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# Does central bank independence matter for the location choices of Chinese firms' foreign investments?

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## ABSTRACT

Based on the eclectic paradigm and institutional theory, we hypothesize that Chinese firms prefer to invest in host countries having a central bank with a level of independence that is comparable to that of the Chinese central bank. Using data of Chinese listed firms from 1999 to 2013, our logit models suggest that all components of central bank independence, namely personnel, policy and financial independence, and priority for price stability, have a significant negative impact on the foreign investment location choices of Chinese firms. The impact of central bank independence on location choices is bigger for non-state-owned enterprises than for state-owned enterprises. The investment location choices of non-state-owned enterprises are negatively associated with the distance between central bank independence in China and that in host countries, while for state-owned enterprises this distance has no effect.

## 1. Introduction

Several studies have analyzed the determinants of outward foreign direct investment (OFDI) by emerging countries (Buckley et al., 2007; Duanmu, 2012; Kolstad and Wiig, 2012). Some focus on economic characteristics of host countries, reporting that multinational enterprises from emerging countries prefer to invest in host countries with large markets and high economic growth (e.g. Duanmu, 2012; Zhang and Daly, 2011). Political risk and institutional quality of host countries have also received much attention. While some studies find that OFDI from emerging countries is insensitive to the political risk in host countries (Quer et al., 2012), others report that OFDI from emerging countries flows more to host countries with a high level of political risk and a low level of institutional quality (Buckley et al., 2007; Ramasamy et al., 2012; Kolstad and Wiig, 2012). This is in contrast with traditional theory which suggests that multinational enterprises prefer investing in countries with a low level of political risk and a high level of institutional quality (Tu et al., 2021). Empirical evidence on OFDI location choices of multinational enterprises from advanced economies provides support for this view (Ahlquist, 2006; Busse and Hefeker, 2007). Some scholars suggest that OFDI location choices of multinationals from emerging

countries is related to the institutional environment in their home country. The experience of operating in an unstable and risky environment in their home country provides multinational enterprises with an advantage in dealing with similar circumstances in the host country. Multinational enterprises of emerging countries may therefore prefer investing in countries with a high level of political risk and a low level of institutional quality (Kang and Jiang, 2012; Morck et al., 2008).

One dimension of institutional quality is central bank independence (CBI), i.e., the extent to which the influence of politicians on monetary policy making is constrained (de Haan et al., 2018). Only two papers have analyzed the role of CBI in attracting foreign direct investment (Agoba et al., 2020; Bodea and Hicks, 2015). These studies conclude that a high level of CBI leads to higher OFDI inflows as CBI may increase the credibility of monetary policy, promote price stability, and signal policy and institutional stability. However, it is uncertain whether this conclusion also holds for multinational firms from emerging countries. In addition, previous studies show that OFDI location choices of state-owned enterprises and non-state-owned enterprises are different (Ramasamy et al., 2012). Another shortcoming of previous studies is that they use an aggregate measure for CBI, thereby neglecting different dimensions of CBI. These research gaps motivated us to study the impact

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of the host country's level of CBI and its different dimensions on OFDI location decision by state-owned enterprises and non-state-owned enterprises from China.

China is a major contributor of OFDI from emerging countries. Since 2003, Chinese OFDI has grown dramatically, notably after the global financial crisis (see Fig. 1). In 2015, China became the world's second largest investor. In 2020, Chinese OFDI even ranks first in the world, highlighting China's position in the global economy (Yang, 2018).<sup>1</sup> It is therefore no surprise that several previous studies on multinational enterprises from emerging countries focus on Chinese firms (Luo and Zhang, 2016; Fung et al., 2020).

We contribute to the literature as follows. First, we extend previous studies by using firm-level data from the largest emerging country and by distinguishing between the behavior of state-owned and non-state-owned enterprises. Second, this is the first study investigating the relationship between CBI and the location choice of foreign investments from China. Not only do we consider the absolute level of CBI in the host country, but we also examine the impact of the distance between CBI in China and in the host country for OFDI location choices. Third, we consider four components of CBI, which allows us to examine which dimensions of CBI impact the OFDI location choices of Chinese multinationals.

Using data of Chinese listed firms from 1999 to 2013, our logit models suggests that all components of central bank independence in the host country, namely personnel, policy and financial independence, and priority for price stability, have a significant negative impact on the foreign investment location choices of Chinese firms. The impact of central bank independence on location choices is bigger for non-state-owned enterprises than for state-owned enterprises. The investment location choices of non-state-owned enterprises are negatively associated with the distance between central bank independence in China and that in host countries, while for state-owned enterprises this distance has no effect. Lastly, when we distinguish between Belt and Road and non-Belt and Road host countries, we find that the level of CBI in the host country matters notably for investing in non-Belt and Road countries.

The rest of the paper is organized as follows. Section 2 reviews the literature on the location choice of Chinese OFDI. Section 3 discusses our hypotheses. Section 4 introduces our method and data, while Section 5 discusses our results. Section 6 provides robustness tests. Finally, Section 7 concludes.

## 2. Literature review

Previous studies on the OFDI location choice of Chinese multinationals can be grouped as follows. A first line of research focuses on the impact of economic factors on the location choices of Chinese firms, including market size, economic growth, bilateral trade, and the abundance of natural resources. With respect to market size, previous studies conclude that Chinese firms prefer investing in large markets because of more promising profit opportunities (Chou et al., 2011; Kolstad and Wiig, 2012; Zhang and Daly, 2011). Similarly, Chinese OFDI is positively correlated with host countries' economic growth (Zhang and Daly, 2011). In addition, some studies demonstrate that Chinese OFDI tends to go to countries that have with a high trade-intensity with China and that have a lot of natural resources (Quer et al., 2012; Zhang and Daly, 2011; Cheung et al., 2012).

A second line of research focuses on the impact of political and institutional factors on the location choices of Chinese firms, including political risk, institutional quality, and political ties with China. Traditional theory suggests that OFDI tends to go to countries with a low level of political risk and a high level of institutional quality (Ahlquist, 2006; Busse and Hefeker, 2007). However, studies on China's OFDI often reach

different conclusions. Some find that a high level of political risk and a low level of institutional quality in the host country hamper Chinese OFDI, which is in line with the traditional theory (Shao, 2020). However, other studies report that Chinese OFDI is insensitive to the host country's political risk and institutional quality (Quer et al., 2012; Cheung and Qian, 2009) or conclude that Chinese OFDI tends to focus on countries with a high level of political risk and a low level of institutional quality (Buckley et al., 2007; Ramasamy et al., 2012; Kolstad and Wiig, 2012).

Scholars have proposed several explanations for Chinese OFDI location choices. First, most Chinese OFDI is government-led and driven by political considerations (Buckley et al., 2007). Investing in countries with a high level of political risk and a low level of institutional quality may strengthen the bargaining power of Chinese governments and enterprises (Buckley et al., 2007). Second, Chinese multinational enterprises have competitive advantages when investing in countries with unstable and risky environments because of their home country experience of operating in such an environment (Kang and Jiang, 2012; Morck et al., 2008). Chinese OFDI has been found to be negatively correlated with the distance between China's institutional quality and that of the host country due to the fact that a smaller institutional distance implies lower adaptation costs for enterprises (Li et al., 2020; Ren and Yang, 2020). Third, Chinese OFDI often comes from state-owned enterprises (Kolstad and Wiig, 2012). As state-owned enterprises have the backing of the government (Cui and Jiang, 2012), they pay less attention to political risk (Duanmu, 2012; Wang et al., 2021), while non-state-owned enterprises tend to avoid political risk (Ramasamy et al., 2012). Finally, some previous studies find that close political ties between China and the host country promote OFDI as exemplified by the "Belt and Road Initiative" and government official visits (Shao, 2020; Yu et al., 2019; Quer et al., 2019).

One dimension of institutional quality that has received limited attention is the level of CBI in the host country. To the best of our knowledge, only two papers have investigated the relationship between CBI and OFDI inflows. Using data of 78 countries over the 1974–2007 period, Bodea and Hicks (2015) find that a high level of CBI in the host country attracts OFDI inflows but does so only in non-OECD democracies where the political institutions are credible. Using data for 48 African countries over the 1970–2012 period, Agoba et al. (2020) conclude that a high level of CBI leads to higher OFDI inflows.

Although these studies suggest that a higher level of CBI may attract OFDI inflows, this may not hold for China. Chinese firms are used to operate in an environment with political interference and a complex bureaucracy and may not be deterred to do business in a similar environment (Buckley et al., 2007; Morck et al., 2008). Furthermore, despite all the reforms during the last few decades, the government still plays an important role in the Chinese economy (Deng, 2004; Kang and Jiang, 2012).

