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Investigating Chinese Outward Foreign Direct Investments: How Can Firm-level Data Help?

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Abstract

The empirical literature on China's outward foreign direct investment mainly relies on aggregate data from official statistics, but the reliability of such data is currently a matter of concern because it does not take account of relevant features such as industry breakdown, ownership structure and entry mode. A novel firm-level database, EMENDATA, compiled by matching data from several available sources on various types of cross-border deals and including information on group structure, provides a more accurate picture and enables new empirical analyses of the rapidly increasing presence of Chinese companies abroad. Based on this database, this paper offers a more precise assessment of the geographical and sector specialization patterns of Chinese outward foreign direct investment into Europe and suggests new avenues for future research.

Key words: China, firm-level data, foreign direct investment, multinational enterprise

JEL codes: F21, F23

I. Introduction

The literature on the outward expansion of Chinese firms has grown rapidly over the past decade, with mixed and often contradictory results. Most of the existing studies are based on aggregate official foreign direct investment (FDI) data from the Chinese Ministry of Commerce (MOFCOM) (among others, see Buckely *et al*., 2007; Kolstad and Wiig, 2012) or

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on case studies on individual firms (Zhang and Filippov, 2009; Zhang *et al*., 2010). Despite recent improvements, a number of concerns remain about the reliability of FDI data from MOFCOM and their comparability with international data sources. Moreover, official FDI data do not allow disaggregated and detailed investigation of the internationalization strategies of Chinese multinational companies in terms of their preferred mode of entry, their main sectors and target countries. On the contrary, internationalization strategies are the focus of a number of case studies, many of them on already well-known companies, providing very useful anecdotal evidence but limited scope for generalization (e.g. Fan *et al*., 2012).

Addressing these limitations, some recent empirical studies focus either on greenfield FDI (De Beule and van de Bulcke, 2012; Amighini and Franco, 2013; Amighini *et al*., 2013a,b) or on mergers and acquisitions (M&A) (Bhabra and Huang, 2013). In the present paper, we overcome these limitations by relying on a novel proprietary database, the Emerging Multinationals' Events and Networks DATAbase (EMENDATA), which includes greenfield investments, M&A and other minority investments. The data are based on company information gathered from various sources: the Financial Times Group 's fDi Markets, Bureau van Dijk's (BvD) Zephyr and Thomson Reuter's SDC Platinum. In EMENDATA, each cross-border deal is associated with information available in BvD 's Orbis on the investing company and the group to which the firm belongs based on its global ultimate owner (GUO). This allows the examination of the foreign expansion strategies of Chinese multinationals and their groups over time through multi-level analyses: (i) at deal level to investigate the distribution across sectors, business activity, and countries distinguished by deal type; (ii) at company level and, more especially, group level, to map foreign expansion and corporate strategies; and (iii) at country and regional levels to examine the location choices broken down by sector and deal type.

The contribution of the present paper to the literature on Chinese outward FDI (OFDI) is twofold. On the one hand, we argue that the mixed findings on Chinese MNEs ' internationalization strategies in the current literature are largely influenced by the underlying data sources, while many results appear less contradictory when relying on more detailed and accurate data. On the other hand, we introduce a new database with the aim of opening up a research agenda to expand our knowledge of such a rapidly increasing phenomenon.

The rest of the paper is organized as follows. Section II discusses some shortcomings of FDI official statistics and reviews the empirical literature on the outward expansion of Chinese firms, focusing on the different data sources and the implications of their use on empirical findings. Section III describes EMENDATA and provides an overview of its contents. Section IV suggests some avenues for future empirical analyses at the group level enabled by EMENDATA. Section V concludes.

II. Chinese Outward Foreign Direct Investment: Data Sources and Empirical Findings

1. Official Statistics on Chinese Outward Foreign Direct Investment: A Methodological Note

In China, two main agencies collect FDI data: the State Administration of Foreign Exchange (SAFE) and MOFCOM. SAFE collects annual balance of payments (BoP) data, providing an aggregate picture of China's international investment position, without a sectoral or geographic disaggregation.[1] FDI flows recorded by BoP statistics include: (i) equity capital transactions (i.e. purchases and sales by parent companies of the shares of subsidiaries registered in foreign countries); (ii) reinvested earnings, which are foreign affiliates' earnings that are neither distributed as dividends by affiliates nor remitted to the parent, but reinvested; and (iii) intra-company debt transactions, which are short-term and long-term borrowing and lending funds between the parent and its affiliates. In the BoP, FDI are cross-border flows of financial funds measured as the difference between the transfers from parent to foreign subsidiary and those from foreign affiliate to parent firm. Thus, FDI data based on official statistics can be positive or negative figures, but with a major limitation because a negative figure could be wrongly understood as a reduction in multinational activity (Beugelsdijk *et al*., 2010)

