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#### Citation

XIA, Jun; MA, Xufei; LU, Jane W.; and YIU, Daphne W.. Outward foreign direct investment by emerging market firms: A resource dependence logic. (2014). *Strategic Management Journal*. 35, (9), 1343-1363. Available at: [https://ink.library.smu.edu.sg/lkcsb\\_research/7320](https://ink.library.smu.edu.sg/lkcsb_research/7320)

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## OUTWARD FOREIGN DIRECT INVESTMENT BY EMERGING MARKET FIRMS: A RESOURCE DEPENDENCE LOGIC

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*This study examines and extends the resource dependence logic of diversification for a better understanding of outward foreign direct investment (OFDI) activities by emerging market firms. We contend that the diversification logic is bounded by state ownership, an important but less considered component of interdependence. Our empirical results, based on panel data analysis of Chinese listed firms, suggest that the level of interdependence between Chinese and foreign firms in China in multiple forms, including symbiotic, competitive, and partner interdependencies, is positively associated with the level of the Chinese firms' OFDI activities. However, Chinese firms with higher levels of state ownership are less susceptible to the pressures imposed by foreign firms to invest abroad. Copyright © 2013 John Wiley & Sons, Ltd.*

### INTRODUCTION

Diversification is a central topic in resource dependence theory (RDT). The resource dependence logic of diversification (or simply the diversification logic), as noted by Pfeffer (1976: 39), is for a firm 'to diversify operations and thereby lessen dependence on the present organizations with which it exchanges.' Although Pfeffer and Salancik (1978) theorize interdependence both through exchange and through ownership, existing research on diversification largely focuses on the impact of interdependence through exchange (Birnbaum, 1985; Pfeffer, 1972a, 1976), thus

neglecting the bounded effect of interdependence through ownership.

This research gap limits application of the diversification logic and the precision of its predictions for two reasons. First, rooted in earlier studies on power dependence defined by exchange (Blau, 1964; Emerson, 1962; Jacobs, 1974), RDT assumes that all exchange actors have discretion to diversify so as to reduce the constraining dependence on their current exchange partners. This assumption, however, may be less realistic since some actors do not have such discretion due to a lack of ownership control over the use and allocation of the firm's resources (Pfeffer and Salancik, 1978). Second, ownership that ties two actors together against others may alter the power imbalance between these two coalition actors and their exchange actors (Emerson, 1962). Once a coalition is formed through ownership ties, there may be variations in the predicted actions based solely on interdependence through

Keywords: resource dependence theory; interdependence; state ownership; outward foreign direct investment; emerging market firm

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exchange. Therefore, ownership ties may serve as a boundary condition to the functionality of the diversification logic.

We extend and refine the diversification logic by examining how home-country dependence conditions influence the extent to which emerging market firms (EMFs) engage in outward foreign direct investment (OFDI) activities that can be regarded as a form of diversification in the context of internationalization. In their home country, EMFs operate in an environment in which foreign firms and local governments are powerful actors (Guler, Guillén, and Macpherson, 2002; Hoskisson *et al.*, 2000; Peng, 2003). Our study distinguishes between EMF-foreign firm interdependence through exchange and EMF-state interdependence through ownership, as informed by RDT, to examine how different forms of EMF-foreign firm interdependence influence the level of EMF OFDI and how such relationships are bounded by state ownership. This furthers our understanding of the resource dependence logic of diversification.

This study aims to make two contributions. First, our RDT approach provides a unique lens to study EMF internationalization. Interdependence has multiple forms (Hillman, Withers, and Collins, 2009). We extend the diversification logic by incorporating three forms of interdependence between EMFs and foreign firms—symbiotic, competitive, and partner interdependencies (Pfeffer and Salancik, 1978), thus allowing us to systematically investigate the extent to which the diversification logic predicts EMF OFDI. Because foreign firms are often more powerful than local firms (Inkpen and Beamish, 1997; Yan and Gray, 1994) and EMFs are often unable to absorb the constraints imposed by foreign firms in emerging markets, the EMFs may escape by investing abroad to avoid the dependence constraints at home.

Second, this study emphasizes a triadic relationship, beyond the dyadic interdependence between EMFs and foreign firms, by introducing state ownership as a boundary condition of the diversification logic. State ownership is a unique type of interdependence between the government and state-owned EMFs. Although the relationship between government dependence and corporate action is important in RDT research (Pfeffer and Salancik, 1978), it has been largely overlooked in the literature (Hillman *et al.*, 2009). This is probably because state ownership is relatively rare in

the United States, where the theory was initially formulated. However, state ownership is pervasive in transition economies (Hoskisson *et al.*, 2000; Peng, 2003). We believe that an examination of the moderating role of state ownership in the diversification logic may offer new insights into RDT.

In particular, ownership ties with a powerful actor allow a firm to enhance its power relative to other external actors with which it has exchange relationships. This is known as the ‘coalition’ effect (Emerson, 1962). We propose that state ownership may alter the relative power between EMFs and foreign firms due to the coalition effect that undermines the influence of the diversification logic. Whereas the diversification logic predicts that EMFs will actively engage in OFDI activities to increase their power relative to that of foreign firms at home, we suspect that EMFs with higher levels of state ownership may be less responsive to this logic because EMF-state coalitions allow these firms to balance the power of the foreign firms by providing nonmarket resources, industrial protection, or bargaining power.

In addition, although RDT emphasizes diversification as an important way to reduce exchange constraints, empirical analysis remains sparse (Finkelstein, 1997). Scholars have called for more research to inform applications of RDT beyond the U.S. context (Hillman *et al.*, 2009). To date, the RDT logic of diversification and its boundaries have rarely been examined in the context of emerging markets. We fill this gap by investigating OFDI activities of listed firms in China. China provides an ideal laboratory for testing the theoretical relationships we outlined because it is a popular destination for foreign firms and state ownership remains pervasive. Moreover, Chinese firms are beginning to play an increasingly important role in shaping the landscape of EMF OFDI activities (Child and Rodrigues, 2005). This empirical setting allows for a better understanding of this emerging phenomenon (Luo and Tung, 2007; Ramamurti and Singh, 2009) which, in turn, helps advance our theory.

## THEORETICAL BACKGROUND

### The resource dependence logic of diversification

Resource dependence theory emphasizes the interdependence of firms with environmental actors

(e.g., individuals, firms, groups, or governments) to stabilize resource exchanges. According to the theory, firms are constrained by powerful social actors with which resources are exchanged (Burt, 1982; Pfeffer, 1987). Adaptation and avoidance are two firm strategies to cope with external constraints (Pfeffer and Salancik, 1978). Organizational compliance as an adaptation strategy can be problematic because a firm may lose its decision-making autonomy (Nienhüser, 2008; Oliver, 1991; Pfeffer, 1972a). Alternatively, a firm may use an avoidance strategy (e.g., escape) to reduce the influence of the constraints by dominant actors. Diversification as 'a strategy for avoiding interdependence' places the firm in another set of exchange relationships (Pfeffer and Salancik, 1978: 127). Firms may diversify when external constraints cannot be absorbed (Pfeffer, 1972a, 1972b, 1976).