## 3. Theory and hypotheses

### 3.1. Theoretical framework

#### 3.1.1. Eclectic paradigm

According to Dunning's eclectic paradigm, which is also known as the OLI paradigm, firms' OFDI decision is affected by ownership (O), location (L) and internalization (I) advantages (Dunning, 1977). Location advantage refers to host country characteristics, such as factor endowment, market size, exchange rate and tax policy (Dunning, 2006; Stoian and Filippaios, 2008). Both ownership and internalization advantages are firm factors (Kang and Jiang, 2012). Specifically, ownership advantage arises either from the possession of a particular asset, or from the firms' ability to effectively coordinate factors at home and abroad (Dunning, 2006). Internalization refers to the choice between foreign investment and licensing (Dunning, 1993a; Dunning, 1993b; Stoian and Filippaios, 2008).

<sup>1</sup> Data source: Statistical Bulletin of China's Outward Foreign Direct Investment.

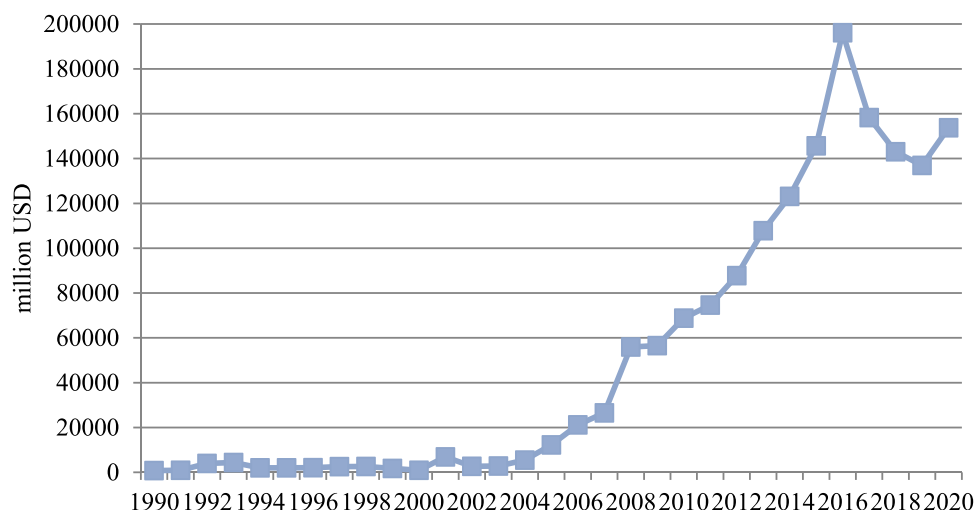


Fig. 1. Chinese OFDI, 1990–2020. Data

Source: UNCTAD, FDI Statistics; Statistical Bulletin of China's Outward Foreign Direct Investment.

The traditional eclectic paradigm explains OFDI location choice focusing on economic factors (Kang and Jiang, 2012), but frequently institutional factors such as social stability and democracy are incorporated as well (Dunning, 2006; Dunning and Lundan, 2008; Stoian and Filippaios, 2008). Kang and Jiang (2012) frame the OFDI location choices of Chinese firms by combining institutional factors with economic factors derived from the eclectic paradigm, and find that institutional factors have a more significant and complex impact on Chinese OFDI location choice than economic factors.

### 3.1.2. Institutional theory

According to institutional theory, firms' foreign investment decisions are affected by the institutional environment in the home and host country (Cheng and Yu, 2008; Wang et al., 2012a). As multinational enterprises of emerging countries mostly face an unstable and uncertain institutional environment in their home country (Yang, 2018; Yin et al., 2021), they develop capabilities to dealing with regulations and opaque political and bureaucratic procedures (Duanmu, 2012). Thus, multinational enterprises of emerging countries face a lesser "liability of foreignness" when investing in host countries with weak institutions (Buckley et al., 2007). The distance between institutional quality in the host and home country has an impact on OFDI location choices for several reasons (Kolstad and Wiig, 2012; Ramasamy et al., 2012). First, a larger institutional distance means higher adaptation costs, which may reduce firm profits (Li et al., 2020). Second, a larger institutional distance may increase the legal and political risks of multinational enterprises. There is indeed evidence that multinational enterprises prefer to invest in host countries with a smaller institutional distance (Li et al., 2020; Ren and Yang, 2020).

Support by the home country also plays an important role in OFDI from emerging countries. Emerging countries frequently offer different types of government support, such as preferential policies, low-cost financing, tax preference and simplified approval procedures (Chan and Pattnaik, 2021; Luo et al., 2010). Firms in emerging countries gain ownership advantages from this support, which makes up for their lack of experience with foreign investment as well as the financial and commercial risks associated with foreign investment projects (Yin et al., 2021; Buckley, 2018). Compared with non-state-owned enterprises, Chinese state-owned enterprises receive more support (Yang, 2018). Thus, state-owned enterprises are less sensitive to the institutional environment in the host country (Yang, 2018).

## 3.2. Hypotheses development

### 3.2.1. CBI and Chinese OFDI location choices

CBI is the extent to which a central bank can decide on using its instruments in a way it deems optimal in view of accomplishing its mandate, without external (political and other) interference (Klomp and de Haan, 2010; Bodea and Hicks, 2015). Generally, a central bank is viewed as independent if four conditions are met. First, the governor is appointed by the central bank board rather than by the government, is not subject to dismissal, and has a long term of office (personnel independence). Second, policy decisions are made without government involvement (policy independence). Third, the central bank charter states that price stability is the sole or primary goal of monetary policy (priority for price stability). Fourth, there are limitations on the government's ability to borrow from the central bank (financial independence).

The central bank of China, the People's Bank of China (PBC), has a low level of independence. The appointment or removal of the governor is decided by the central government. The PBC has to follow policies decided upon by the State Council (Zheng and Wang, 2021). And its provincial branches are often influenced by local governments (Zheng and Wang, 2021). Price stability is not the most important objective of the PBC. Likewise, there are few limits on government borrowing.

The ability of operating in an environment with bureaucratic intervention is an ownership advantage of Chinese firms (Buckley et al., 2007). Indeed, there is evidence that Chinese OFDI flows more to countries with an institutional quality similar to that of China (Li et al., 2020). We therefore pose that Chinese firms have a comparative advantage when operating in host countries with a lower level of CBI because they are used to a central bank that is not independent from government and know how to deal with bureaucratic interventions (Cuervo-Cazurra and Genc, 2008; Luo and Zhang, 2016; Ramasamy et al., 2012). We thus propose:

**Hypothesis 1.** Chinese firms OFDI location choices are negatively associated with the level of CBI in host countries.

### 3.2.2. State-owned and non-state-owned enterprises in China

A number of studies have focused on the difference of OFDI location choices between state-owned and non-state-owned enterprises in China (Duanmu, 2012; Ramasamy et al., 2012; Wang et al., 2021). Most find that Chinese state-owned enterprises are less sensitive to political risks in host countries than non-state-owned enterprises (Duanmu, 2012; Wang et al., 2021; Ramasamy et al., 2012). Scholars suggest two

explanations. First, generally speaking, state-owned enterprises have easier access to preferential financing than non-state-owned enterprises (Buckley, 2018). In view of government support, state-owned enterprises may be more willing to take risk and accept losses than private-owned firms (Cui and Jiang, 2012; Quer et al., 2012; Ramasamy et al., 2012).

Furthermore, state-owned enterprises in China are not purely profit maximizers, but are under government leadership (Buckley et al., 2007). As Morck et al. (2018) pointed out, the top executives of state-owned enterprises are usually appointed by the government. Thus, a large proportion of OFDI by state-owned enterprises is politically driven, rather than by profit maximization (Kolstad and Wiig, 2012; Buckley et al., 2007; Quer et al., 2012). Furthermore, the Chinese government can guide OFDI according to its national development plan (Cheung and Qian, 2009; Cui and Jiang, 2012; Deng, 2004; Ramasamy et al., 2012).

Compared to state-owned enterprises, non-state-owned enterprises are more like profit maximizers. They have less access to preferential resource and government support, and thereby are more cautious when investing abroad (Duanmu, 2012). We thus propose:

**Hypothesis 2.** The impact of CBI on location choices of Chinese OFDI is greater for non-state-owned enterprises than for state-owned enterprises.