Foreign direct investment data provided by MOFCOM include only officially approved investments. Despite recent data improvements and the formal commitment by MOFCOM to comply with international standards, there are still some concerns about the reliability of official Chinese FDI data.[2] There is broad consensus among researchers that some problems of underestimation might arise for a number of reasons. First, reinvested earnings and intra-company loans are not officially recorded by MOFCOM (Buckley *et al.*, 2008; OECD, 2008). Second, at least for the period 2002–2005, they do not include FDI from financial institutions, whose approval procedure was not under the control of MOFCOM.[3] Third, given that

[1]A notable exception are the 1991–2001 data (a period when SAFE published a project-level database), which include information on the foreign exchange amount approved for each investment, as well as information on geographic destination and sector (see Buckley *et al.*, 2007 for a short description of these data). Unfortunately, this information has not been available since 2001 (Buckley *et al*., 2008).

[2]A statistical system consistent with international standards was established in 2002, and from 2003, MOFCOM (in collaboration with SAFE) began to publish official statistics on Chinese outward FDI in the annual *Statistical Bulletin of China's Outward Foreign Direct Investment* .

[3]In 2006, when financial data started to be recorded, they represented 20 percent of total flows.

MOFCOM data are based on information recorded during the approval process rather than through surveys (mandatory by international standards), underreporting is common practice, especially among private firms that are treated differently depending on the specific regional regulations (Davies, 2013) and which can often avoid attaining formal approval (OECD, 2008; Rosen and Hanemann, 2009).[4] Fourth, MOFCOM data are also strongly affected by the practice of round-tripping; that is, the channeling of large investment outflows through tax havens, establishing special purpose entities, and reinvesting in China or in third countries (Sutherland and Ning, 2011). This is the result of a common practice among firms to register only the first destination of their investments, which results in overestimation of some transit locations with respect to the final destinations. According to the official data, up to 2011, approximately 74 percent of total Chinese mainland OFDI stock went to Hong Kong SAR, the Cayman Islands and the Virgin Islands, with figures for the final location generally undisclosed (MOFCOM, 2012). Finally, Chinese statistics do not follow the International Standard Industry Classification system, but are based on a domestic classification, which prevents detailed international comparisons (OECD, 2008).

There have been some recent attempts to estimate differences between official Chinese statistics with disaggregated data from alternative sources. First, differences in the recorded amount of flows are significant when comparing Chinese OFDI based on MOFCOM data, with inward FDI recorded by the host countries. For OECD countries, this difference has been estimated at approximately 40 percent of the total value (OECD, 2008), and this large difference is confirmed by Eurostat data (Hanemann and Rosen, 2012). Second, the geographic distribution of Chinese FDI is different from the distribution according to MOFCOM data. A new database published by the Heritage Foundation,[5] which records transactions (of more than US$100m) at firm level, shows that when financial centers such as Hong Kong are not counted as the final targets of investments, OECD countries, such as Australia, the USA, Canada and the UK, attract the bulk of Chinese flows.

Finally, and in addition to the problems described above, official Chinese FDI data do not allow disaggregated and detailed investigation of the international strategies of multinational enterprises (MNE), taking into account that they can engage in cross-border

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[4]Extreme bureaucracy and detailed screenings are two major reasons why private firms try to escape the approval process. Recent reforms to MOFCOM's approval system have simplified the approval process, raising the threshold for examination and approval to apply only to large investments (US$10m to US$100m). For a detailed review of the investment policies in the context of Chinese OFDI, see Bernarsconi-Osterwalder *et al.* (2012).

[5]A description of the dataset is available from: http://www.heritage.org/research/projects/china-global-investment-tracker-interactive-map.

activities: (i) by establishing a fully-owned subsidiary (greenfield FDI); (ii) by merging with a foreign firm (merger); (iii) by acquiring a share of a foreign firm (acquisition and minority investment); or (iv) by entering a joint venture with a foreign firm.

2. Literature on Chinese Outward Foreign Direct Investment

In what follows we review the empirical literature on Chinese FDI, focusing on the different data sources utilized, and highlight how they influence the empirical findings.