Building on Emerson's (1962) dyadic exchange approach, scholars have decomposed the concept of interdependence into mutual dependence and power imbalance: mutual dependence is defined as the sum of the dependencies between two actors, whereas power imbalance (or asymmetry) refers to the difference between their dependencies (Casciaro and Piskorski, 2005; Gulati and Sytch, 2007). External constraints may trigger strategies to reduce constraints. Consider two actors, A and B; if A and B are mutually dependent but B has more power over A, there are two ways to tilt the power imbalance situation in favor of A: to reduce A's dependence on B or to increase A's power relative to that of B (Bacharach and Lawler, 1980; Birnbaum, 1985). Diversification is one of the ways allowing a firm to achieve these two objectives (Pfeffer, 1972b, 1976). On the one hand, 'diversification represents a method for decreasing the organization's dependence on other, dominant organizations' (Pfeffer and Salancik, 1978: 114). On the other hand, Actor A may increase its power relative to that of Actor B through diversification outside the A-B exchange relationship (Emerson, 1962). In this context, interdependence refers to both economic and social exchanges between these actors (Birnbaum, 1985; Emerson, 1962).

By applying this logic to the context of emerging markets, we argue that as the magnitude of exchange between EMFs and foreign firms increases, EMFs may invest abroad to diminish the strength of the exchange relationship with foreign firms in the EMFs' home markets. Resource

dependence theorists have paid particular attention to firm-government interdependence through exchange to demonstrate this diversification logic (Pfeffer, 1972a; Pfeffer and Salancik, 1978; Salancik, 1979). In our point of departure, we argue that the government, as a powerful actor outside the relationship between firms, may alter the power imbalance between EMFs and foreign firms by forming a coalition with the EMFs through ownership ties. This will be explained in further detail later.

### Critiques of the diversification logic

Interdependence is a multifaceted phenomenon (Hillman *et al.*, 2009; Pfeffer and Salancik, 1978). The diversification logic focuses on only one component of dependence (i.e., resource importance) and ignores another component of dependence (i.e., discretion). The two dependence components—resource importance and discretion (Jacobs, 1974; Pfeffer and Salancik, 1978; Thompson, 1967)—suggest that A's dependence is determined by the extent to which (1) B controls A's important resources (e.g., the magnitude of the exchange) or (2) B has discretion (e.g., ownership) over the allocation and use of the resources that are needed by A. This distinction allows us to differentiate firm-government interdependence through ownership from firm-government interdependence through exchange, thus contributing to a better understanding of the diversification logic.

A focus on this distinction is theoretically important because a possible confounding effect may occur. That is, predictions based on one type of interdependence cannot be generalized to explain diversification based on another type of interdependence. Earlier approaches on the firm-government relationship focused on the effect of the magnitude of exchange as one component of dependence—that is, the resource importance (Birnbaum, 1985; Pfeffer, 1972a; Salancik, 1979)—but ignored ownership that captures the control relationship between them as another component of dependence—that is, discretion. Ownership ties are not meant to eliminate the exchanges between actors, but instead to secure or stabilize their exchange flows (Casciaro and Piskorski, 2005; Finkelstein, 1997; Pfeffer, 1972b). Although the two components of dependence are not mutually exclusive (Pfeffer and Salancik, 1978), discretion captures certain aspects of the

firm-government relationship that go beyond the importance of resources, and state ownership may have different implications for firm diversification strategies in response to market constraints.

In our view, the omission of state ownership is problematic when applying the diversification logic to EMFs, since state ownership may be prevalent in transition economies where state-owned enterprises (SOEs) dominated prior to the economic reforms (Hoskisson *et al.*, 2000; Peng, 2003). Traditional SOEs operated within a single country (i.e., the home country). They had little autonomy to invest abroad because their operations were constrained by the government's resource allocation and distribution systems (Huang, 2003; Park, Li, and Tse, 2006). But the institutional transition led to the privatization, or partial privatization, of the former SOEs (Cuervo-Cazurra and Dau, 2009; Gupta, 2005) and the state withdrew its ownership from many SOEs, allowing the formation of partially state-owned or even non-state-owned firms (García-Canal and Guillén, 2008; Hoskisson *et al.*, 2000). As a result, the EMFs are now characterized by a hybrid ownership, with the state holding various proportions of shares across the EMFs. The government has been transformed into that of a shareholder among a number of other shareholders in public firms (Peng, 2004). Still, state-owned EMFs and the government are not independent of one another in decision making (Lioukas, Bourantas, and Papadakis, 1993; Suhomlinova, 1999; Uhlenbruck and De Castro, 1998). To advance RDT, we next introduce state ownership as a boundary condition to the diversification logic.

### A boundary condition to the diversification logic

We have proposed that the dyadic EMF-foreign firm interdependence may lead to EMF OFDI. However, our understanding of this logic is incomplete if we neglect the role of the government as a powerful actor. The triad among EMFs, foreign firms, and the government does not act in isolation. There is a power mechanism in the triadic relationship: adding C to the A-B dyad has a distal effect. That is, A's power may be increased and B's power may be reduced if C forms a coalition with A against B (Emerson, 1962; Willer, 2003). According to Emerson (1962: 37), 'The proper representation of coalitions in a triad would be (AB)-C, (AC)-B, or (BC)-A. That is, a triadic network

reduces to a coalition only if two members unite as a single actor in the process of dealing directly with the third.'

To increase our understanding beyond traditional arguments that have largely focused on dyadic relationships to examine the diversification logic, we use an integrative approach to explore the boundary condition to the logic. State ownership represents a form of EMF-state coalition, which can be a relevant demarcation of the diversification logic prediction because with high state ownership, EMFs and the government can combine into one party against the others. We argue that, given the existence of EMF-state coalitions through ownership ties in emerging markets (Lioukas *et al.*, 1993), the government can serve as an alternative source of resources for those EMFs that have higher state ownership, and it can protect them from foreign competition or can participate in their negotiations with foreign partners to balance the power of the foreign firms. The fundamental reason for this is that in a triadic relationship among EMFs, foreign firms, and the government, the coalition shifts the relative power balance among these three social actors (Emerson, 1962). As a consequence, when facing EMF-foreign firm interdependence pressures, EMFs may respond differently depending on the level of state ownership, even though, as suggested by the diversification logic, OFDI may help them reduce the constraints exerted by foreign firms in the home market. We develop our hypotheses based on these theoretical arguments.

## HYPOTHESES

### EMF-foreign firm interdependence through exchange

Witt and Lewin (2007) recently conceptualized OFDI as an 'escape' spurred by environmental constraints (e.g., high taxes) in the home country. This can be viewed as an avoidance strategy if the firms are in a disadvantageous bargaining position (Boddewyn and Brewer, 1994). Our theoretical development suggests that home-based interdependence between local EMFs and foreign firms may result in the EMFs escaping from the home country. Given that multiple forms of interdependence coexist in emerging markets, we test this prediction systematically so as to develop

a new generation of research on multiple forms of dependence (Hillman *et al.*, 2009). Building on studies by Pfeffer (1972b) and Pfeffer and Nowak (1976), we examine the effects of symbiotic, competitive, and partner interdependences between EMFs and foreign firms in emerging markets on EMF OFDI. In our research context, symbiotic interdependence occurs when foreign and local suppliers or buyers are concentrated in the same geographic region; competitive interdependence occurs when foreign and local firms operate within the same industry; and partner interdependence occurs when foreign and local firms form joint ventures (JVs) in the emerging market.

### *Symbiotic interdependence*

Since geographic propinquity increases with the density and strength of resource exchanges, the interdependence between EMFs and foreign firms can be unevenly distributed across regions. In order to reduce transportation or distribution costs, foreign firms often rely on nearby business communities for raw materials, intermediate products, or end markets to streamline their operations. As a result, foreign firms create a 'symbiotic interdependence' (Pfeffer, 1972b) with local suppliers, distributors, or buyers in the same region. Hence, regional FDI concentration increases resource exchanges between EMFs and foreign firms, thus enhancing their mutual dependence with each other for resources.