### 3.2.3. CBI distance and Chinese OFDI location choices

According to the institutional theory, institutional distance is an important factor for OFDI location choices. A larger institutional distance means more adaptation costs, as well as legal and political risks (Li et al., 2020). Previous studies find that Chinese OFDI is negatively correlated with the distance between China's institutional quality and that of the host country (Li et al., 2020; Ren and Yang, 2020). Likewise, we expect that the distance between CBI in China and that in the host country will impact Chinese OFDI location choices. The smaller this distance, the smaller the adaptation costs and risks, and the more Chinese firms can use their experience in the host country. Hence, we pose:

**Hypothesis 3a.** OFDI location choices of Chinese firms are negatively associated with the CBI distance between China and the host countries.

As we mentioned above, state-owned enterprises in China have access to preferential financing and government support (Buckley et al., 2007; Ramasamy et al., 2012), and are thereby more capable to take risks and accept losses. Thus, they may pay less attention to CBI distance. Furthermore, OFDI by state-owned enterprises may be politically driven. However, for non-state-owned enterprises, investing in host countries with a smaller CBI distance allows them to use their home country experience, i.e., they will face lesser the "liability of foreignness". Hence, we hypothesize:

**Hypothesis 3b.** Chinese OFDI location choices of state-owned enterprises are insensitive to CBI distance between China and the host countries.

**Hypothesis 3c.** Chinese OFDI location choices of non-state-owned enterprises are negatively associated to CBI distance between China and the host countries.

## 4. Research design

### 4.1. Method

Our dependent variable is a dummy variable which equals 1 if an enterprise establishes one or more new foreign affiliated enterprises in a host country in one year and 0 otherwise. We therefore employ the logit method (Holburn and Zelner, 2010; Lu et al., 2014; Wang and Zhou, 2019). Specifically, logit regression measures the nexus between the binary dependent variable and one or more independent variables, using probability scores as the predicted values of the dependent variable. In

our study, the probability that a multinational enterprise invests in a specific country in one year is determined using the following logistic function:

$$p(\text{OFDI} = 1|x_i) = \frac{1}{1 + e^{-(\beta_0 + \beta x_i)}}$$

Where  $p(\text{OFDI})$  is the probability that the dependent variable = 1,  $x_i$  is the vector of all independent variables,  $\beta_0$  is the intercept parameter, and  $\beta$  is the vector of regression coefficients (Cowan et al., 2016). Following Cowan et al. (2016), the model can also be written as:

$$\text{logit}(\text{OFDI}) = \ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 x_1 + \dots + \beta_n x_n + \mu_i$$

The regression coefficient  $\beta$  is estimated using the maximum likelihood method. It reflects whether the independent variables significantly impact the probability of one location being selected (Lei and Chen, 2011). A positive coefficient indicates that the independent variable increases the probability of a location being selected (Cowan et al., 2016).

Following Lu et al. (2014) and Holburn and Zelner (2010), we use a logit model with robust standard errors. In order to account for unobserved heterogeneity among years, enterprises and countries, we include year dummies, enterprise dummies, and host-country regional dummies.<sup>2</sup> We also lag all independent variables by one year to account for the slow transmission from independent variables to OFDI as well as to avoid possible endogeneity (Deng et al., 2018; Piperopoulos et al., 2018; Huang et al., 2017; Xia et al., 2014). Our model is thus as follows:

$$\text{OFDI}_{xyt} = \beta_0 + \beta_1 \text{CBI}_{y,t-1} + \beta_2 X_{xy,t-1} + \text{DUM}_{years} + \text{DUM}_{enterprises} + \text{DUM}_{countries} + \mu$$

Where  $\text{OFDI}_{xyt}$  is a dummy variable which equals 1 if enterprise  $x$  establishes one or more new foreign affiliated enterprises in country  $y$  in  $t$  year and 0 otherwise;  $\beta_0$  represents the constant term;  $\text{CBI}_{y,t-1}$  is the measure of central bank independence in country  $y$ ;  $X_{xy,t-1}$  represents a vector of control variables;  $\text{DUM}_{years}$ ,  $\text{DUM}_{enterprises}$  and  $\text{DUM}_{countries}$  represent year dummies, enterprise dummies, and host-country regional dummies respectively;  $\mu$  is the error term.

### 4.2. Data

#### 4.2.1. Chinese OFDI

Chinese firm-level OFDI mainly come from two databases, namely the China Global Investment Tracker database and the China Stock Market and Accounting Research (CSMAR) Overseas Direct Investment database. The China Global Investment Tracker database records OFDI investment projects of more than 100 million US dollars by Chinese firms since 2005. The CSMAR Overseas Direct Investment database

<sup>2</sup> We include host country regional dummies instead of host country dummies because this will exploit variation within the host countries (Holburn and Zelner, 2010). We use the regional classification from the Garriga (2016) database. The regions are as follows: Eastern Europe and post-Soviet Union, Latin America, North Africa and the Middle East, Sub-Saharan Africa, Western Europe and North America, East Asia, South-East Asia, South Asia, The Pacific, and The Caribbean.



provides OFDI information of Chinese firms listed on the Shanghai and Shenzhen Stock Exchanges since 1999. It provides firm-relevant information such as corporate assets.<sup>3</sup> In addition, the Ministry of Commerce of the People's Republic of China (MOFCOM) publishes the Directory of Chinese Outward FDI firms, including the name of parent companies and host countries. However, the periods of investment are not published. The CSMAR Overseas Direct Investment database has a larger sample size and a longer sample period than the Global Investment Tracker database. But the CSMAR Overseas Direct Investment database only contains listed firms. According to Wang et al. (2020), due to their higher operational efficiency and stronger financing ability, the Chinese listed firms have a leading position in Chinese OFDI. Furthermore, listed firms are required to disclose information such as financial data and OFDI projects.

Thus, we collect data of Chinese OFDI from the CSMAR Overseas Direct Investment database. The database contains annual information of the name and the location of all affiliated enterprises for each listed enterprise. If a listed enterprise  $x$  establishes a new affiliate  $j$  in year  $t$ , the data of affiliate  $j$  is also included after year  $t$ . We construct our database as follows. Firstly, we select the location of affiliated enterprises outside mainland China. Next, we compare the data of all affiliated enterprises for each listed enterprise and identify newly established foreign affiliated enterprises. We regard the year of newly established foreign affiliated enterprises as the year of conducting OFDI. The location of a new foreign affiliated enterprise is the destination of OFDI. Finally, we drop affiliated enterprises that already exist in the year when the enterprises go public as we are unable to identify in which year these affiliate enterprises were established.<sup>4</sup> We do this for each year in the sample period from 1999 to 2013, which has been chosen in view of data availability. Following Deng et al. (2018) and Lu et al. (2014), we drop firms investing in Taiwan, Macau, Hong Kong and tax havens (like Cayman Island, Virgin Island and Bermuda). As a result, our dataset includes 1834 OFDI projects by 591 Chinese listed enterprises investing in 96 countries.

We construct the data structure as follows. Each cell shows actual investment of a firm in a potential host country in a particular year. The location choices for each enterprise-year combination consist of all countries in which Chinese firms have invested in our sample. Of course, not each firm invests in each of these countries every year. Our dataset includes 100,704 records.

OFDI is frequently measured in four ways, which includes OFDI flows (Kolstad and Wiig, 2012; Li et al., 2020), the stock of OFDI (Cheung and Qian, 2009; Kang and Jiang, 2012), a count of OFDI projects (Huang et al., 2017; Ramasamy et al., 2012; Xia et al., 2014) and a dummy variable reflecting the presence of OFDI (Duanmu, 2012; Lu et al., 2014; Quer et al., 2012; Yuan and Pangarkar, 2010). Extreme values may exist for OFDI flows because some investments are capital intensive such as resource seeking projects (Ramasamy et al., 2012). The OFDI stock is less volatile (Desbordes and Vicard, 2009), but it is insensitive to new investments, especially small projects. Following Duanmu (2012), Lu et al. (2014) and Quer et al. (2012), our OFDI measure is therefore a dummy variable which equals 1 if an enterprise

establishes one or more new foreign affiliated enterprises in a host country in one year and 0 otherwise.

#### 4.2.2. Central bank independence

Two types of indices can be used to measure CBI, namely *de jure* and *de facto* measures. *De jure* measures are based on central bank legislation (Crowe and Meade, 2007; Cukierman et al., 1992; Garriga, 2016). The most widely used *de facto* index is based on the turnover rate (TOR) of central bank governors (Dreher et al., 2010; Klomp and de Haan, 2010). The higher the rate, the less independent the central bank is. However, a high tenure of the central-bank governor (i.e., a low TOR) could also reflect that the governor behaves in line with the government's preferences.