A large part of the empirical literature on Chinese FDI aims at investigating the relative importance of the traditional motivations for overseas investment flows. Most of these studies are based on MOFCOM approved investments, which, as explained above, suffer from several biases.[6] A common finding from these studies is that Chinese FDI are attracted mainly by the size of the host market, and the opportunity to access natural resources (Buckley *et al.*, 2007; Kolstad and Wiig, 2012). A peculiar result is that Chinese investments are indifferent to economic (Buckley *et al.*, 2007) and political instability, especially in resource-rich countries (Kolstad and Wiig, 2012). Their location is also influenced by cultural proximity and geographic and psychic distance (Chou *et al.*, 2011; Blomkvist and Drogendijk, 2013). The empirical studies mentioned do not find empirical support for the strategic asset-seeking objective highlighted in the *Go Global* strategy promoted by the Chinese Government (Deng, 2009). In qualitative case studies focused on Chinese FDI in Europe the intention to access strategic resources is, instead, a core motivation (Zhang and Filippov, 2009; Pietrobelli *et al.*, 2011; Giuliani *et al.*, 2014).

In light of the various concerns over the reliability of Chinese official statistics, a number of recent analyses at firm and deal level have attempted to refine the existing results on the determinants of Chinese OFDI. Liao and Tsui (2012) use the Heritage Foundation database and show that factors related to (cultural and geographic) proximity lose their explanatory power because of the exclusion from the analysis of financial centers such as Hong Kong, while risk averseness and bad governance become not significant because of the increased weight of advanced countries as FDI recipients compared to lower income destinations.

In two papers using data on greenfield FDI provided by fDi Markets, Amighini *et al.* (2013a,b) show that the findings in the extant literature are likely to be strongly affected by both the sectoral allocation of investments and the ownership structure of the investors. Amighini *et al.* (2013a) find that the asset-seeking motivation is statistically significant when the recipients are high-income countries and the investment is in the manufacturing

[6]Two exceptions are Buckley *et al.* (2007) and (2008), which use SAFE data for the period 1991–2001 (see footnote 1).

industry. They also show that manufacturing FDI is more likely in countries with a large market size, while investments in resource-intensive sectors are more often located in countries with low levels of GDP. Taking into account the ownership structure of the investing companies, Amighini *et al.* (2013b) shed some light on the indifference of Chinese investors to political risky countries, finding that only state-owned enterprises, which are backed by the government, are relatively indifferent to investing in politically weak countries, especially those with large resource endowments (Ramasamy *et al*., 2012 and Duanmu, 2012 find similar results for smaller groups of Chinese firms). Instead, Chinese private MNE are more likely to undertake internationalization following traditional approaches, including maximization of profits and exploitation of their competitive advantages (Lu *et al.*, 2011 and Liang *et al*., 2012, based on two ad-hoc surveys of private companies, find similar results).

Firm-level analyses provide more information on Chinese MNE entry modes, often investigated only in case study-based analyses (see e.g. Zhang *et al*., 2010). An original survey of a sample of Chinese firms, selected among those with investments registered with MOFCOM, shows that wholly-owned subsidiaries are preferred if the investment is aimed at strategic asset seeking (Cui and Jiang, 2009).

The existing literature would seem to confirm that data limitations have reduced the scope for analyzing Chinese FDI. Although some more recent work based on firm-level information provides insights on the motivations and location choices of Chinese MNEs, further research is needed on issues related to firm organization.

III. Analyzing Chinese Outward Foreign Direct Investment With Firm-level Data

1. The EMENDATA Database

The main data sources for bilateral FDI with a worldwide coverage are: fDi Markets, providing information on greenfield investments (i.e. new wholly-owned subsidiaries) from 2003; Zephyr (by Bureau van Dijk); and Thomson Reuters ' SDC Platinum, which provide data on M&A and other minority investments (see the Appendix for a detailed description of these databases). These data sources are used extensively in the literature to investigate the international activities of both emerging and advanced multinationals, but so far they have been used separately (among others, see De Beule and van de Bulcke, 2012; Amighini and Franco, 2013; Amighini *et al*., 2013a,b).

As a matter of fact, the data from these sources are not directly comparable, as they

differ in the way they are built: fDi Markets is an event-based or deal-based database, reporting each investment deal through which a wholly-owned subsidiary is established at a certain date by an investing firm, while Bureau van Dijk's Zephyr and Thomson Reuters' SDC Platinum are firm-level databases reporting the ownership relationships between any parent firm and its affiliates and subsidiaries.

EMENDATA is a major accomplishment in terms of harmonization, and makes these three data sources comparable. EMENDATA includes all cross-border greenfield investments, M&A and minority investments (corresponding to a share lower than 50 percent) from MNE in emerging countries[7] between 2003 and 2011.[8] It should be noted that using 2003 as the first year for the database does not constitute a major limitation for the purpose of researching the outward expansion of Chinese firms because the international expansion of Chinese companies only boomed in the early 2000s, promoted by the *Go Global* policy (Buckley *et al*., 2008).