One's neighbors matter in terms of defining not only opportunities but also constraints (Burt, 1992). Symbiotic interdependence in emerging markets may produce two results. First, since foreign firms have control over some advanced and critical resources needed by the local firms, the interdependence provides the foreign firms with a power advantage to impact the quality and price of the regional resources by demanding that the EMFs provide superior products and services (Guler *et al.*, 2002). Second, symbiotic interdependence is likely to stimulate EMFs to seek alternative sources of resources so as to reduce their dependence on the foreign firms or to cultivate the foreign firms' dependence by controlling those critical resources required by the foreign firms. As the sources of some critical resources (e.g., supplies or markets) are not readily available in the EMF home markets, the diversification logic suggests that one way for EMFs to respond to such

home-based interdependence pressures is to diversify into foreign markets.

The rationale is as follows: firms in an unfavorable power position in an exchange relationship with others may seek diversification to reduce their dependence concentration and, thus, to increase their relative power (Pfeffer, 1972a, 1976). A firm can diversify into new geographic locations to reduce the constraints associated with dependence on present markets or actors, thereby altering the unfavorable power imbalance (Birnbaum, 1985). To this end, OFDI allows EMFs to gain more power to manage the symbiotic interdependence with the foreign firms at home. As the distribution of foreign firms is often asymmetrical across regions in a given country, EMFs in regions with higher levels of symbiotic interdependence are likely to engage in more OFDI activities than EMFs in regions with lower levels of symbiotic interdependence.

*Hypothesis 1: The level of symbiotic interdependence between an EMF and foreign firms in a region in the EMF's home country is positively associated with its subsequent outward FDI activity.*

### *Competitive interdependence*

Competitive interdependence, in contrast to symbiotic interdependence, is what Pfeffer and Salancik (1978: 115) and Pfeffer (1972b) call the 'commensalistic interdependence' that develops from a relationship between competitors in the same industry. A competitor effect occurs when local and foreign firms that provide similar products or services and require similar inputs depend on the same market for exchange. Thus, they compete for market power to maximize their respective market shares. Globalization and liberalization have intensified foreign competition in emerging markets (Hoskisson *et al.*, 2000), increasing the competitive interdependence between EMFs and foreign firms in the same industry. The mutual dependence is characterized by a power imbalance, with the foreign firms in general having more market power over the EMFs due to their control of advanced resources, such as technology and new management systems (Luo and Tung, 2007).

Powerful actors tend to use their power to their own advantage in competing markets (Pfeffer and Nowak, 1976). Foreign firms are likely to exercise their power to increase market dominance

in the host country. Without managing the power imbalance to increase their market share, EMFs in the same industry will find it difficult to prosper. Such an imbalance can even become a deterrent to their survival. In such a situation, avoidance may be a viable option, allowing the EMFs to diversify in order to access alternative sources of resources (Pfeffer and Salancik, 1978). EMFs may invest abroad to avoid the challenges imposed by foreign counterparts in their home market. OFDI enables EMFs to increase their relative market power by accessing distribution channels or end-product markets in foreign countries or by controlling sources of supplies that are either costly or unavailable at home. Following this logic, we expect that in an industry with higher levels of competitive interdependence between EMFs and foreign firms, EMFs are likely to escape by becoming involved in more OFDI activities than are EMFs in an industry with lower levels of competitive interdependence.

*Hypothesis 2: The level of competitive interdependence between an EMF and foreign firms in an industry in the EMF's home country is positively associated with its subsequent outward FDI activity.*

#### *Partner interdependence*

Joint ventures are strategic responses to mutual dependence between partners (Pfeffer and Nowak, 1976). Such dependence permits economic exchanges to stabilize the flow of resources (inputs and outputs). When entering emerging markets, foreign firms frequently engage in international joint ventures (IJVs). The interdependence between the partners at home creates opportunities for the EMFs to absorb critical resources, such as advanced technologies or managerial skills (Hitt et al., 2000). Foreign partners likewise depend on local partners for host country knowledge and resources. However, the instability that is a distinctive feature of IJVs often results in their eventual termination (Inkpen and Beamish, 1997).

In a general IJV setting, the partners' attempt to balance one another's power advantage has been identified as a source of instability (Inkpen and Beamish, 1997; Yan and Gray, 1994). Foreign partners often have stronger bargaining power over the local partners (i.e., the EMFs) because they

control some important resources that provide a 'power advantage' (Emerson, 1962). From a RDT perspective, IJV instability is of particular concern because termination of the alliance by either partner may have a disruptive effect on resource flows. According to Jacobs' (1974) pioneering study, substitutability and alternatives are key concepts to understand IJV instability. If an actor forms multiple IJVs with substitutable resources, its dependence uncertainty on any one partner is reduced because it can rely on alternative partners to stabilize the flow of resources. In contrast, if the resources that the IJVs provide are not substitutable, there is more dependence uncertainty.

Hence, EMFs are more likely to face partner dependence uncertainty as the nonsubstitutability of the IJVs that the EMFs establish at home increases. One strategy to reduce this uncertainty is to acquire alternative sources of resources (Emerson, 1962; Pfeffer and Salancik, 1978). In reality, foreign sources of comparable resources are often not readily available in the home country. As such, the EMFs are likely to invest abroad in order to access needed resources. OFDI allows the EMFs to absorb foreign sources of resources, thus not only streamlining operations but also enhancing their bargaining power relative to that of their IJV partners. Therefore, we expect that EMFs with multiple nonsubstitutable IJVs at home are likely to engage in more OFDI activities to mitigate partner dependence uncertainties.

*Hypothesis 3: The level of partner interdependence between an EMF and foreign firms in the EMF's home country is positively associated with its subsequent outward FDI activity.*

#### **State ownership as a boundary condition**

We further argue that the RDT logic of EMF OFDI is bounded by the EMFs' level of state ownership. As noted, state ownership as a form of coalition may alter the power dependence relationship between EMFs and foreign firms, thus reducing the pressure on EMFs with higher state ownership to follow the diversification logic. We focus on three dominant mechanisms that may explain why state ownership enhances the power of EMFs facing pressures generated from symbiotic, competitive, and partner interdependencies with foreign firms, respectively: (1) government resources

that increase the dependence of foreign firms on EMFs with higher levels of state ownership in a given region; (2) government protection that mitigates the impact of foreign competition on the survival of EMFs with high levels of state ownership in a given industry; and (3) government involvement that enhances the bargaining position of EMFs with higher levels of state ownership when negotiating with foreign partners. Next, we specify these arguments to address how state ownership alters the power relationship between EMFs and foreign firms and, hence, respectively moderates the interdependence relationship in a given region, industry, or IJV in an emerging market.

#### *Symbiotic interdependence moderated by state ownership*

Because foreign firms in a given region as upstream or downstream players, rather than as competitors, must depend on local EMFs for vital resources, such as access to key materials, distribution channels, or end-markets, we argue that this dependence is more likely to enhance the power of those EMFs that have higher levels of state ownership. The fundamental reason for this is that the government may serve as an alternative source of resources for these EMFs. Governments in emerging markets often possess significant strategic resources (Hoskisson *et al.*, 2000; Ma and Delios, 2010). Because of their coalition with the government, EMFs that have higher state ownership often control and manage these strategic resources on behalf of the government. Hence, they are more likely to become 'irreplaceable' regional suppliers or distributors of crucial resources that are needed by the foreign firms.

As noted by Pfeffer and Salancik (1978), firms that control critical resources have power over others and, thus, the likelihood of their using an avoidance strategy is reduced. Control of restricted state resources is an important mechanism by which EMFs with higher levels of state ownership are able to influence prices in upstream or downstream transactions, to balance the power of foreign firms, and to countervail the constraining effects of foreign firms. Such EMFs are less motivated to engage in an escape strategy (such as investing abroad) because they hold a more power-advantaged position in a given region with respect to supplier–buyer interdependence with foreign firms at home.