We therefore use the CBI index from Garriga (2016), which is a *de jure* measure proposed by Cukierman et al. (1992). The index varies from 0 to 1, with a larger value indicating a higher level of CBI. We use data from Garriga (2016) as it is the largest CBI dataset, covering 182 countries during the period 1970–2012. In addition, the CBI index provides information on the four dimensions of CBI outlined earlier, namely personnel, policy and financial independence, and priority for price stability. This allows us to identify which dimensions of CBI are related to Chinese OFDI.

#### 4.2.3. Control variables

We follow the eclectic paradigm and previous studies in selecting the control variables (Dunning, 2006; see Table 1). Following Kolstad and Wiig (2012), we employ the World Bank rule of law index to proxy institutional quality of the host country. The rule of law index reflects the degree to which economic agents have trust in and comply with rules referring to contract execution, property rights, police and courts, and violence and crime. This measure varies from  $-2.5$ – $2.5$ , with a larger value suggesting a better institutional environment. In view of the mixed evidence reported by previous studies, we do not have a prior about the expected sign of the coefficient for institutional quality. We use GDP to measure the host country's market size, and GDP growth to measure market potential (Buckley et al., 2007; Ramasamy et al., 2012; Zhang and Daly, 2011). The larger the market size and market potential of the host country, the more attractive it will be. We employ the ratio of total exports and imports to GDP to measure the host country's trade openness with an expected positive sign (de Beule and Duanmu, 2012; Kolstad and Wiig, 2012). We also include the inflation rate in the host country, as a higher level of inflation signals a higher currency risk for foreign investors, which deters OFDI inflows (Buckley et al., 2007). Finally, following Buckley et al. (2007) and Ren and Yang (2020), we include the host country's natural resource endowments, which we proxy by the ratio of metal and ore exports to merchandise exports, as well as the geographic distance between China and the host country. We expect a positive sign for resource endowments (cf. Cheung et al., 2012). We also expect a positive sign for distance, as a longer distance means higher transportation costs, which discourages trade and promotes OFDI (Ren and Yang, 2020).

We also control for some firm-level characteristics. First, we control for enterprise age. Previous studies indicate that younger enterprises are more actively involved in OFDI (Deng et al., 2018; Lu et al., 2014; Xia et al., 2014). Second, we control for enterprise size (Chen et al., 2016; Deng et al., 2018; Huang et al., 2017), as larger enterprises may possess a higher level of resources for OFDI (Chen et al., 2016; Deng et al., 2018; Wang et al., 2012a). Third, we include the enterprises' intangible assets where we expect a positive sign (Guo et al., 2017; Wang et al., 2012b). The more intangible assets an enterprise has, the stronger the enterprise's technological capabilities are, which will help the enterprise to enter a foreign market (Guo et al., 2017; Liu et al., 2014; Wang et al., 2012b). Finally, we include board size, measured by the number of board members, and board independence, measured by the ratio of independent board members to the total number of board members (Deng et al., 2018; Liu et al., 2014). It is difficult for a larger board to reach

<sup>3</sup> The Annual Survey of Industrial Firms (ASIF) collected by the National Bureau of Statistics of China provides information for both state-owned and non-state-owned enterprises with sales over 5 million yuan. However, the ASIF does not include information on OFDI by Chinese firms. There are two methods to match the OFDI data. One is to combine them with the Directory of Chinese Outward FDI firms published by the MOFCOM, and the other is to manually collect the annual reports of firms. But the former does not allow panel analysis because the MOFCOM does not publish the periods of investment, and the latter is inaccurate because the annual report information of most firms is incomplete, notably that of unlisted firms. We therefore did not use this database.

<sup>4</sup> As a robustness check, we also estimate the model using a sample that includes these enterprises. The results for all key variables are in line with our main findings (results available on request).

**Table 1**  
Control variables and data sources.

Variable:	Description:	Source:	Expected sign:	References:
Institutional quality	The “rule of law” index	WGI	+ /-	Kolstad and Wiig, 2012
GDP	Log of GDP in host country (US dollar, constant)	WDI	+	Buckley et al., 2007; Kolstad and Wiig, 2012; Ramasamy et al., 2012
GDP growth	GDP growth in host country (%)	WDI	+	Bodea and Hicks, 2015; Neumayer and Spess, 2005; Zhang and Daly, 2011
Trade openness	The ratio of total exports and imports to GDP (%)	WDI	+	de Beule and Duanmu, 2012; Kolstad and Wiig, 2012
Inflation	Host country’s inflation rate, consumer prices (%)	WDI	-	Bodea and Hicks, 2015; Buckley et al., 2007; Neumayer and Spess, 2005
Natural resources	The ratio of metal and ore exports to merchandise exports (%)	WDI	+	Buckley et al., 2007; Cheung et al., 2012; Ramasamy et al., 2012
Distance	Log of the distance between Beijing and host country’s capital	CEPII	+	Ren and Yang, 2020
Enterprise age	The number of years since the establishment of the enterprise	CSMAR	-	Deng et al., 2018; Lu et al., 2014; Xia et al., 2014
Enterprise size	Log of the number of employees	CSMAR	+	Huang et al., 2017; Kong et al., 2020; Wang et al., 2012a
Intangible assets	Log of intangible assets <sup>a</sup>	CSMAR	+	Guo et al., 2017; Wang et al., 2012b
Board size	The number of board members	CSMAR	-	Deng et al., 2018; Liu et al., 2014
Independent board	The ratio of independent board to the total number of board members (%)	CSMAR	+	Deng et al., 2018; Liu et al., 2014

Notes: WGI is the abbreviation of Worldwide Governance Indicators. WDI is the abbreviation of World Development Indicators. CEPII is the abbreviation of Centre d’Études Prospectives et d’Informations Internationales. CSMAR is the abbreviation of China Stock Market and Accounting Research database.

<sup>a</sup> If data are zero, following Pham et al. (2018), we add one to the variable in order to be able to calculate the logarithm of the variable.

consensus when facing important decisions (Goodstein et al., 1994), which may hinder enterprises from investing abroad. Thus, we expect a negative sign for board size. We expect a positive sign for board independence, as an independent board may have a wider network of information and more international knowledge, which is conducive to the

internationalization of enterprises (Nam et al., 2018).

Table 1 presents a summary of the control variables and the data sources, while Table 2 shows descriptive statistics and Table 3 offers a correlation matrix. The CBI index ranges from 0.135 to 0.904 and the mean value is 0.597, indicating that CBI varies widely across countries. All correlation coefficients of the independent variables except for CBI and its components do not exceed 0.5, indicating that there is no serious multicollinearity problem.

## 5. Results

### 5.1. Main finding

Table 4 reports our main results. In column (1), the CBI variable is the only explanatory variable. The coefficient of CBI is significantly negative at 1%, indicating that Chinese enterprises are more likely to invest in countries with a low level of CBI, which is not in line with the findings of Agoba et al. (2020) and Bodea and Hicks (2015). Next, we add several control variables. First, we control for institutional quality measured by the World Bank rule of law index (see column (2)). The coefficient of CBI is still significantly negative when CBI and “rule of law” are both included. In other words, both variables capture different dimensions of institutional quality. Subsequently, we add GDP and GDP growth to our model (see columns (3) and (4)), after which we add other country-specific control variables (column (5)). Finally, we add several firm-specific control variables (column (6)). The results in columns (2)-(6) show that the coefficient of CBI remains significantly negative after controlling for country-specific and firm-specific variables. The results are consistent with Hypothesis 1. We attribute our finding to two unique features of the Chinese economy. First, the Chinese government plays an important role in many areas. As Chinese enterprises are used to operate in an environment with government intervention (Duanmu, 2012; Morck et al., 2008; Ramasamy et al., 2012), they arguably prefer investing in countries with a lower level of CBI because they are familiar with such an environment (Buckley et al., 2007). Furthermore, the government influences Chinese OFDI, so that political considerations may play a role (Buckley et al., 2007; Kolstad and Wiig, 2012). Thus, a large proportion of OFDI flows to countries with close political and ideological ties to China (Buckley et al., 2007; Quer et al., 2012). Many of these countries have a comparatively low level of CBI.