EMENDATA provides information at the level of the individual deal, the investing company and the GUO. The main deal-level information includes: (i) entry mode; (ii) sector of specialization of the investing company and of the subsidiaries; (iii) activities undertaken by the subsidiaries; (iv) location of the subsidiaries; and (v) number of jobs created.

It is also worth stressing that the number of deals is a more appropriate unit of analysis than the value of the investment when investigating the location strategies of multinationals and their investment motivations because the choice of a specific country and the motivation of the investment might be largely independent of the amount of capital invested. Moreover, the investment size varies widely across sectors, with resource-intensive sectors showing higher average investment size than consumer goods sectors or services. This is the main reason why several empirical studies have chosen the number of deals (and not the investment size) as their unit of analysis (among others, see Ramasamy *et al*., 2012; Crescenzi *et al*., 2013; Amighini and Franco, 2013; Amighini *et al*., 2013a).[9]

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[7]There is no official definition of an emerging country. EMENDATA includes all countries in the lower and upper middle-income groups according to the World Bank classification.

[8]EMENDATA includes all investments registered as completed deals. Rumors are monitored and reported as such until they eventually end up in a deal, or are otherwise discarded from the database.

[9]There is an additional reason for this choice, which is methodological. Even if the databases provide information on the value of the investment, in most of the cases this is based on the announced level rather than the actual (i.e. the realized) level. In addition, at least for greenfield investments, the value reported is often obtained through an estimation (see Amighini *et al.*, 2013b for a discussion on this matter).

An innovative feature of EMENDATA is that all the deals included are linked to firm-level (both investor and target companies) as well as group-level identifiers, which allows grouping and analysis of all the deals undertaken by the same GUO. Such coding procedure allows linking to the three original data sources (fDi Markets, Zephyr and SDC Platinum) further firm-level information, such as the ownership structure, the location of domestic and foreign subsidiaries, the sector of economic activity, the consolidated and unconsolidated balance indicators, some firm size variables, the names and types of shareholders and the patenting activity. All these additional variables have been sourced from the database Orbis, published by Bureau van Dijk. Other sources of information on GUO that can be linked to the information in EMENDATA include the FT Emerging 500, the Fortune Global 500 and the EU Industrial R&D Investment Scoreboard.

EMENDATA also allows analysis of the interplay between different dimensions; namely, at the level of deal, investing firm, group, sector, home and host country. [10] Specifically, at the deal level, it allows investigation of the distribution of investments across sectors, business activities and countries, distinguishing by deal type, company and group. Moreover, it enables mapping of the foreign expansion strategies of firms and groups in a more comprehensive way compared to what could be done previously with non-comparable data on different types of foreign activities, and at country and regional levels it allows examination of the location choices disaggregated by sector and deal type. The following subsection shows a detailed and comprehensive analysis of the multinational activity of Chinese companies across various dimensions, while Section IV provides a more in-depth exploration of the potential for analyses at the group level.

2. Overview of Chinese Foreign Direct Investment Based on EMENDATA

EMENDATA includes 3020 deals by Chinese individual companies, [11] of which 2092 are greenfield investments, 623 M&A, and 305 minority investments. [12] Deal-level information allows identification of the location of both the acquirer and the ultimate owner and whether

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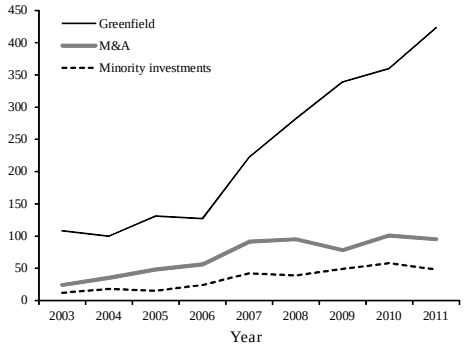
[10]For a recent example of work using EMENDATA, see Piscitello *et al.* (2014).

[11]A very careful manual cleaning of the deals was undertaken in collaboration with Chinese partners in order to exclude deals undertaken by investors other than companies, such as sovereign funds, individual investors and investors who could not be identified.

[12]The source of information on M&A and minority investments is SDC Platinum, which includes 928 deals from China (compared to 816 deals included in Zephyr). For the group of Chinese FDI in EU27 (see Table 5), both SDC Platinum and Zephyr are taken into account as the two data sources are largely but not totally overlapping. We plan to extend the integration of these two sources for all the deals.