In contrast, EMFs with lower levels of state ownership are more subject to resource constraints in the home market (Child and Rodrigues, 2005; Shenkar and von Glinow, 1994). In particular, it is more difficult for them to access those resources controlled by the government (Huang, 2003) and, as a response, they are more likely to actively seek control over or access to alternative sources of resources outside of the home country. As a result, they are more likely to use an escape strategy since OFDI allows them to deal with the regional symbiotic interdependence with foreign firms at home (per Hypothesis 3). Taken together, we predict that:

*Hypothesis 4: State ownership will reduce the effect of the level of symbiotic interdependence between an EMF and foreign firms in the region where the EMF is located in the home country on its subsequent outward FDI activity.*

#### *Competitive interdependence moderated by state ownership*

In a foreign firm-concentrated industry, the presence of many powerful foreign firms may eliminate local competition by reducing their market shares, possibly even threatening their survival. In this situation, the diversification logic predicts that intensified foreign competition may motivate EMFs to escape via OFDI. However, we should not ignore the influence of local government as a powerful third actor. The EMF-state coalition suggests that the government may serve as an alternative source of resources against market constraint (Suhomlinova, 1999). When facing foreign competition, certain EMFs will survive due to home government protection (Huang, 2003). Government protection, as a defense mechanism, can alter the power imbalance between foreign and local competitors in the same industry. Moreover, government protection that favors certain types of EMFs may further differentiate their OFDI preferences.

It seems reasonable to argue that EMFs with higher levels of state ownership may be less responsive to domestic competitive interdependence with foreign firms and, thus, less likely to invest abroad. Through the ownership ties in coalitions of EMFs and the state, these EMFs are more likely to be protected from foreign competition by government industrial policies that



are often subject to political and social concerns (Child and Tse, 2001; Harwit, 2005). For example, state-owned banks may carefully allocate state capital to favor these coalitions (Huang, 2003). Local governments may shield those EMFs with higher state ownership from market competition by offering more favorable operational conditions or government designated packages to ensure their survival for either macroeconomic or political purposes.

The existence of these EMFs, in turn, is more subject to dependence on government protection that allows them an advantage, even without competing abroad, in terms of maintaining market power over foreign competitors. These EMFs are able to enjoy their existing territory. They may prioritize their strategies for macroeconomic or political purposes to serve the domestic market, reducing any necessity or incentive to go abroad to mitigate competition from the foreign firms at home. By contrast, EMFs with lower levels of state ownership are less able to compete without government support. They are more likely to attempt to avoid the direct competitive threats by foreign firms in the home market by seeking opportunities in foreign markets since OFDI as an avoidance strategy will broaden their dependence structure and eventually enhance their market power at home.

*Hypothesis 5: State ownership will reduce the effect of the level of competitive interdependence between an EMF and foreign firms in the industry in which the EMF operates in the home country on its subsequent outward FDI activity.*

#### *Partner interdependence moderated by state ownership*

The literature on the instability of IJVs suggests that a shift in the bargaining power between local and foreign partners increases the likelihood of IJV termination (Inkpen and Beamish, 1997; Yan and Gray, 1994). Consistent with this conceptualization, empirical research shows that in a local-foreign IJV in which the foreign partner increases its bargaining power, the hazard rate of IJV termination also increases, as predicted by RDT (Xia, 2011). These studies collectively suggest that EMFs that attempt to reduce partner interdependence uncertainty with foreign partners

at home must maintain or even increase their bargaining power.

We argue that in an IJV between an EMF and a foreign partner, the local government may alter the power imbalance when EMF state ownership is high. The reason for this is that the government may directly intervene in the bargaining process between the foreign and local partners. The foreign partner will have to deal with the local government, which, as an important owner of the local partner, is another powerful actor with political motivations. The literature on multinational firms-host government interactions suggests that host governments often have substantial bargaining power over foreign investors (Boddeyn and Brewer, 1994; Fagre and Wells, 1982). Empirical evidence on Sino-foreign JVs shows that foreign ownership concessions occur when local partners have a higher level of state ownership because the government backing boosts the bargaining power of the local partners (Pan, 1996).

With the power advantage resulting from the coalition with the local government at home, such EMFs are more likely to maintain power over the foreign partners. According to Boddeyn and Brewer (1994), once a foreign firm invests in a host country, its bargaining power over the local government declines. Therefore, when an EMF forms a coalition with the government, it can balance the bargaining power of its foreign partners without actively engaging in OFDI, thus reducing the diversification logic. In contrast, the ability of EMFs to maintain partnerships with foreign firms at home may actually decline when their state ownership levels are low. Indeed, EMFs with lower levels of state ownership are less able to maintain their bargaining power in the home country (Inkpen and Beamish, 1997) and, thus, they have a greater motivation to maintain or increase their relative power through OFDI when their IJVs at home are nonsubstitutable. Therefore, the instability of IJVs established at home will be less of a concern if the firm can establish similar relationships abroad (Elg, 2000). These considerations suggest the following hypothesis:

*Hypothesis 6: State ownership will reduce the effect of partner interdependence between an EMF and foreign firms in the home country on its subsequent outward FDI activity.*

## METHODS

### Setting and sample

China provides an appropriate empirical setting to test our hypotheses. Since the early 2000s, Chinese firms, especially private firms, have begun to 'go global' (*zouchuqu*) (Buckley *et al.*, 2007), a phenomenon that has produced a sample sufficiently large to investigate our theoretical predictions. China is now not only the largest FDI recipient country in the world, but also one of the largest sources of OFDI among the emerging economies. But the government still plays an important role in Chinese firms through its ownership ties. Given the challenges of obtaining reliable financial information about EMFs (Hoskisson *et al.*, 2000), we used a sample of Chinese manufacturing firms listed on the Shanghai and Shenzhen stock exchanges. Data on public firms are relatively more reliable because these firms are required by law to disclose accurate financial information in their annual reports and these reports must meet international standards.

We obtained our basic information from the China Stock Market and Accounting Research (CSMAR) database, which is considered a reliable database. Service firms are omitted as they are fundamentally different from manufacturers in terms of their relative attributes of intangibility, perishability, heterogeneity, and simultaneity (Contractor, Kundu, and Hsu, 2003). We set our time window during the 2001 to 2007 period. Those firms that were delisted before the end of our observation window were dropped from further analysis. In addition, to avoid alternative explanations, we excluded firms with foreign owners as any of their Top 10 shareholders. The final sample consists of 780 firms across 28 industries (China's two-digit industrial classification codes) and 31 provincial-level regions, leading to a panel of 4,067 firm-year observations. We lagged all independent variables by one year to avoid possible endogeneity with the dependent variable.

### Dependent variable

#### *Firm-level outward FDI*

OFDI is an equity type investment to expand outside a firm's home country, resulting in the establishment of a foreign subsidiary in a host country (Caves, 1996; Delios and Beamish, 1999; Flores and Aguilera, 2007). The dependent variable,

*firm-level OFDI*, is a count of OFDI projects (i.e., foreign subsidiaries) established by a Chinese firm in a given year. It is a flow rather than a stock measure of OFDI projects<sup>1</sup> for two reasons. First, it is about the number of annual FDI projects outside the firm's home country (i.e., China). Second, it captures how time-varying home-country dependence conditions may affect the subsequent establishment of OFDI projects. This operationalization also allows us to address, at least partially, some criticisms about the use of foreign sales (e.g., Rugman, 2005) as an overarching measure to capture OFDI activities (Flores and Aguilera, 2007: 1196). To develop this measure, we relied on a list of subsidiaries of our sampled firms, which was compiled by WIND Data Services, a leading provider of financial databases of Chinese listed firms. With this list, we identified a firm's OFDI according to the names and/or locations of its subsidiaries, the foreign currency used to establish the OFDI, and information from the firm's Web site.