The coefficient of institutional quality is significantly positive only in

**Table 2**  
Descriptive statistics.

Variable:	Observations	Mean	S.D.	Min	Max
1. OFDI	100704	0.015	0.122	0.000	1.000
2. CBI	95993	0.597	0.200	0.135	0.904
3. CBI component: Personnel	95993	0.571	0.182	0.000	1.000
4. CBI component: Objectives	95084	0.589	0.226	0.000	1.000
5. CBI component: Policy	95993	0.616	0.316	0.000	1.000
6. CBI component: Financial	95058	0.603	0.286	0.013	1.000
7. Institutional quality	95760	-0.018	1.067	-2.130	2.014
8. GDP	99427	25.123	2.070	19.430	30.376
9. GDP growth	99375	3.794	4.266	-17.669	34.466
10. Trade openness	95131	83.602	42.465	0.167	325.852
11. Inflation	94959	7.077	14.302	-8.525	513.907
12. Natural resources	88783	7.646	14.102	0.001	85.973
13. Distance	98606	8.886	0.594	6.696	9.868
14. Enterprise age	100512	10.552	5.367	1.000	37.000
15. Enterprise size	93888	8.159	1.507	1.609	13.198
16. Intangible assets	98976	17.902	3.589	0.000	24.541
17. Board size	93696	9.275	2.098	4.000	18.000
18. Independent board	93696	34.668	10.119	0.000	62.500

**Table 3**  
Correlation matrix.

Variable:	1	2	3	4	5	6	7	8
1. OFDI	1.000							
2. CBI	-0.036	1.000						
3. CBI component: Personnel	-0.039	0.453	1.000					
4. CBI component: Objectives	-0.040	0.488	0.263	1.000				
5. CBI component: Policy	-0.060	0.711	0.273	0.330	1.000			
6. CBI component: Financial	-0.012	0.931	0.237	0.275	0.518	1.000		
7. Institutional quality	0.101	0.175	-0.089	-0.051	0.041	0.262	1.000	
8. GDP	0.178	0.009	-0.094	-0.138	-0.111	0.102	0.442	1.000
9. GDP growth	-0.031	-0.222	-0.086	-0.025	-0.163	-0.228	-0.400	-0.215
10. Trade openness	-0.070	0.255	0.014	0.100	0.197	0.263	0.186	-0.413
11. Inflation	-0.042	-0.115	-0.084	-0.090	-0.060	-0.098	-0.397	-0.153
12. Natural resources	-0.013	-0.157	-0.034	-0.033	-0.167	-0.147	-0.157	-0.194
13. Distance	-0.019	0.201	0.177	0.067	-0.003	0.221	-0.016	-0.142
14. Enterprise age	-0.007	0.017	0.010	0.010	0.013	0.015	-0.009	0.015
15. Enterprise size	0.023	0.004	0.003	0.003	0.002	0.004	0.001	0.001
16. Intangible assets	0.004	0.012	0.009	0.008	0.007	0.010	-0.006	0.009
17. Board size	0.016	-0.006	-0.004	-0.004	-0.004	-0.004	0.004	-0.006
18. Independent board	0.008	0.039	0.020	0.018	0.027	0.036	-0.009	0.022

Variable:	9	10	11	12	13	14	15	16	17	18
9. GDP growth	1.000									
10. Trade openness	-0.046	1.000								
11. Inflation	0.184	-0.025	1.000							
12. Natural resources	0.233	-0.091	0.010	1.000						
13. Distance	-0.092	-0.111	-0.028	0.116	1.000					
14. Enterprise age	-0.048	0.022	-0.023	0.010	0.004	1.000				
15. Enterprise size	-0.026	-0.001	-0.001	-0.004	0.004	0.106	1.000			
16. Intangible assets	-0.046	0.011	0.001	0.004	0.005	0.024	0.326	1.000		
17. Board size	0.006	-0.012	-0.003	-0.005	-0.001	0.016	0.293	0.047	1.000	
18. Independent board	-0.028	0.037	-0.051	0.012	0.009	0.097	0.115	0.165	-0.226	1.000

**Table 4**  
Estimation results for the full sample (dependent variable: dummy indicating Chinese OFDI).

	(1)	(2)	(3)	(4)	(5)	(6)
CBI	-1.456 *** (0.126)	-1.288 *** (0.133)	-1.322 *** (0.145)	-1.226 *** (0.143)	-1.136 *** (0.156)	-1.078 *** (0.166)
Institutional quality		0.281 *** (0.054)	0.029 (0.069)	0.069 (0.071)	-0.050 (0.096)	-0.068 (0.101)
GDP			0.780 *** (0.026)	0.791 *** (0.026)	0.965 *** (0.042)	0.958 *** (0.044)
GDP growth				0.066 *** (0.011)	0.064 *** (0.012)	0.064 *** (0.014)
Trade openness					0.008 *** (0.002)	0.008 *** (0.002)
Inflation					-0.001 (0.007)	-0.004 (0.010)
Natural resources					0.019 *** (0.004)	0.017 *** (0.004)
Distance					0.301 (0.185)	0.199 (0.194)
Enterprise age						-0.029 (0.106)
Enterprise size						0.159 * (0.069)
Intangible assets						-0.038 * (0.021)
Board size						0.076 * (0.043)
Independent board						0.007 (0.013)
Constant	-4.533 *** (0.726)	-4.614 *** (0.731)	-24.320 *** (0.926)	-24.933 *** (0.912)	-32.971 *** (1.934)	-33.582 *** (3.527)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Enterprise Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Host-country regional Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.130	0.135	0.235	0.237	0.244	0.240
Observations	95809	92180	92180	92180	76422	71066

Notes: The model is estimated using logit. Robust standard errors are in parentheses. \*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01.



column (2), which confirms that Chinese OFDI is not robustly related to institutional quality of the host country (Kamal et al., 2020). In addition, the signs of two control variables, namely intangible assets and board size are not as expected. Different from Guo et al. (2017) and Wang et al. (2012b), the intangible assets variable has a negative effect on OFDI in our analysis. One possible reason is that Chinese companies may acquire foreign firms because of their intangible assets. If a Chinese company already has a lot of intangible assets, it may have fewer incentives to acquire foreign firms. Board size has a positive effect on OFDI. The reason may be that firms with a larger board indicate a larger scale of the firm. Thus, firms with a larger board may possess a higher level of resources for OFDI.

### 5.2. Components of CBI

Following Garriga and Rodriguez (2020), we examine whether the four components of CBI, namely personnel independence, priority for price stability, policy independence and financial independence, have a different impact on the OFDI location choices of Chinese firms. We report the results in Table 5. In columns (1), (3), (5) and (7) only country-specific control variables are included, while in the other columns both country-specific and firm-specific control variables are taken up. The coefficients of the four components of CBI are significantly negative, consistent with the results for the aggregate index. The results show that all components of CBI impact Chinese OFDI location choices.

**Table 5**  
Empirical results for different CBI components.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CBI component: Personnel	-0.664 *** (0.199)	-0.681 *** (0.204)						
CBI component: Objectives			-0.546 *** (0.129)	-0.555 *** (0.134)				
CBI component: Policy					-0.478 *** (0.095)	-0.434 *** (0.101)		
CBI component: Financial							-0.816 *** (0.115)	-0.767 *** (0.121)
Institutional quality	0.131 (0.090)	0.102 (0.094)	0.102 (0.090)	0.071 (0.095)	0.023 (0.097)	0.005 (0.103)	-0.017 (0.095)	-0.032 (0.100)
GDP	0.946 *** (0.043)	0.938 *** (0.045)	0.968 *** (0.043)	0.960 *** (0.045)	0.939 *** (0.044)	0.936 *** (0.046)	0.998 *** (0.042)	0.989 *** (0.044)
GDP growth	0.071 *** (0.013)	0.072 *** (0.014)	0.071 *** (0.013)	0.072 *** (0.014)	0.062 *** (0.013)	0.064 *** (0.015)	0.067 *** (0.013)	0.067 *** (0.014)
Trade openness	0.006 *** (0.002)	0.006 *** (0.002)	0.007 *** (0.002)	0.007 *** (0.002)	0.007 *** (0.002)	0.007 *** (0.002)	0.008 *** (0.002)	0.008 *** (0.002)
Inflation	0.006 (0.006)	0.003 (0.009)	0.006 (0.006)	0.003 (0.009)	0.002 (0.007)	-0.001 (0.010)	0.002 (0.007)	-0.000 (0.010)
Natural resources	0.025 *** (0.004)	0.023 *** (0.004)	0.024 *** (0.004)	0.022 *** (0.004)	0.022 *** (0.004)	0.020 *** (0.004)	0.017 *** (0.004)	0.015 *** (0.005)
Distance	0.253 (0.193)	0.163 (0.202)	0.207 (0.191)	0.128 (0.200)	0.168 (0.181)	0.069 (0.191)	0.207 (0.185)	0.112 (0.194)
Enterprise age		-0.029 (0.106)		-0.029 (0.106)		-0.029 (0.106)		-0.029 (0.106)
Enterprise size		0.158 ** (0.069)		0.158 ** (0.069)		0.158 ** (0.069)		0.158 ** (0.069)
Intangible assets		-0.038 * (0.021)		-0.038 * (0.021)		-0.038 * (0.021)		-0.038 * (0.021)
Board size		0.076 * (0.043)		0.076 * (0.043)		0.076 * (0.043)		0.076 * (0.043)
Independent board		0.007 (0.013)		0.007 (0.013)		0.007 (0.013)		0.007 (0.013)
Constant	-32.356 *** (1.990)	-32.956 *** (3.558)	-32.704 *** (1.990)	-33.449 *** (3.553)	-31.559 *** (1.938)	-32.295 *** (3.523)	-33.215 *** (1.975)	-33.839 *** (3.538)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enterprise Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Host-country regional Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.241	0.238	0.241	0.238	0.242	0.239	0.244	0.240
Observations	76422	71066	76027	70682	76422	71066	76422	71066