Figure 1. Number of Chinese Foreign Direct Investments by Deal Type (2003–2011)



Source: EMENDATA.

a transit through a fiscal haven is involved, which also allows assessment of the relative importance of fiscal havens as location choices. We have also checked whether all deals originating from fiscal havens can ultimately be attributed to a Chinese group and, therefore, can be appropriately considered as actual Chinese investments. Based on this, we have added some additional deals to those originally included in EMENDATA.

Figure 1 presents the number of deals, distinguishing between the different modes of entry. All the different types of deals have increased in the time span included in EMENDATA, with the number of greenfield investments showing the most dramatic increased since 2006, and M&A and minority investments displaying a slower growth rate. These trends can be explained by the recent effort to extend the provisions of the *Go Global* policy to private firms (Luo *et al.*, 2010) whose internationalization strategies are largely undertaken by means of wholly-owned subsidiaries rather than M&A.

Table 1 presents the geographic distribution of Chinese investments. The main destination is Asia, with 1166 deals, corresponding to almost 40 percent of all deals, followed closely by Europe. This is different from the distribution suggested by official data, which shows Asia accounting for 71 percent of the total stock of Chinese FDI, and North America and Europe together receiving slightly over 10 percent. It is interesting that Latin America, according to MOFCOM statistics, accounts for over 15 percent of the total stock of Chinese FDI (MOFCOM, 2012), a much higher figure than suggested by EMENDATA. This can be explained by the presence of fiscal havens located in the region (i.e. the Cayman Islands and the Virgin Islands) which are more accurately handled in EMENDATA. When distinguishing by types of deals, Asia is the main destination for M&A, followed by North America, and Europe is the first destination for greenfield

Table 1. Chinese Foreign Direct Investments by Target Regions (Number of Deals: 2003–2011)

Area	Greenfield	M&A	Minority investments	Total	Percentage of total
Asia	742	300	124	1166	38.6
Hong Kong	108	174	65	347	11.5
Europe	797	97	27	921	30.5
EU27	670	84	23	777	25.7
Germany	268	19	4	291	9.6
Northern and Central America	247	165	56	468	15.5
USA	186	92	24	302	10.0
Africa	135	10	8	153	5.1
Latin America	112	10	13	135	4.8
Oceania	59	41	77	177	5.9
Total	2092	623	305	3020	100

Source: EMENDATA.

Note: M&A, mergers and acquisitions.

investments, closely followed by Asia.

Table 2 lists the top 10 recipient countries based on EMENDATA and compares them with the top recipients in the official statistics (MOFCOM, 2012), recalling that the units of

Table 2. Top 10 Target Economies for Chinese Foreign Direct Investments

EMENDATA						MOFCOM	
Destination	Percent of number of deals[a]	Destination	Percent of number of greenfield investments	Destination	Percent of number of M&A	Destination	Total stock (%)[b]
Hong Kong	11	Germany	13	Hong Kong	28	Hong Kong	61.6
USA	10	USA	9	USA	15	Virgin Isld.	6.9
Germany	10	Hong Kong	5	Australia	6	Cayman Isld.	5.1
Australia	5	UK	5	Canada	5	Australia	2.6
UK	4	Russia	4	Singapore	5	Singapore	2.5
Singapore	3	India	4	Virgin Island	5	USA	2.1
India	3	Brazil	3	Japan	4	Luxembourg	1.7
Canada	3	Vietnam	3	Germany	3	South Africa	1.0
Russia	3	Singapore	2	UK	3	Russia	0.9
Japan	3	Taiwan	2	Netherlands	2	Canada	0.9
Total #	3020		2092		623	Million US$	74 654

Source: EMENDATA and MOFCOM (2012).

Notes: [a]Total number of greenfield, merger and acquisition (M&A) and minority investments. [b]Share over the total stock at 2011.

analysis are different: total number of deals in EMENDATA and value of the FDI stock in MOFCOM. As already emphasized, the geographical distribution of Chinese FDI based on MOFCOM data is strongly biased in favor of financial centers and fiscal havens, the top three destinations being Hong Kong (61.6 percent of the total), the Virgin Islands (6.9 percent) and the Cayman Islands (5.1 percent). Hong Kong is also the main recipient in EMENDATA, but measured as number of deals it represents only 11 percent of the total, a much lower share compared with the 61.6 percent according to MOFCOM. Among the other countries listed, there are some common destinations, such as Australia, the USA, Singapore, Canada and Russia. EMENDATA also identifies other key recipient countries, such as Germany, the UK, India and Japan. It is interesting that Germany does not appear in MOFCOM as a major recipient of Chinese investments, but is ranked first for greenfield investments in EMENDATA. In fact, Germany receives the largest number of Chinese greenfield investments in Europe, made by privately-owned companies, investments which are often not recorded by MOFCOM, and in many cases of small scale, measured by their value (Hanemann and Rosen, 2012; Giuliani *et al*., 2014).