### Independent and moderating variables

#### *Symbiotic interdependence*

To reflect a firm's symbiotic dependence with foreign neighbors, this measure is defined as the concentration of FDI activities undertaken by foreign firms in the specific region of the home country in which the firm is located. We identified the firm's region as the province in which the firm's corporate headquarters are located. Taking a multidimensional approach (e.g., Keister, 2001), we considered four measures: (1) revenue of foreign-owned enterprises (FOEs) divided by the total revenue of all enterprises in the province; (2) assets of FOEs divided by the total assets of all enterprises in the province; (3) number of FOEs divided by the total number of all enterprises in the province; and (4) number of employees in the FOEs divided by the total number of employees in all enterprises in the province. To avoid double-counting competitive interdependence in any region, we excluded from the four measures FDI activities in any region where the FOE and the Chinese firm were in the same industry at the two-digit level. The results of factor analysis suggest that these four measures are loaded on one factor. The factor loadings of the four

<sup>1</sup> We thank our editor, Professor J.T. Li, for this suggestion.

measures were 0.964 (revenue), 0.978 (assets), 0.972 (number of FOEs), and 0.984 (number of FOEs' employees). The Cronbach alpha of the factor was 0.979. Therefore, we measured the symbiotic interdependence by combining (taking the average of) these four measures.

### *Competitive interdependence*

To capture a firm's competitive dependence with foreign competitors in the home country, we included the FDI activities undertaken by all foreign firms in a specific industry in which the firm competes. We used China's two-digit industry classification code to define the industry, which is comparable to the two-digit to three-digit SIC codes used in the United States. Similar to the measure of symbiotic interdependence, a combination (average) of four measures is used as the measure of competitive interdependence: (1) revenue of foreign-owned enterprises (FOEs) divided by revenue of all enterprises in an industry; (2) assets of FOEs divided by the total assets of all enterprises in an industry; (3) number of FOEs divided by the number of all enterprises in an industry; and (4) number of employees in all FOEs divided by the number of employees in all enterprises in an industry. The factor analysis indicated that these four measures are also loaded on one factor. The factor loadings were 0.975 for revenue, 0.974 for assets, 0.956 for the number of FOEs, and 0.975 for the number of FOE employees. The Cronbach alpha of the factor was 0.973. The symbiotic and competitive interdependence data were obtained from the *China Statistical Yearbook* and the *China National Census of Basic Units* published by China's National Bureau of Statistics (NBS).

### *Partner interdependence*

We developed a count measure to capture EMF involvement in IJVs established with foreign firms in the home country. When a firm simultaneously engages in multiple IJVs in the same business activity, the firm will proportionally reduce its dependence on any one IJV partner (Xia, 2011; Xia and Li, 2013). Therefore, we take the foreign IJV partner substitutability (embodied in multiple IJVs) into consideration when measuring dependence on foreign partners. For example, if a Chinese firm has formed two IJVs producing the

same product and a third IJV producing a different product, this firm has only two nonsubstitutable IJVs with foreign partners. We used the cumulative number of nonsubstitutable IJVs that a firm has formed in China in a given year and then logarithmically transformed this variable. The IJVs were identified according to the ownership level in the firm's subsidiaries (i.e., non-wholly owned domestic subsidiaries) based on information provided by WIND Data Services. We also collected IJV information from various editions of the *Directory of Foreign-Invested Enterprises in China* compiled by the Ministry of Commerce (MOFCOM) as well as from the firms' annual reports and their Web sites. These data sources provide information on the name of each IJV, location, time of establishment, and business activities, all of which are relevant to the coding of a Chinese firm's non-substitutable IJVs with foreign partners in China.

### *State ownership*

The moderating variable is used to measure a Chinese firm's dependence on the government through ownership ties. We adopted a three-step procedure to develop this measure. First, following prior studies (e.g., Delios, Wu, and Zhou, 2006), we identified the ownership type of a listed company's Top 10 shareholders. Second, if a shareholder's ownership type is an SOE, we coded the state ownership in terms of the proportion of shares held by this shareholder; if this shareholder's ownership type is not an SOE, its state ownership is coded as '0.' Third, we summed all the shareholders' proportion of SOE shares. Information on the ownership identity and the percentage of shares owned by different entities was obtained from the CSMAR database.

### **Control variables**

We included four firm-level time-varying control variables that may also influence a firm's OFDI activities: firm size, age, performance, and leverage. First, larger firms typically have the resources needed to operate internationally (Dunning, 1993). We measured firm size by the logarithm of the firm's total sales. Second, older and younger firms may respond differently to adventurous activities, such as outward FDI (Guillén, 2002). We controlled for firm age, measured as the logarithm of the firm's founding

year subtracted from the observation year. Third, performance may also be related to OFDI (Yiu, Lau, and Bruton, 2007). We controlled for firm performance, measured as return on sales (ROS). Finally, we included firm leverage (debt divided by assets), as suggested by Tihanyi and colleagues (2003). The data were obtained from the CSMAR database.

We accounted for the proprietary content of the firm's intangible assets, such as technological know-how and patents, which may be exploited in foreign markets (Delios and Beamish, 1999; Dunning, 1993). Given that consistent firm-level data on R&D intensity (R&D expenditure as a percentage of sales) are not widely available in China, we used industry-level R&D intensity as a proxy (Li, Yang, and Yue, 2007). The information was obtained from various editions of the *China Statistical Yearbook on Science and Technology*.

Research on emerging markets has highlighted the critical role played by business groups (Khanna and Rivkin, 2001; Khanna and Yafeh, 2007). Well-established business groups and their affiliates often have unique resource bundles, which may have implications for OFDI activities (Amsden, 2009). We controlled for business group experience, measured as the logarithm of the year since the formation of the business group. Following prior studies (Lu and Ma, 2008), the information was collected from various editions of *Large Corporations of China*; a list from the State-Owned Assets Supervision and Administration Commission of the State Council (SASAC), as well as from other sources, such as the press releases, annual reports, and/or Web sites of these firms. In 2006, 602 out of the 780 firms in our sample registered as business groups/affiliated with 10.67 years of average group experience.

We included a set of year dummy variables to capture OFDI arising from potentially omitted variables that evolve over time. As China's institutional and economic development varies across regions and industries, we fixed the effects of subnational regions by using the NBS three-region classification (i.e., the Eastern, Central, and Western regions) and the industry effects by using the category of industrial sector, similar to that in the *Industry Classification Guide of Listed Companies* issued by the China Securities Regulatory Commission (CSRC).

## Model estimation

The use of annual OFDI as the dependent variable suggests the use of a count model, such as a Poisson or negative binomial (NB) model. The NB model is more appropriate because the distribution of OFDI counts in our sample indicates overdispersion (Greene, 2003). However, standard NB models might not be able to handle the presence of excess zero counts in OFDI data. To deal with this problem, a zero-inflated negative binomial regression model (ZINB) may be a better estimation technique. Using the ZINB command in Stata 12 and following Greene's (2003) recommendation to apply the Vuong test (Vuong, 1989), one can determine whether the ZINB model better describes the data than the standard NB model. The Vuong Z-score in our study has a positive value, confirming that the ZINB model is a better choice.