Notes: The model is estimated using logit. Robust standard errors are in parentheses. \*p < 0.1, \*\*p < 0.05, \*\*\*p < 0.01.

### 5.3. State-owned vs. non-state-owned enterprises

Table 6 shows the results for OFDI by state-owned and non-state-owned enterprises. In columns (1) and (3) only country-specific control variables are included, while in columns (2) and (4) both country-specific and firm-specific controls are considered. Columns (1) and (2) show the results for state-owned enterprises, while columns (3) and (4) present the results for non-state-owned enterprises. The coefficients of CBI are significantly negative in the models for state-owned and non-state-owned enterprises. However, the absolute values of the coefficients of CBI in the model for OFDI by non-state-owned enterprises are larger than those in the model for OFDI by state-owned enterprises.

Our results thus indicate that the impact of CBI on location choices of Chinese OFDI is greater for non-state-owned enterprises than for state-owned enterprises, confirming Hypothesis 2. The reason is probably that state-owned enterprises in China, with lower financing cost and more support from the government, are more capable to take risks and accept losses (Ramamamy et al., 2012). As a large proportion of OFDI by state-owned enterprises is politically driven, state-owned enterprises pay less attention to the level of CBI in host countries. By contrast, non-state-owned enterprises, not having the same low financing costs and government support as state-owned enterprises, are more cautious when investing abroad (Duanmu, 2012). In order to reduce cost and risk, non-state-owned enterprises are thus more likely to resort to countries with a lower level of CBI to reduce adaptation costs and operating risks. They are used to operate in an environment with government intervention which is similar to that in China.

**Table 6**  
Results for different groups of firms (dependent variable: dummy indicating Chinese OFDI).

	CBI				CBI distance		
	State-owned enterprises (1)	State-owned enterprises (2)	Non-state-owned enterprises (3)	Non-state-owned enterprises (4)	Full sample (5)	State-owned enterprises (6)	Non-state-owned enterprises (7)
CBI	-0.964 *** (0.209)	-0.814 *** (0.227)	-1.404 *** (0.234)	-1.447 *** (0.245)			
CBI distance					-1.290 *** (0.353)	-0.730 (0.483)	-1.833 *** (0.534)
Institutional quality	0.024 (0.124)	0.051 (0.134)	-0.123 (0.154)	-0.208 (0.157)	0.135 (0.097)	0.216 * (0.125)	0.026 (0.156)
GDP	0.875 *** (0.056)	0.856 *** (0.059)	1.061 *** (0.063)	1.064 *** (0.066)	0.966 *** (0.044)	0.862 *** (0.058)	1.076 *** (0.066)
GDP growth	0.051 *** (0.017)	0.036 * (0.020)	0.078 *** (0.019)	0.093 *** (0.019)	0.063 *** (0.015)	0.038 * (0.021)	0.089 *** (0.021)
Trade openness	0.005 * (0.002)	0.005 * (0.002)	0.010 *** (0.002)	0.010 *** (0.002)	0.007 *** (0.002)	0.004 (0.002)	0.009 *** (0.002)
Inflation	-0.005 (0.010)	-0.003 (0.014)	0.002 (0.011)	-0.008 (0.016)	0.005 (0.009)	0.002 (0.013)	0.008 (0.013)
Natural resources	0.027 *** (0.005)	0.025 *** (0.005)	0.006 (0.008)	0.005 (0.008)	0.025 *** (0.004)	0.029 *** (0.005)	0.020 *** (0.007)
Distance	0.476 * (0.265)	0.292 (0.282)	0.078 (0.260)	0.053 (0.270)	-0.144 (0.191)	0.038 (0.280)	-0.377 (0.263)
Enterprise age		-0.017 (0.107)		-0.270 (0.653)	-0.029 (0.105)	-0.017 (0.107)	-0.268 (0.650)
Enterprise size		0.204 * (0.109)		-0.015 (0.109)	0.158 * (0.069)	0.204 * (0.109)	-0.015 (0.109)
Intangible assets		-0.042 * (0.025)		-0.030 (0.044)	-0.038 * (0.021)	-0.042 * (0.025)	-0.030 (0.045)
Board size		0.111 * (0.052)		-0.217 * (0.116)	0.076 * (0.043)	0.110 * (0.052)	-0.216 * (0.116)
Independent board		0.018 (0.016)		-0.039 (0.029)	0.007 (0.013)	0.018 (0.016)	-0.039 (0.029)
Constant	-31.596 *** (2.707)	-32.792 *** (4.290)	-33.372 *** (2.761)	-25.651 *** (8.998)	-31.316 *** (3.532)	-31.147 *** (4.346)	-23.029 *** (8.985)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enterprise Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Host-country regional Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.229	0.220	0.269	0.271	0.238	0.218	0.268
Observations	35476	31966	40912	39067	71,066	31,966	39,067

Notes: The model is estimated using logit. Robust standard errors are in parentheses. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Furthermore, we note that the coefficient of natural resources is significantly positive only in the model for OFDI by state-owned enterprises. China is short of natural resources (Ramasamy et al., 2012). State-owned enterprises undertake the political goal of gaining access to natural resources when investing abroad (Duanmu, 2012). The coefficient of distance in our model in column (1) is significantly positive (albeit only at the 10% level), and it is not significant once the firm-specific control variables are included. And the coefficients of distance are also insignificant in the full sample (see columns (5) and (6) in Table 6). Our results thus indicate that the geographic distance between China and the host country has limited impact on Chinese OFDI location choices by state-owned and non-state-owned enterprises alike. The coefficient of enterprise size is significantly positive in the model for OFDI by state-owned enterprises, while it is insignificant in the model for OFDI by non-state-owned enterprises. One reason may be that non-state-owned enterprises with large size may already have a good market position in the home country (Deng et al., 2018). Thus, they have smaller incentives to invest abroad. The coefficient for intangible assets is significantly negative in the model for OFDI by state-owned enterprises. The reason may be that state-owned enterprises with high intangible assets have lower incentives to acquire foreign intangible assets by OFDI. Non-state-owned enterprises with few intangible assets may lack funds even if they want to acquire foreign intangible assets. The coefficient of board size is consistent with our expectation for non-state-owned enterprises, which is negative. However, it is

significantly positive for state-owned enterprises. One reason might be that most state-owned enterprises are managed by the government. The top executives of state-owned enterprises are usually appointed by the Communist Party (Morck et al., 2008; Duanmu, 2012). Thus, it is easier to reach a consensus in state-owned enterprises, even with a larger board. In addition, state-owned enterprises with a larger board indicate a larger scale of the firm. And larger firms are more likely to invest abroad.