These differences are not surprising. EMENDATA, with firm-level information, allows the precise identification of the final destination of the investment, considerably reducing the relevance of round-tripping (for transit locations such as Hong Kong and the other fiscal havens), which are the main destinations according to MOFCOM ’s approval system. In addition, our results are highly consistent with other recent attempts to assess the actual geographic distribution of Chinese investments, which show that countries such as the USA, Germany, Australia and Canada account for a larger share than that indicated by MOFCOM.[13]

Based on sector disaggregation,[14] services represent 30 percent of the total number of investments, followed by investments in mining (5 percent) (Table 3). If we consider the modes of entry, manufacturing is the main specialization for greenfield investment (71 percent), and services attracts 55 percent of M&A deals, followed by manufacturing with 35 percent.

Table 4 combines a geographical and sector breakdown for each type of deal. Europe, and especially the EU27, is the top destination for greenfield FDI in manufacturing,

[13]For a comparison, see, for instance, the China Global Investment Tracker by the Heritage Foundation, or the China Investment Monitor by the Rhodium Group.

[14]In the remainder of this section we focus only on greenfield and M&A, which represent the two main modes of entry of Chinese companies in foreign markets.

Table 3. Chinese Foreign Direct Investment by Sector (Number and Percent)

Sector	Greenfield	Percent	M&A	Percent
Agriculture	0	0	6	1
Construction	43	2	4	1
Extraction	90	4	54	9
Manufacturing	1488	71	219	35
Services	471	23	340	55
Total	2.092	100	623	100

Source: EMENDATA.
Note: M&A, mergers and acquisitions.

Table 4. Chinese Foreign Direct Investment by Destination, Sector and Deal Type (Number and Percent)

	Greenfield						M&A					
Destination	Extraction		Manufacturing		Services		Extraction		Manufacturing		Services	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Asia	50	55.6	453	30.4	226	48.0	15	27.8	81	37.0	196	57.6
Hong Kong	2	2.2	38	2.6	68	14.4	5	9.3	38	17.4	129	37.9
Europe	8	8.9	628	42.2	142	30.1	8	14.8	63	28.8	26	7.6
EU27	5	5.6	535	36.0	118	25.1	6	11.1	59	26.9	19	5.6
Germany	2	2.2	227	15.3	36	7.6	1	1.9	15	6.8	3	0.9
Northern Central America	6	6.7	185	12.4	56	11.9	11	20.4	61	27.9	91	26.8
USA	2	2.2	143	9.6	41	8.7	5	9.3	35	16.0	52	15.3
Africa	19	21.0	93	6.3	12	2.5	3	5.6	1	0.4	6	1.8
Latin America	5	5.6	91	6.1	16	3.4	5	9.3	5	2.3	0	0.0
Oceania	2	2.2	38	2.6	19	4.1	12	22.1	8	3.6	21	6.2
Total	90	100	1488	100	471	100	54	100	219	100	340	100

Source: EMENDATA.
Note: M&A, mergers and acquisitions.

with 42.2 percent of the total number of greenfield investments, followed by Asia with 30.4 percent, which is the favorite destination for greenfield FDI in services, with 48 percent. In relation to M&A, in services, 57.6 percent of M&A are in Asia, with a very high share in Chinese Hong Kong, followed by the USA.

From this descriptive analysis, it is clear that an empirical investigation about FDI based on a comprehensive database such as EMENDATA provides a clear picture of

China's internationalization strategy since the early 2000s, and offers some new insights compared to the official statistics.

IV. From Firm-level to Group-level Analysis

Although it is widely acknowledged that a large part of world economic activity and trade is accounted for by business groups, that is, groups of legally separated firms linked through ownership relationships (see e.g. Altomonte *et al*., 2012; BEA, 2012), most studies look at the international expansion of emerging market firms taking the individual investing firms as the unit of analysis. Multinationals can be considered a particular type of business group and their internationalization strategies should be analyzed taking into account that individual firms are embedded in networks of ownership relationships with other firms within complex organizational forms.

So far, the lack of a comprehensive database at the deal level has limited in-depth research into the multinational strategies of Chinese companies. In EMENDATA, Chinese firms that are involved in more than one deal undertake 46 percent of total Chinese investments.[15] Therefore, group-level analysis based on EMENDATA allows for "comparative institutional analysis at the level of the economic transaction, incorporating variation both in the content of that transaction and in the structure of the institutional environment" (Henisz, 2000, p. 361). Assuming as a working hypothesis that different degrees of decision-making power apply to different layers of ownership, each single investment cannot be analyzed separately from deals undertaken by other firms in the same business group.