Our analyses also need to address the issue related to the lack of independence and unobserved heterogeneity (Greene, 2003) because our longitudinal panel data contain repeated observations (i.e., EMFs) across years. This potential problem may lead to an underestimation of the true standard errors, thus inflating the significance tests that are associated with the parameter estimates. Therefore, we reported the robust standard errors that were derived from the robust variance estimator (White, 1980), producing consistent standard errors irrespective of the correctness of the correlation structure assumed by the regression model and yielding asymptotically consistent estimates even when the errors are heteroskedastic. This approach allows us to relax the assumption that observations across years are independent, thus helping us obtain better estimates of the parameters.

## RESULTS

Table 1 presents the descriptive statistics and a correlation matrix for the variables used in this study. The correlation matrix shows that the magnitude of the correlations between the independent variables is low (maximum = 0.343). In developing the interaction terms, we entered mean-centered independent variables to minimize potential multicollinearity. In addition, we inspected the variance inflation factors (VIF) in a parallel set of OLS regression models. The VIF values for all model

Table 1. Descriptive statistics and correlations<sup>a,b</sup>

Variable	Mean	s.d.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1 Firm-level outward FDI	0.05	0.39										
2 Firm size	20.40	1.22	0.128									
3 Firm age	2.09	0.50	0.008	0.180								
4 Firm performance	0.01	0.38	0.007	0.135	-0.115							
5 Debt/asset ratio	0.50	0.21	0.024	0.087	0.140	-0.343						
6 R&D intensity	2.00	0.76	-0.025	-0.069	0.034	-0.000	-0.007					
7 Business group experience	1.70	1.00	0.027	0.267	0.209	0.011	0.008	0.007				
8 State ownership	0.38	0.25	-0.100	0.121	-0.063	0.003	-0.073	0.036	0.134			
9 Symbiotic interdependence	0.23	0.16	0.084	0.107	0.108	0.014	0.049	0.009	-0.017	-0.214		
10 Competitive interdependence	0.26	0.14	0.101	0.017	0.011	0.000	-0.015	-0.131	0.002	-0.264	0.161	
11 Partner interdependence	0.13	0.34	0.138	0.198	0.232	-0.023	0.054	0.009	0.117	-0.024	0.264	0.076

<sup>a</sup> 780 firms, 4,067 observations.

<sup>b</sup> Significant at the 0.05 level when Pearson correlations > 0.030 or < -0.030.

variables were less than 10, the accepted cutoff value, indicating that multicollinearity is not a serious problem in the estimation.

Table 2 shows the results of the ZINB regression models. Model 1 is the baseline model that includes only the control variables and the moderating variable. Models 2 to 4 separately test the main effects of the three forms of interdependence on OFDI, respectively. Model 5 adds all the independent variables to serve as a baseline model for Models 6 to 9, which include the interaction terms. Models 6 to 8 separately test the interactive effects of the three forms of interdependence and state ownership, respectively. Model 9 is the full model. The values of the incremental Wald  $\chi^2$  statistics suggest that the inclusion of the independent variables (or the interaction terms) adds significant statistical power to the respective baseline model (i.e., Model 1 or Model 5).

Hypotheses 1, 2, and 3 state that the effects of symbiotic, competitive, and partner interdependence are positively related to a firm's OFDI. In Table 2, the coefficients of symbiotic interdependence are positive and significant ( $p < 0.01$ ) in Models 2, 5, and 9. The coefficients of competitive interdependence are positive and significant in Models 3, 5, and 9 ( $p < 0.01$ ). The coefficients of partner interdependence are also positive and significant in Models 4 ( $p < 0.05$ ), 5 ( $p < 0.10$ ), and 9 ( $p < 0.01$ ). Therefore, Hypotheses 1, 2, and 3 are supported. To examine their economic significance, we tested the marginal effect of each independent variable at the mean and one standard deviation (SD) above the mean while holding all other variables at the mean. When the mean value of symbiotic, competitive, and partner interdependence is one SD above the mean, the degree of OFDI is increased by 66.95 percent, 63.51 percent, or 19.28 percent, respectively, suggesting that our findings are meaningful in explaining OFDI.

Hypotheses 4, 5, and 6 suggest that state ownership reduces the effects of symbiotic, competitive, and partner interdependence on EMF OFDI. As shown in Table 2, the interactive effect of symbiotic interdependence and state ownership is negative and significant ( $p < 0.01$  in Model 6 and  $p < 0.05$  in Model 9). The interactive effect of competitive interdependence and state ownership is negative and significant in Models 7 and 9 ( $p < 0.05$ ). Similarly, the interactive effect of partner interdependence and state ownership is also negative and significant ( $p < 0.05$  in Model 8 and

Table 2. Zero-inflated negative binomial regression on OFDI of Chinese firms<sup>a-c</sup>

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
1 Constant	-12.61*** (1.79)	-13.10*** (1.78)	-13.38*** (1.80)	-11.48*** (1.81)	-12.68*** (1.80)	-12.47*** (1.80)	-12.39*** (1.78)	-11.87*** (1.81)	-11.62*** (1.80)
2 Firm size	0.58*** (0.09)	0.56*** (0.08)	0.57*** (0.09)	0.52*** (0.09)	0.51*** (0.08)	0.50*** (0.08)	0.49*** (0.08)	0.47*** (0.08)	0.46*** (0.08)
3 Firm age	-0.39*** (0.19)	-0.44*** (0.18)	-0.40*** (0.19)	-0.45*** (0.19)	-0.49*** (0.19)	-0.43*** (0.19)	-0.44*** (0.19)	-0.46*** (0.18)	-0.38*** (0.19)
4 Firm performance	-0.46 (0.92)	-0.05 (0.88)	-0.32 (0.91)	-0.44 (0.95)	0.03 (0.86)	0.14 (0.79)	0.02 (0.86)	-0.02 (0.90)	0.07 (0.84)
5 Debt/asset ratio	-0.64 (0.96)	-0.38 (1.02)	-0.48 (0.96)	-0.66 (0.95)	-0.28 (0.97)	-0.26 (0.90)	-0.34 (0.92)	-0.35 (0.96)	-0.34 (0.87)
6 R&D intensity	-0.35 (0.24)	-0.27 (0.24)	-0.01 (0.28)	-0.34 (0.24)	0.04 (0.27)	-0.03 (0.28)	0.08 (0.27)	-0.00 (0.27)	-0.02 (0.28)
7 Business group experience	0.12 (0.09)	0.15 (0.09)	0.13 (0.10)	0.13 (0.09)	0.15 (0.09)	0.16* (0.09)	0.16* (0.10)	0.14 (0.09)	0.16* (0.10)
8 State ownership	-3.89*** (0.40)	-3.70*** (0.40)	-3.56*** (0.41)	-3.76*** (0.39)	-3.30*** (0.40)	-1.52** (0.70)	-1.84** (0.72)	-2.84*** (0.44)	-0.30 (0.91)
9 Symbiotic Interdependence		2.75*** (0.67)			2.43*** (0.66)	3.40*** (0.73)	2.53*** (0.65)	2.44*** (0.66)	3.28*** (0.74)
10 Competitive interdependence			3.23*** (1.05)		2.96*** (1.03)	2.73** (1.07)	3.79*** (1.09)	2.85*** (1.03)	3.48*** (1.14)
11 Partner Interdependence				0.34** (0.17)	0.32* (0.17)	0.29* (0.18)	0.35** (0.17)	0.57*** (0.20)	0.52** (0.21)
12 Symbiotic interdependence * state ownership						-6.12*** (2.18)			-4.54** (2.13)
13 Competitive interdependence * state ownership							-5.29** (2.22)		-4.67** (2.11)
14 Partner interdependence * state ownership								-2.19** (0.98)	-1.74* (0.97)
Log likelihood	-698.85	-691.33	-694.50	-697.17	-686.50	-683.03	-684.19	-683.79	-679.62
Incremental $\chi^2$ to Model 1		17.00***	9.55***	4.10**	25.09***	36.79***	33.09***	30.74***	42.60***
Incremental $\chi^2$ to Model 5						7.93***	5.66**	5.06**	15.93***

<sup>a</sup> 780 firms in total; 4,067 observations.