#### 5.4. CBI distance

We construct a CBI distance index measuring the absolute difference in CBI between China and the host country following Cezar and Escobar (2015). Column (5) in Table 6 presents the results if we include the lagged CBI distance index in our model. The negative and significant coefficient of the CBI distance measure indicates that Chinese OFDI flows more to countries with a comparable level of CBI as China, consistent with Hypothesis 3a. A smaller CBI distance implies lower adaptation costs and risks for enterprises due to the similarity of the environment. This confirms our view that Chinese firms invest more in countries with a lower level of CBI as they are familiar with the environment in these countries. Next, we use the lagged CBI distance index in models for state-owned and non-state-owned enterprises. The results are in columns (6) and (7) in Table 6. The coefficient of CBI distance is significantly negative only in the model for non-state-owned enterprises,

indicating that non-state-owned enterprises prefer investing in countries with a smaller CBI distance. Thus, Hypotheses 3b and 3c are confirmed as well. The reason is that a large proportion of OFDI by state-owned enterprises is driven by political goals, rather than profit maximization (Buckley et al., 2007; Kolstad and Wiig, 2012; Quer et al., 2012). And state-owned enterprises in China, with lower financing cost and more support from the government, are more likely to take more risk and accept higher losses (Ramasamy et al., 2012). Thus, CBI distance does not significantly affect the investment decisions of state-owned enterprises. By contrast, non-state-owned enterprises behave more like profit maximizers and usually resort to countries with a smaller CBI distance to reduce cost and risk.

## 6. Robustness tests

### 6.1. Endogeneity

The inflow of Chinese OFDI is unlikely to affect the level of CBI in the host country, as the host country will probably not change the level of CBI in order to attract Chinese OFDI inflows. Empirical evidence suggests that there is no significant impact of OFDI inflows from China on the institutional quality of the host country (Fon et al., 2021). In addition, the dependent variable, Chinese OFDI, is a micro variable, while the independent variable, the level of CBI in the host country, is a macro

variable. Generally speaking, it is unlikely that a micro variable affects a macro variable. Thus, reverse causality in our model is very unlikely.

Although we believe that endogeneity in our model is thus not a serious problem, we have done some tests. First, we lag all independent variables by one year to avoid possible endogeneity in all our models, as Huang et al. (2017) and Xia et al. (2014) did. Second, following Bodea and Hicks (2015), we use lagged five-year averages of the CBI index instead of the lag of the CBI index. The results are reported in column (1) in Table 7. The significant negative coefficient of the lagged five-year averages of the CBI index suggests that our results are robust.

### 6.2. Different time periods

Columns (2) and (3) in Table 7 present the results for different time periods. Chinese OFDI increased after 2003 and took off after 2008, while the data before 2008 is limited. Thus, we restrict the sample to “after 2003” and “after 2008”, respectively. The significant negative coefficients of CBI in the two models suggest that our results are robust.

### 6.3. Belt and road initiative

We divide our sample into Belt and Road countries and non-Belt and Road countries. Appendix A shows the results. In columns (1) and (3) only country-specific control variables are included, while in columns

**Table 7**

Empirical results for lagged five-year averages of the CBI index and restricted samples (dependent variable: dummy indicating Chinese OFDI).

	Lagged five-year averages of the CBI index	Year > 2003	Year > 2008	Add political stability and openness	
	(1)	(2)	(3)	(4)	(5)
CBI Average	-1.025 * ** (0.165)				
CBI		-0.956 * ** (0.170)	-1.123 * ** (0.210)	-0.810 * ** (0.176)	-1.103 * ** (0.170)
Institutional quality	-0.096 (0.100)	-0.047 (0.104)	-0.130 (0.116)	-0.521 * ** (0.135)	-0.060 (0.104)
GDP	0.967 * ** (0.045)	0.966 * ** (0.045)	0.970 * ** (0.052)	0.983 * ** (0.046)	0.963 * ** (0.045)
GDP growth	0.067 * ** (0.014)	0.062 * ** (0.015)	0.069 * ** (0.019)	0.064 * ** (0.015)	0.068 * ** (0.014)
Trade openness	0.008 * ** (0.002)	0.008 * ** (0.002)	0.008 * ** (0.002)	0.006 * ** (0.002)	0.008 * ** (0.002)
Inflation	-0.005 (0.010)	0.001 (0.011)	-0.005 (0.013)	-0.001 (0.010)	-0.004 (0.011)
Natural resources	0.018 * ** (0.004)	0.017 * ** (0.004)	0.012 * * (0.005)	0.012 * * (0.005)	0.016 * ** (0.004)
Distance	0.198 (0.195)	0.266 (0.198)	0.361 (0.228)	-0.159 (0.213)	0.186 (0.197)
Enterprise age	-0.032 (0.106)	-0.024 (0.091)	-0.022 (0.092)	-0.023 (0.107)	-0.026 (0.106)
Enterprise size	0.160 * * (0.069)	0.188 * * (0.078)	0.120 (0.118)	0.164 * * (0.070)	0.154 * * (0.070)
Intangible assets	-0.033 (0.021)	-0.041 * (0.024)	-0.076 (0.058)	-0.040 * (0.022)	-0.038 * (0.021)
Board size	0.075 * (0.043)	0.083 * (0.046)	0.076 (0.074)	0.076 * (0.043)	0.086 * (0.049)
Independent board	0.007 (0.013)	0.010 (0.015)	0.009 (0.019)	0.006 (0.013)	0.006 (0.014)
Political stability				0.334 * ** (0.092)	
Economic openness				0.033 * ** (0.008)	
Constant	-33.865 * ** (3.539)	-35.105 * ** (3.181)	-34.468 * ** (3.662)	-33.269 * ** (3.598)	-33.738 * ** (3.581)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Enterprise Dummies	Yes	Yes	Yes	Yes	Yes
Regional Dummies	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.242	0.243	0.246	0.241	0.243
Observations	70524	67761	52845	69455	69052

Notes: The model is estimated using logit. Robust standard errors in parentheses. \*p < 0.1, \* \*p < 0.05, \* \*\*p < 0.01.

(2) and (4) both country-specific and firm-specific controls are taken up. Columns (1) and (2) show the results for Belt and Road countries, while columns (3) and (4) show the results for non-Belt and Road countries. The coefficients of CBI are significantly negative only in the models for non-Belt and Road countries. One reason is that the Belt and Road initiative may provide multinational firms with commitments such as good property rights protection in Belt and Road countries (Shao, 2020), which can reduce the risk for multinational firms. Thus, the impact of the level of CBI in the host country decreases. The other reason may be that state-owned enterprises respond more actively to the Belt and Road initiative. They invest more in Belt and Road countries for political goals (Wang and Liu, 2020), while paying less attention to the level of CBI in the host country.

#### 6.4. Other robustness tests

Firstly, CBI may result in greater political stability, economic openness, stable inflation and investors take these are factors into account when choosing OFDI locations. So, in addition to controlling for inflation, we take political stability and economic openness into account.<sup>5</sup> Column (4) in Table 7 shows that the coefficient of CBI is still significant after controlling for political stability and economic openness.

Secondly, we exclude financial enterprises as financial enterprises are usually highly regulated and differ from other enterprises (Boubakri et al., 2013; Deng et al., 2018). Column (5) in Table 7 shows that dropping financial enterprises does not affect our results.

Thirdly, following Garriga and Rodriguez (2020), we omit several subgroups of countries and redo the regressions. The results presented in Appendix B suggest that our findings are robust: deleting some subgroup of countries does not change our qualitative results.

## 7. Conclusion and policy implications

### 7.1. Contributions

Drawing on the eclectic paradigm and institutional theory, we examine the impact of central bank independence in the host country on the OFDI location choices of Chinese firms. Our contributions are as follows. Firstly, our study extends the literature on the relationship between the level of CBI in host countries and OFDI by examining the impact of the level of CBI in the host country on Chinese OFDI location choices. Based on the eclectic paradigm and institutional theory, we expect a negative impact of the level of CBI in the host country on Chinese OFDI location choices. We believe that in general OFDI from emerging countries is different from OFDI from advanced countries due to differences in the home countries' institutional environment. The experience operating in the institutional environment of the home country may be Chinese firms' ownership advantage (Buckley et al., 2007). They thereby have comparative advantages investing in host countries with a lower level of CBI because of the familiarity of Chinese firms to an environment characterized by a high degree of government intervention (Cuervo-Cazurra and Genc, 2008; Luo and Zhang, 2016; Ramasamy et al., 2012). Thus, our study provides a theoretical foundation for the negative impact of the level of CBI in host country on OFDI from China. More generally, we emphasize that the home country institutional environment should be taken into account in analyzing OFDI location choices of multinational firms located in emerging countries.