Table 5 lists the top 10 business groups ranked according to the number of deals undertaken between 2003 and 2011, exemplifying FDI activity among the main Chinese business groups based on EMENDATA information. We observe that the most common mode of entry, regardless of the sector of specialization, is through the establishment of new activities (greenfield). Only one group, ChemChina, has also been involved in a

[15]This is an underestimation of multiple-deal companies because it includes only those undertaking more than 1 investment in an EU27 country. Although beyond the scope of this paper, EMENDATA also includes information on domestic deals and, according to our database, Chinese groups appear quite active in the domestic market, accounting for 87.5 percent of total M&A and 91 percent of the minority investments.

Table 5. Top 10 Chinese Groups Investing in EU27 by Deal Type (2003–2011)

	Total number of deals	Greenfield	M&A
Huawei Technologies	52	52	0
ZTE	24	24	0
China National Chemical (ChemChina)	22	13	9
Industrial and Commercial Bank of China (ICBC)	15	15	0
Shanghai Automotive Industry Corporation (SAIC)	11	8	3
Suntech Power Holdings	10	9	1
Bank of China	8	8	0
YingKe	8	8	0
Chint Group	7	7	0
Lenovo	6	6	0

Source: EMENDATA.
Note: M&A, mergers and acquisitions.

significant number of acquisitions.

In relation to the top five groups[16] for number of deals, Table 6 shows the main destinations of their investments in the EU27. The UK attracts the highest number of investments from the top five Chinese business groups and also most of their acquisitions. Although the internationalization strategies of all the business groups are quite diverse with regard to their geographical distribution, Huawei, Suntech and ZTE have a broader geographical scope than SAIC, whose main investment destination is the UK, plus 1

Table 6. Total Number of Deals by the Top Five Chinese Groups in the EU27 Countries

	Huawei	ChemChina	ZTE	SAIC	Suntech
UK	5	4 (3)	2	9 (3)	1
France	5	11 (3)	4		1
Germany	6		6	1	2
Spain	4	4 (1)	1		1
Italy	7	1		1	3
Hungary	7				
Romania	4		3		
Netherlands	3		1		
Belgium	2	(2)			
Sweden	3		2		
Other countries	6		5		1

Source: EMENDATA.
Note: Number of acquisitions is in parentheses.

[16]From the top five groups, we exclude ICBC, a commercial bank that is involved only in financial services, and include Suntech Power, a manufacturing company specializing in alternative energies.

Table 7. Number of Greenfield Investments by the Top Five Chinese Groups in the EU27 Countries by Business Activity (Number)

Industry activity	Huawei	ChemChina	ZTE	SAIC	Suntech	ZTE
Customer contact center	3					
Design, development and testing	14	1	5	3		5
Education and training	2		1			1
Headquarters	5		5		1	5
ICT and Internet infrastructure			1			1
Logistics, distribution and transportation	2					
Manufacturing	2	12	2	2		2
R&D	6		2			2
Retail				3		
Sales, marketing and support	14		7		8	7
Shared services center	1					
Technical support center	3		1			1

Source: EMENDATA.

investment each in Italy and Germany, both countries with a strong tradition in the automotive sector. The main destination for ChemChina is France, where there are 11 investments, including 3 acquisitions; the UK and Spain are also important target countries.

Because business group activities are often characterized by diversification, we have examined the spread of foreign affiliates in Europe according to their sector and business activity (Table 7). There is generally no significant diversification effect related to sector distribution, with the exception of SAIC (which has investments in both the automotive and the financial services sectors). Moreover, well-established telecommunication companies, such as Huawei and ZTE, have approached Europe with a variety of motivations, especially related to the development of skills in high value-added activities such as R&D, design and training, and the intention to serve local markets through dedicated sales and technical support centers. Penetration in local markets seems to be a major motivation for Suntech in the decision to enter Europe.

In addition to describing the deals undertaken by Chinese groups according to their geographical target and spread of activities, the group-level coding in EMENDATA allows research in other directions. The matching data at deal, subsidiary and group level provides insight into the multiple internationalization strategies of Chinese groups. This involves exploiting deal characteristics and analyzing them jointly with the information on parent companies and subsidiaries (e.g. indicators from unconsolidated balances), as well as data on business groups (e.g. indicators from consolidated balances). The literature includes some recent works adopting a business group perspective to analyze issues such as the relationships between the organizational structure and intra-firm production decisions (see e.g. Altomonte and Rungi, 2013 for a large sample of business groups including a few

Chinese groups).