<sup>b</sup> Dependent variable: OFDI flow, measured by the newly established OFDI projects in each year.

<sup>c</sup> In the zero-inflation model, estimates for zero are the accumulated number of OFDI projects established in the last year, as well as the firm performance and the debt/asset ratio in the last year.

<sup>d</sup> Fixed effects of year, region, and industry are included in all models.

<sup>e</sup> (Numbers in parentheses are robust standard errors, based on a Huber-White sandwich estimator).

\*\* p < 0.10;

\*\*\* p < 0.05;

\*\*\* p < 0.01

$p < 0.10$  in Model 9). Hence, the three interaction hypotheses are supported.

Among the significant controls, state ownership (across all models) has a significantly negative effect on EMF OFDI, whereas firm size (across all models) and business group experience (in Models 6, 7, and 9) have positive effects on EMF OFDI, as expected. However, firm age has a negative effect, suggesting that younger Chinese firms more actively engage in OFDI activities (Yiu *et al.*, 2007). It is interesting to find that the effect of R&D intensity is not significant in these models. One possible explanation is that the context of previous studies on OFDI by developed country firms is different from the context of our study of EMFs, which often lack R&D advantages that can be exploited abroad (Luo and Tung, 2007).

The significance of the moderation effects was robust by splitting the sample. As the zero-inflated negative binomial model is based on a nonlinear estimator, which may be inadequate to interpret the results (Hilbe, 2007; Shaver, 2006), we followed Connelly *et al.* (2010) and Penner-Hahn and Shaver (2005) to split the sample into two subsamples by the mean of state ownership and by majority state ownership. We examined the marginal effect of the independent variable on the dependent variable for each subsample. Table 3 presents the results, with the marginal effects of the interdependence variables in square brackets and the standard errors in curly brackets (Connelly *et al.*, 2010).

In Models 2 and 3, the marginal effect of symbiotic interdependence is 0.20 and statistically significant ( $p < 0.01$ ) when state ownership is low (below the mean); it is not significant when state ownership is high (above the mean). With these data, we conducted a t-test of the marginal effects across the two models (Penner-Hahn and Shaver, 2005). The t-test is significant ( $p < 0.01$ ), indicating that the marginal effect of symbiotic interdependence on OFDI for firms with low state ownership is greater than it is for firms with high state ownership, thereby providing further support for Hypothesis 4. Similarly, the marginal effect of competitive interdependence is 0.21 and significant ( $p < 0.01$ ) when state ownership is low; it is 0.01 but not significant when state ownership is high. The t-test is significant ( $p < 0.05$ ), lending additional support for Hypothesis 5. The marginal effect of partner interdependence is 0.03 and

significant ( $p < 0.05$ ) when state ownership is low; it is not significant when state ownership is high. The t-test is also significant ( $p < 0.05$ ), offering further support for Hypothesis 6.

Since a majority of state-owned shares has important implications in terms of power relationships (Yan and Gray, 1994), we also tested whether the marginal effect is higher (lower) when the moderator (i.e., state ownership) is below (above) 50 percent, as shown in Models 4 and 5 of Table 3. The marginal effect of symbiotic interdependence is 0.11 and statistically significant ( $p < 0.01$ ) when state ownership is less than 50 percent; it is not significant when state ownership is greater than 50 percent. The t-test on the marginal effects is significant ( $p < 0.01$ ). The marginal effect of competitive interdependence is 0.14 and significant ( $p < 0.01$ ) when state ownership is less than 50 percent, but it is not significant when state ownership is greater than 50 percent. The t-test is significant ( $p < 0.05$ ). The marginal effect of partner interdependence is 0.02 and significant ( $p < 0.05$ ) when state ownership is less than 50 percent; it is not significant when state ownership is more than 50 percent. The t-test is also significant ( $p < 0.05$ ). Together, the results suggest that the moderating effects of state ownership are robust to different ways of splitting the sample.

We further tested the sensitivity of the results. First, we found supporting evidence for the casual relationship between partner interdependence and firm-level OFDI. Specifically, we turned the dependent variable OFDI into an independent variable and used it to regress on partner interdependence. The coefficient of OFDI was not significant in the robustness test, suggesting that reverse causality is unlikely in our sample. These results are consistent with the observation that given the early stage of OFDI activities by Chinese firms, there is less concern about the possibility of a reverse causality relationship (i.e., with more OFDI activities, more IJVs are established at home) (Luo and Tung, 2007). Second, we used a Chinese firm's domestic geographic diversification, measured by the number of domestic subsidiaries established in a year, as the dependent variable. The coefficient (and the marginal effect) of the symbiotic interdependence was not significant, suggesting that this alternative mechanism (i.e., symbiotic interdependence leading to domestic diversification) is not plausible

Table 3. Zero-inflated negative binomial regression on OFDI of Chinese firms (split sample)<sup>a-d</sup>

Variable	Model 1 Main effect (full sample, n=4,067)	Model 2 Lower state ownership (below the mean, n=1,741)	Model 3 Higher state ownership (above the mean, n=2,326)	Model 4 Lower state ownership (less than 50%, n=2,350)	Model 5 Higher state ownership (greater than 50%, n=1,717)
1 Constant	-12.68*** (1.80)	-14.83*** (2.25)	-5.14** (2.59)	-13.45*** (1.99)	-6.52 (3.96)
2 Firm size	0.51*** (0.08)	0.54*** (0.10)	0.42*** (0.14)	0.50*** (0.09)	0.49*** (0.18)
3 Firm age	-0.49*** (0.19)	-0.31 (0.23)	-0.14 (0.45)	-0.53** (0.21)	0.71 (0.54)
4 Firm performance	0.03 (0.86)	-0.04 (0.89)	-1.60 (1.89)	0.18 (0.73)	-5.37 (6.85)
5 Debt/asset ratio	-0.28 (0.97)	-0.17 (0.63)	-7.24** (3.38)	-0.31 (0.90)	-4.95 (3.96)
6 R&D intensity	0.04 (0.27)	0.17 (0.31)	-0.38 (0.51)	0.21 (0.28)	-1.65 (1.21)
7 Business group experience	0.15 (0.09)	0.10 (0.11)	0.45** (0.20)	0.13 (0.11)	0.65** (0.26)
8 State ownership	-3.30*** (0.40)	-4.31*** (1.11)	-4.20** (1.79)	-3.38*** (0.01)	-4.00 (3.93)
9 Symbiotic interdependence	2.43*** (0.66)	3.33*** (0.76)	-0.09 (1.22)	2.84*** (0.70)	0.45 (1.57)
t-test that the marginal effect in Model 2 is > Model 3 & Model 4 is > Model 5	2.96*** (1.03)	3.61*** (1.18)	1.37 (2.39)	3.45*** (1.12)	0.41 (3.92)
10 Competitive interdependence		[0.21]*** {0.08}	[0.01] {0.03}	[0.14]*** {0.05}	[0.00] {0.00}
t-test that the marginal effect in Model 2 is > Model 3 & Model 4 is > Model 5		2.57**		2.73**	
11 Partner interdependence	0.32* (0.17)	0.44** (0.20)	-0.37 (0.48)	0.48*** (0.18)	-1.07 (0.84)
t-test that the marginal effect in Model 2 is > Model 3 & Model 4 is > Model 5		[0.03]** {0.01}	[-0.00] {0.01}	[0.02]** {0.01}	[-0.00] {0.00}
Log likelihood	-686.50	-475.84	-187.15	-564.91	-105.08
			4.10***	2.99***	
					2.05**

<sup>a</sup> Dependent variable: OFDI flow, measured as the newly established OFDI projects in each year.

