinese firms in the middle-income countries with the poor institutional environment as the variable of institution yielded negative and significant relationship with OFDI from China.

6.5. Results of regional sub-samples

Table 13 presents the estimated functions explaining the inflow of OFDI from China to West, East and South East Asia. The results show that across all regression models, GDP is positive and significant determinant, depicting marketing seeking FDI by Chinese firms in both regions. Regarding trade openness, the effect of the variable is a mix as, the coefficient of TO is positive and significant in the subsample of West Asia but negative in case of East and South East Asian region. Theoretically, it has been argued that the effect of TO depend on the type of FDI. Some prior studies found a negative impact of TO on FDI flows (Kolstad & Wiig, 2012; Ramasamy et al., 2012; Shan et al., 2018). The reason underline is 'tariff-jumping theory', which stipulate that foreign firms that seek to serve the local markets may opt for setting up subsidiaries in the host country if it is hard for them to import goods to the country (World Bank, 2018a). Other studies found a positive relationship in FDI-TO nexus, arguing that more open up economies receive more FDI (Hurst, 2011; Kang & Jiang, 2012; Liu et al., 2017; Miniesy & Elish, 2017; Wang & Shao, 2016). Thus, the effect of trade openness on FDI inflows is ambiguous. However, it can be inferred from this result that TO constitutes a significant booster to FDI attraction in West Asia, while the detrimental effect in East & South East region.

With respect to resource seeking motive, among the two types of natural resources mineral richness affect OFDI from China positively in East & South East Asia, and

Table 12. Motivations of China's FDI in high- and middle-income countries.

	High income (RE)	High income (FE)	High income (GMM)	Middle income (RE)	Middle income (FE)	Middle income (GMM)
Market Seeking Variables						
ln (GDP)	1.03*** (6.25)	1.06* (2.03)	1.01*** (6.92)	1.66*** (4.46)	2.78*** (5.89)	0.56** (2.26)
Trade openness	0.01* (1.87)	0.01 (0.18)	0.01* (2.14)	0.02 (0.39)	0.01 (0.11)	0.01 (1.44)
Resource Seeking Variables						
Natural resources	0.12 (1.56)	0.14 (1.02)	−0.19 (−1.46)	0.06*** (2.66)	0.05* (1.98)	0.04** (2.09)
Fuel	0.02 (1.14)	0.01 (0.37)	0.01 (1.26)	0.02* (1.76)	0.01 (0.34)	−0.01 (−0.52)
Efficiency Seeking Variables						
Inflation	−0.02 (−0.32)	0.01 (0.23)	−0.02 (−0.39)	0.04 (1.43)	0.02 (1.14)	0.03 (0.80)
Primary education	−0.01 (−0.16)	−0.03 (−0.70)	−0.01 (−0.18)	0.03 (1.10)	0.01 (0.63)	0.08** (2.06)
Control Variables						
ln (infrastructure)	2.70*** (5.63)	2.97** (2.51)	1.69*** (6.17)	0.88*** (3.55)	0.58** (.47)	0.63** (2.03)
Institutional quality	−0.44* (−1.88)	−0.14 (−0.12)	−0.41** (−2.06)	−0.63* (−1.73)	−0.36* (−1.98)	−0.73 (−0.85)
Exchange rate	0.02 (1.47)	0.001 (0.11)	0.02* (1.66)	0.02* (1.65)	0.03** (2.80)	0.01 (0.55)
Constant	−28.14*** (−3.18)	−31.51 (−1.03)	−20.19*** (−3.51)	−38.43*** (−5.02)	−63.42*** (−6.61)	−17.38*** (−2.88)
R^2	0.80	0.78	–	0.41	0.28	–
Wald Chi^2	184.82	–		191.73	–	
Prob > Chi^2	0.00	–		0.00	–	
F-value	–	341.94		–	36.08	
Prob > F	–	0.00		–	0.00	
Hansan test (p-value)			1.00			1.00
AR(2) test (p-value)			0.94			0.59

*$p < 0.10$; ** $p < 0.05$; *** $p < 0.001$. (z-values and t-ratios are in parentheses).