There are three main areas for future research linking work on emerging market multinationals with business group studies. The first deals with measuring the degree of complexity of business groups as hierarchical structures and integrating this information with the spread of different business activities by foreign affiliates (see Table 7) and the motivations for each investment within the same business group. The second and related avenue of research is global value chain analysis (see Crescenzi *et al.*, 2013), to investigate how much and which of the key activities along the chain are internalized within the group. The third is related to investigating how intra-group strategies affect group performance and productivity, to provide empirical evidence on reverse spillovers from investments.

V. Conclusion

Following the rapid international expansion of Chinese firms there has been a surge in the empirical literature exploring their investment patterns and strategies. Investigating the rationale and motivations behind those investments, the characteristics of investing firms, and their impact on both host and home economies is a crucial step towards achieving a sound and comprehensive understanding of national (i.e. investment attraction policies) and multilateral (i.e. international investment agreements) political decisions.

Data reliability is crucial for analyzing Chinese firms' internationalization strategies. So far, information on Chinese FDI has mainly relied on aggregate data from official statistics that despite recent commitments to catch up with international standards still suffer from several shortcomings. Moreover, these data are collected to achieve different objectives from those that inspire international business studies and ignore several factors, including industry breakdowns, ownership structures and modes of entry.

The contribution of this paper to the existing debate is twofold. First, it has provided a systematic analysis of the main methodological drawbacks of MOFCOM data, the implications in terms of misinterpretation of the trends they depict and the partial explanation they provide for the rising role of Chinese FDI. Second, it has introduced a novel firm-level database (EMENDATA) compiled by matching different data on various types of cross-border deals, including information on group structures, which allows new empirical analyses and provides new insight into the rapidly increasing presence of Chinese companies abroad. We show that these data provide a more informative and comprehensive assessment of the geographical and specialization patterns of Chinese OFDI. In particular, we show

that Chinese companies are geographically more widespread than official statistics would suggest, and that the overemphasis on investments in natural resources is mostly due to their higher relative size compared to other sectors, such as manufacturing, which attracts by far the largest number of Chinese investments.

EMENDATA opens up new avenues for empirical research by allowing multilevel analysis of multinational investment patterns and strategies, including (parent and subsidiary) firm, industry and (home and host) country perspectives. In particular, it allows the mapping of investments belonging to the same business group, and the possibility to integrate different research fields, such as multinational strategies, business group formation, value chain analysis, and the links between ownership structure and organization of international production and how they affect group performance and productivity. We plan to exploit the rich information available in EMENDATA in future research.

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Appendix

fDi Markets is a crossborder investment monitor database maintained by Financial Times Business, a specialist division of the Financial Times group. fDi Markets is the only online database tracking crossborder greenfield investments (including joint ventures if they lead to a new physical operation) covering all sectors and countries worldwide, with data collected since 2003. It provides real-time monitoring of investment projects, reporting: the name of investing company and of the parent company, the investment locations, the sectoral specialization, the type of business activity carried out by the foreign subsidiary, the value of the investment (in many cases an estimation of it) and the number of jobs created.

Zephyr is a commercial database by Bureau van Dijk (BvD) containing M&A, joint ventures, initial public offerings, private equity, venture capital deals and investment rumors. It is updated hourly. The information provided includes: the type of deal (e.g. merger, acquisition); the status of the deal (completed or not); the value of the target; and the financial information about the firms involved in the deal, including their country of origin and the other firm activities. Company information is available for the target, the acquirer and the vendor, predominantly sourced from BvD Orbis.

SDC Platinum is a commercial database by Thomson Reuters containing information on M&A, syndicated loans, private equity and project finance. It also provides a database for analyzing investment banking and deal trends, identifying comparable deals, monitoring deal activity, and generating industry-leading league tables and market-share analysis.

The types of deals contained in the three databases are defined as follows:

• Greenfield investments: A foreign direct investment where a parent company starts a new venture in a foreign country by constructing new facilities from the ground up.

• Mergers: Where there is a one-for-one swap of shares in the new company and the deal involves a "merging of equals." If the swap is not on equal terms, the deal is coded as an *acquisition*. In *merger*s the original companies are entered into the deal record as *acquirer* and *target*.

• Acquisitions: Any deal where the acquirer ends up with 50 percent or more of the equity of the target.

• Minority stakes: When the Acquirer purchases a number of shares in the target and the resulting stake is less than 50 percent.

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