Secondly, we further argue that ownership matters: OFDI location decisions of state-owned enterprises are less affected by the institutional

quality in the host country than location decisions by privately owned firms. More specifically, our study suggests that the impact of the level of CBI in host countries on location choices of Chinese OFDI is greater for non-state-owned enterprises than for state-owned enterprises. We also find that Chinese OFDI location choices of non-state-owned enterprises are negatively associated to CBI distance between China and host countries, in contrast to location choices of state-owned enterprises. We argue that government support and political goals lead to different OFDI location decisions for state-owned and non-state-owned enterprises. Government support allows state-owned enterprises to take more risks and accept losses in foreign investments. Furthermore, a large proportion of OFDI by state-owned enterprises is politically driven, rather than aimed at profit maximization. Therefore, our study enhances the understanding of the differences in foreign investments between state-owned and non-state-owned enterprises in emerging countries. Our study enriches the institutional theory of OFDI from emerging countries by relating OFDI location choices to the level of CBI in the host country. We find that all components of CBI, namely personnel, policy and financial independence and priority for price stability, have a significant impact on the location choices of Chinese firms investing abroad. We also find that CBI only matters for Chinese OFDI investments in non-Belt and Road host countries, confirming the importance of political considerations in location choices of Chinese firms.

### 7.2. Policy and managerial implications

For policy makers in host countries, our results suggest that a low level of CBI may not hinder OFDI of emerging countries. Our findings also suggest that state-owned enterprises may take more risks and are more willing to accept losses in foreign investments as their behavior is politically motivated. Thus, policy makers of emerging home countries should note that the presence of this type of multinational firms may not be conducive to market-oriented capacity building for local firms (Tang, 2021).

For multinational enterprises located in emerging countries, our results suggest that their experience in operating in an environment with high government intervention in their home country may become their ownership advantage (Buckley et al., 2007) when competing with multinational enterprises from advanced countries (Cuervo-Cazurra and Genc, 2008; Kang and Jiang, 2012; Luo and Zhang, 2016; Ramasamy et al., 2012).

### 7.3. Further study

Our study has some limitations which may be addressed in future research. First, our sample is based on Chinese firms. Although China is the largest emerging country and the most important source of OFDI from emerging countries (Deng et al., 2018; Wang et al., 2012b), we believe that our theoretical reasoning is applicable to other emerging countries as well. It may therefore be useful to examine the relationship between the level of CBI in host countries and OFDI originating from other emerging countries. Second, we did not consider the scale of OFDI due to data limitations. Future studies could examine the impact of the level of CBI in host countries on the size of OFDI originating from emerging economies.

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<sup>5</sup> The data of political stability is from the WGI database. The data of economic openness is from Heritage Foundation.

**Appendix A. Results for different groups of countries**

	Belt and Road countries (1)	Belt and Road countries (2)	Non-Belt and Road countries (3)	Non-Belt and Road countries (4)
CBI	-0.126 (0.342)	-0.233 (0.364)	-1.164 * ** (0.285)	-0.971 * ** (0.302)
Institutional quality	-0.126 (0.145)	-0.152 (0.163)	0.152 (0.176)	0.146 (0.182)
GDP	0.678 * ** (0.062)	0.671 * ** (0.064)	1.131 * ** (0.067)	1.115 * ** (0.069)
GDP growth	0.020 (0.018)	0.010 (0.021)	0.091 * ** (0.023)	0.097 * ** (0.024)
Trade openness	0.005 * * (0.003)	0.004 (0.003)	0.011 * ** (0.002)	0.011 * ** (0.002)
Inflation	-0.006 (0.008)	-0.010 (0.012)	0.003 (0.022)	0.002 (0.024)
Natural resources	0.025 * ** (0.006)	0.020 * ** (0.007)	0.013 * ** (0.005)	0.013 * ** (0.005)
Distance	-0.251 (0.291)	-0.368 (0.322)	0.726 * * (0.341)	0.724 * * (0.356)
Enterprise age		-0.608 * ** (0.053)		-0.075 (0.114)
Enterprise size		0.057 (0.141)		0.199 * * (0.083)
Intangible assets		0.059 (0.045)		-0.077 * ** (0.030)
Board size		0.161 * * (0.075)		0.046 (0.055)
Independent board		0.010 (0.019)		0.001 (0.018)
Constant	-34.260 * ** (1.586)	-18.180 * ** (3.889)	-38.843 * ** (2.819)	-38.227 * ** (4.478)
Year Dummies	Yes	Yes	Yes	Yes
Enterprise Dummies	Yes	Yes	Yes	Yes
Host-country regional Dummies	Yes	Yes	Yes	Yes
Pseudo R-squared	0.167	0.168	0.311	0.308
Observations	18074	16677	38904	36044

Notes: The model is estimated using logit. Robust standard errors are in parentheses. \*p < 0.1, \* \*p < 0.05, \* \*\*p < 0.01.

**Appendix B. Robustness tests: deleting subgroup of countries**

Delete subgroup of countries	Asia (1)	Eastern Europe (2)	Latin America & Caribbean (3)	Northern Africa (4)	Sub-Saharan Africa (5)	Northern America & Western Europe (6)	Northern Europe (7)
CBI	-0.886 * ** (0.248)	-1.151 * ** (0.173)	-1.081 * ** (0.171)	-1.143 * ** (0.172)	-1.076 * ** (0.173)	-1.053 * ** (0.220)	-1.165 * ** (0.176)
Institutional quality	0.156 (0.128)	-0.134 (0.113)	-0.086 (0.104)	-0.103 (0.104)	-0.224 * * (0.103)	-0.007 (0.109)	0.213 * (0.117)
GDP	1.114 * ** (0.059)	0.971 * ** (0.046)	0.962 * ** (0.045)	0.951 * ** (0.044)	1.057 * ** (0.051)	0.690 * ** (0.047)	0.830 * ** (0.044)
GDP growth	0.086 * ** (0.022)	0.069 * ** (0.014)	0.067 * ** (0.014)	0.062 * ** (0.014)	0.059 * ** (0.016)	0.033 * * (0.016)	0.060 * ** (0.015)
Trade openness	0.010 * ** (0.002)	0.009 * ** (0.002)	0.008 * ** (0.002)	0.008 * ** (0.002)	0.010 * ** (0.002)	0.001 (0.002)	0.003 (0.002)
Inflation	0.006 (0.012)	-0.004 (0.013)	-0.000 (0.010)	-0.006 (0.011)	-0.012 (0.012)	-0.004 (0.010)	-0.002 (0.010)
Natural resources	0.015 * ** (0.005)	0.017 * ** (0.004)	0.018 * ** (0.005)	0.016 * ** (0.004)	0.030 * ** (0.005)	0.017 * ** (0.004)	0.007 (0.005)
Distance	0.576 * (0.298)	0.285 (0.205)	0.251 (0.195)	0.228 (0.200)	0.162 (0.200)	-0.186 (0.233)	-0.312 (0.221)
Enterprise age	-0.051 (0.111)	-0.045 (0.107)	-0.019 (0.091)	-0.028 (0.106)	-0.019 (0.107)	-0.942 * ** (0.068)	-0.023 (0.107)
Enterprise size	0.228 * ** (0.081)	0.145 * * (0.071)	0.143 * * (0.071)	0.154 * * (0.069)	0.197 * ** (0.073)	0.172 * * (0.085)	0.123 (0.076)
Intangible assets	-0.068 * * (0.029)	-0.043 * * (0.022)	-0.034 (0.022)	-0.037 * (0.021)	-0.039 * (0.021)	-0.000 (0.026)	-0.034 (0.021)
Board size	0.063 (0.051)	0.063 (0.045)	0.077 * (0.045)	0.076 * (0.044)	0.079 * (0.045)	0.103 * * (0.049)	0.083 * (0.045)
Independent board	-0.010 (0.017)	0.016 (0.013)	0.009 (0.013)	0.005 (0.013)	0.007 (0.013)	0.013 (0.015)	0.008 (0.013)
Constant	-40.053 * ** (4.114)	-33.933 * ** (3.600)	-34.425 * ** (3.112)	-33.468 * ** (3.557)	-36.823 * ** (3.646)	-10.590 * ** (3.675)	-25.037 * ** (3.927)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enterprise Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Yes	Yes	Yes	Yes	Yes	Yes	Yes

(continued on next page)



(continued)

Delete subgroup of countries	Asia (1)	Eastern Europe (2)	Latin America & Caribbean (3)	Northern Africa (4)	Sub-Saharan Africa (5)	Northern America & Western Europe (6)	Northern Europe (7)
Host-country regional Dummies							
Pseudo R-squared	0.304	0.245	0.238	0.236	0.242	0.165	0.250
Observations	48563	63042	61437	66739	57421	49705	61656

Notes: The model is estimated using logit. Robust standard errors are in parentheses. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

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