Table 13. Motivations of China's FDI in South East Asia and West Asia.

	West Asia (RE)	West Asia (FE)	West Asia (GMM)	East & South East Asia (RE)	East & South East Asia (FE)	East & South East Asia (GMM)
Market Seeking Variables						
ln (GDP)	1.65*** (5.22)	2.41*** (4.24)	0.87*** (3.72)	0.62* (1.77)	2.06*** (5.77)	0.52* (1.93)
Trade openness	0.02** (1.80)	0.01* (1.67)	0.03*** (4.49)	−0.01 (−0.72)	−0.01* (−2.06)	0.02 (0.78)
Resource Seeking Variables						
Natural resources	0.07 (1.11)	0.03 (0.38)	−0.22 (−1.29)	0.05*** (2.60)	0.03* (1.66)	0.09*** (2.83)
Fuel	(0.01) (0.59)	−0.01 (−0.68)	−0.01 (−0.47)	−0.02 (−1.21)	−0.05 (−1.56)	−0.02 (−1.32)
Efficiency Seeking Variables						
Inflation	0.03* (1.93)	0.03 (1.61)	0.07*** (3.24)	−0.01 (−0.11)	−0.01 (−0.19)	−0.11 (−0.13)
Primary education	0.05 (1.51)	0.05* (1.85)	0.01 (0.17)	0.09** (2.03)	0.03 (0.99)	0.10** (2.22)
Control Variables						
Ln (infrastructure)	0.88*** (2.77)	0.82* (1.93)	0.91*** (3.28)	0.93*** (3.20)	0.48* (1.97)	0.83*** (3.50)
Institutional quality	−1.02*** (−2.85)	−0.56 (0.64)	−0.94*** (−2.58)	−0.77** (−2.14)	−0.52* (−1.99)	−0.80*** (−2.71)
Exchange rate	0.01 (1.34)	0.02** (2.72)	0.01 (0.77)	−0.01 (−0.16)	0.04** (2.63)	0.01 (0.22)
Constant	−41.82*** (−5.93)	−59.81*** (−4.40)	−20.28*** (−2.64)	−18.81 (−1.42)	−68.20*** (−6.23)	−8.78 (1.55)
R^2	0.54	0.33		0.59	0.23	
Wald Chi^2	135.13	–		285.22	–	
Prob > Chi^2	0.00	–		0.00	–	
F-value	–	70.47		–	42.44	
Prob > F	–	0.00		–	0.00	
Hansan test (p-value)			1.00			1.00
AR(2) test (p-value)			0.46			0.29

*$p < 0.10$; **$p < 0.05$; ***$p < 0.001$. (z-values and t-ratios are in parentheses).

the results are significant in RE, FE, and GMM methods. One plausible explanation of China's focus on ores and metals and her lack of interest in fuel resources is that China is in economic transformation stage where industrial sector demand for ore and metal in China is growing. In the case of West Asia, against the expectation, fuel resource is not the prime target for OFDI from China. This finding can be justified on the theoretical background known as 'Dutch disease' or 'resource curse'. Countries with substantial oil reserves like, in the Middle East, are least interested in attracting FDI. First because these countries, rich in oil resources, have sufficient funding to finance their domestic projects including the exploration and extraction of natural resources (Rogmans & Ebbers, 2013) and second because most Middle East countries are largely dependent on oil exports, therefore, FDI is discouraged by stipulating complicated ownership requirement in the resource sectors. This theoretical explanation has been supported by the level of observed FDI restrictions, as reported by the World Economic Forum (Rogmans & Ebbers, 2013). We found a hint of the efficiency-seeking motive of OFDI from China in East & South East Asian region, primarily for the variable of human capital (primary education). The control variables exhibit almost similar results as the full sample.

6.6. Robustness checks

6.6.1. Exclusion of outlier from the total sample

In order to verify the consistency of the results, we conduct a set of robustness tests. First, we used FDI stock, instead of FDI flow, to measure the response variable. Unlike the FDI flow, FDI stock at a particular year could be highly dependent on the FDI stock at the previous year. The problem of endogeneity might not be the major concern given that China's FDI in Asian host countries is still insignificant in affecting the independent variables. However, we have run system GMM to check the robustness of results and discussed in the next section. Second, Hong Kong has recorded as the largest destination for OFDI from China. To consider the distorting impact played by OFDI from China to Hong Kong as an outlier, we excluded China's FDI to Hong Kong in our preliminary model tasting. Our empirical results can still hold when Hong Kong is excluded from our sample. The exclusion is made to control for the biases in the Asian region as the bulk of investment carried out between this location and mainland China. Further, to control for the practice of 'round-tripping' argument about China's outward FDI, the exclusion of Hong Kong from the main sample is meaningful. Due to the concealment of such investment activity, it is extremely hard to unravel the nature and ultimate destination of FDI flows (Cheng & Ma, 2010; Morck et al., 2008; Yang, Wang, Wang, & Yeh, 2018). Such type of investment ventures certainly differs from conventional types of FDI activities and pose a serious challenge to evaluate motives when performing an empirical analysis of OFDI from China (Kolstad & Wiig, 2012).

6.6.2. Endogeneity issue

We are thankful to the anonymous reviewers for highlighting the potential issue of endogeneity in the model. Market size, trade openness, institutional quality, natural

resource exports and policy factors, i.e., inflation & exchange rate of the host countries could influence the location choice of OFDI from China. Conversely, these factors may also be affected by the influx of China's OFDI. For example, the inflow of capital would stimulate economic growth and improve the infrastructural facility and even the institutional environment of the host country, such that the resource-seeking FDI would increase the export of resources from the host country. This reverse causal relationship can create a potential problem of endogeneity in our investment model.

As a robustness check and to tackle the problem of endogeneity, reverse causality and omitted variable bias we have adopted the dynamic System GMM (SGMM) model, developed by Arellano and Bover (1995) and Blundell and Bond (1998). The SGMM can account for reverse causality by producing valid instruments under the postulation that the past period shocks in independent variables can affect the present values of dependent variables, but the present values of independent variables cannot affect the past values of the dependent variables. Further, SGMM with the exogeneity assumption suggests that any correlation between endogenous variables and unobserved fixed effects are constant over time and can be eliminated through the lagged difference equation; thus it allows for the inclusion of both the level equation and difference equation. The lagged ones of the independent variables are used as instruments in the difference equation and lagged ones of the difference of independent variables are used as instruments in the level equation, which can avoid the problem of the weak instrument in difference GMM model by only using the lagged ones as instruments in IV-GMM model. We run the SGMM regressions on the full sample, income, and region-wise and the results are reported in Tables 11–13, respectively. To a great extent, the results obtained from SGMM estimation confirm the static models' results. So we believe these results are robust.

7. Conclusions

Asia is a heterogeneous region, and the countries in this region have diverse characteristics in several aspects. The present study attempts to enrich existing literature by investigating the motivations of China's outward FDI by taking a large sample of 30 Asian countries and further extending the study to the regional and income level. The empirical analyses were conducted over the period 2003–2016 by using the random effect with cluster standard errors. To check the robustness, fixed effect and SGMM techniques have also been employed. In the case of the entire sample, the findings of the paper provide evidence of both market and natural resource (mineral richness) seeking motives of OFDI from China. Notwithstanding, our study provides slightly diverse and useful insights when we conducted the analysis on the basis of high and middle-income countries; and for two sub-regions (East & South East Asia and West Asia). GDP is positive and significant in both REs and FEs estimation for high and middle-income countries. Thus, market seeking motive is mainly realised by facilitating host Asian countries. Among two types of natural resources, ores and metals yield a positive and significant result for middle-income countries, while it is insignificant for high-income countries. Thus, Chinese firms targeted middle-income economies to acquire non-fuel natural resources. Pertaining to the sub-regional study,

the results show that across all regression models, GDP is positive and significant determinant, depicting marketing seeking FDI by Chinese firms. To account for resource-seeking motive, among the two types of natural resources, mineral richness affects OFDI from China positively in East & South East Asia, and the results are significant in static and dynamic models of estimation. One plausible explanation of China's focus on ores and metals and her lack of interest in fuel resources is that China is in economic transformation stage where industrial sector demand for ore and metal in China is growing. In the case of West Asia, against the expectation, fuel resource is not the prime target for OFDI from China. This finding can be justified on the theoretical background known as 'Dutch disease' or 'resource curse'.

Among the other variables pertinent to the study, infrastructural development is a key variable to lure OFDI from China in the entire set of analysis. Institutional environment affected OFDI from China negatively and yielded a significant result in the whole sample estimations, and similar results were observed in the case of middle-income countries and the East & South East region. It is imminent that OFDI from China to some extent, takes into consideration a certain region and income level of countries to perform investment venture. The results confirmed the presence of regional and income group heterogeneity in China's FDI influx.

Notes

1. International Monetary Fund (IMF) list includes forty-six countries/regions as offshore financial centers: Bahrain, Andorra, Aruba, Hong Kong Special Administrative Region (SAR), Belize, Anguilla, Grenada, Ireland, Bermuda, Antigua and Barbuda, Lebanon, Luxembourg, Cayman Islands, Bahamas, Malaysia (Labuan), Malta, Cyprus, Barbados, Marshall Islands, Switzerland, Gibraltar, British Virgin Islands, Nauru, Guernsey, Cook Islands, Turks and Caicos Islands, Isle of Man, Costa Rica, Jersey, Dominica, Macao SAR, Liechtenstein, Mauritius, The Netherlands Antilles, Monaco, Niue, Montserrat, Palau, Samoa, Panama, Seychelles, St. Kitts and Nevis, Singapore, St. Lucia, St. Vincent and the Grenadines, and Vanuatu.
2. Here effects on China's FDI are on the basis of currency appreciation in host countries.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This article is funded by Chinese Postdoctoral Fund, China (Grant no. 2018M642733).

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Appendix 1. All 30 countries from Asia included in the analysis.

Country	Region	Income group	Country	Region	Income group
Bahrain	West Asia	High income	Malaysia	East & Southeast Asia	Middle income
Bangladesh	South Asia	Middle income	Mongolia	East & Southeast Asia	Middle income
Brunei	East & Southeast Asia	High income	Oman	West Asia	High income
Cambodia	East & Southeast Asia	Middle income	Pakistan	South Asia	Middle income
India	South Asia	Middle income	Philippines	East & Southeast Asia	Middle income
Indonesia	East & Southeast Asia	Middle income	Qatar	West Asia	High income
Iran	West Asia	Middle income	Saudi Arabia	West Asia	High income
Iraq	West Asia	Middle income	South Korea	East & Southeast Asia	High income
Israel	West Asia	High income	Sri Lanka	South Asia	Middle income
Japan	East & Southeast Asia	High income	Thailand	East & Southeast Asia	Middle income
Jordan	West Asia	Middle income	Turkey	Central Asia/West Asia	Middle income
Kazakhstan	Central Asia	Middle income	UAE	West Asia	High income
Kuwait	West Asia	High income	Uzbekistan	Central Asia	Middle income
Kyrgyz Republic	Central Asia	Middle income	Vietnam	East & Southeast Asia	Middle income
Lebanon	West Asia	Middle income	Yemen	West Asia	Middle income

Source: UNCTAD for the regional division, World Bank for income classification.