<sup>b</sup> In the zero-inflation model, estimates for zero are the accumulated number of OFDI projects established in the last year, as well as the firm performance and the debt/asset ratio in the last year.

<sup>c</sup> Fixed effects of year, region, and industry are included in all models.

<sup>d</sup> Numbers in parentheses are robust standard errors, based on a Huber-White sandwich estimator; [marginal effects in square brackets]; (standard errors of marginal effects in curly brackets).

\*  $p < 0.10$ .

\*\*  $p < 0.05$ .

\*\*\*  $p < 0.01$ .



in our sample.<sup>2</sup> Finally, financial information on emerging economies is known to be unreliable (Hoskisson *et al.*, 2000). To address this concern, we used WIND Data Services as another data source of Chinese listed firms for our robustness tests. Using these two different sources of data (i.e., CSMAR and WIND Data Services), our results are consistent.

## DISCUSSION AND CONCLUSION

This study offers a new account of the extent to which EMF-foreign firm interdependence affects OFDI by EMFs and how state ownership moderates the relationship from an RDT perspective. Our results suggest that a higher level of interdependence through exchange between EMFs and foreign firms in the form of symbiotic, competitive, and partner relationships increases the level of EMF OFDI. Moreover, we find that EMFs with a lower (higher) level of state ownership are more (less) likely to respond to EMF-foreign firm interdependence pressures to invest abroad, indicating that state ownership is, indeed, a boundary condition of the RDT logic of diversification.

### Implications for resource dependence theory

This study makes important contributions to RDT that allow for a better understanding of the diversification logic. By exploring multiple forms of interdependencies through exchange between EMFs and foreign firms which explain OFDIs by EMFs, this study extends the use of the RDT logic that traditionally was based on a singular structure or on sales dependence (Pfeffer, 1972a). Our systematic investigation of symbiotic, competitive, and partner interdependences responds to a recent call to examine the parallel effects of multiple forms of dependence (Hillman *et al.*, 2009). Our research, complementing previous RDT studies, expands the scope of RDT research by focusing on international expansion as a form of geographic diversification (Hillman *et al.*, 2009; Pfeffer and Salancik, 2003).

Moreover, RDT has been criticized for its ambiguities regarding boundary conditions. Since

Finkelstein's (1997) study on this subject, identifying important boundary conditions of RDT has been a main focus for theoretical advancement (Casciaro and Piskorski, 2005; Pfeffer and Salancik, 2003). However, progress in identifying the natural borders that restrain the application of RDT has been slow (Hillman *et al.*, 2009). Although interdependencies through exchange and ownership do not act in isolation, their interactions in the diversification logic remain unclear. Our study addresses this issue by identifying state ownership as a moderator to explore the boundary conditions of the EMF-foreign firm interdependence effect, which is particularly relevant to EMF OFDI. In this sense, our study provides a refinement to enhance the precision of the theoretical predictions (Boyd *et al.*, 2012; Edwards, 2010).

Specifically, our findings add to this emerging literature by introducing the concept of coalition (Emerson, 1962) to conceptualize the moderating effect of state ownership. This is particularly relevant in the context of emerging economies. Traditional RDT approaches have highlighted the dyadic relationship between exchange partners. Our findings indicate that an interactive approach that takes the moderating effect of state ownership into account is fruitful. The results show that the predictive power of the diversification logic is influenced by the coalition effect if a firm is tied to the government through ownership. Since the government may serve as an alternative source of resources for the EMFs and may protect them from foreign competition or may enhance their bargaining positions, the power of EMFs with high state ownership relative to the power of foreign firms in emerging markets may be enhanced. As a result, such EMFs are less responsive to the diversification logic.

Empirically, prior studies on the internationalization of Chinese firms have been unable to fully capture the impact of state ownership (Buckley *et al.*, 2007; Luo and Tung, 2007; Shenkar and von Glinow, 1994) because officially the Chinese government did not allow private firms to invest abroad until the early 2000s. As such, the role of the government as a 'third party' in the relationship between EMFs and foreign firms remained unclear. Our study, providing a theory to predict the coalition effects when EMFs are tied to the government via ownership, is among the first to empirically test RDT in this context.

<sup>2</sup> We thank an anonymous reviewer for this suggestion.

### Implications for internationalization research

This study complements existing knowledge about the internationalization of EMFs in two distinct ways. First, from a theoretical perspective, prior FDI studies accounted for the international expansion of EMFs by examining conditions *inside* the EMFs to determine whether and how they developed some preliminary capabilities and advantages in the domestic market, which subsequently allowed them to compete in global markets (Cuervo-Cazurra and Genc, 2008; Ramamurti and Singh, 2009). However, how home country conditions drive OFDI as an escape strategy has been an understudied area in the FDI literature (Witt and Lewin, 2007). As RDT is an externally focused perspective, our study supplements existing FDI studies by focusing on conditions *outside* EMFs to provide a more complete picture of internationalization by introducing the diversification logic and its boundary conditions. It echoes Witt and Lewin's (2007) call for more conceptual and empirical studies to understand OFDI as an escape response to environmental constraints in the home country.

Second, our study advances theory on firm internationalization. Since most FDI theories (Dunning, 1993; Johanson and Vahlne, 1977; Witt and Lewin, 2007) were developed based on the internationalization of developed country firms, they are unable to fully capture the trajectory of EMF internationalization in general (Cuervo-Cazurra, 2008; Ramamurti and Singh, 2009) and Chinese firm internationalization in particular (Buckley *et al.*, 2007; Child and Rodrigues, 2005; Morck, Yeung, and Zhao, 2008), given that the dependence conditions of EMFs are quite different from those of firms in developed countries. Although over the last decade EMFs increasingly have been investing internationally (Guillén and García-Canal, 2009), whether and how inward FDI by foreign firms influences EMF OFDI surprisingly has been understudied (Gu and Lu, 2011; Luo and Tung, 2007). Our study takes a significant step toward eliminating this gap by examining the diversification logic to clarify the influence of EMF-foreign firm interdependence and the boundary conditions on the diversification logic.

In addition, the goal of the mechanism that drives diversification is access to alternative sources of resources (Pfeffer and Salancik, 1978), and firms may engage in different strategies to

achieve this purpose. Previous studies have shown that firms may diversify into other regions in the home country (Davies and Walters, 2004; Khanna and Yefeh, 2007) or may acquire foreign resources in the home market without going abroad (Kumaraswamy *et al.*, 2012; Luo and Tung, 2007). Our study complements these studies in line with the idea that EMFs may benefit from OFDI for distinct reasons that are documented in the FDI literature: (1) firms may benefit from the abundant natural resources or new markets in different countries; (2) OFDI allows firms to acquire some resources (e.g., new technologies, processes, or know-how) that are either costly or unavailable in the home country but that may be obtained abroad; and (3) firms may diversify their operation bases due to a limited domestic market that may be insufficient to reduce their dependence uncertainty. Given their less munificent home country environments, these benefits are particularly important for EMFs (Wan and Hoskisson, 2003).

### Practical implications

Our findings also have important implications for managers and policy makers in emerging/ transition economies. In such markets, privatization and liberalization have generally created an environment that increases EMF autonomy and that attracts foreign firms. As a result, EMFs have become increasingly interdependent, as neighbors, competitors, or partners, with foreign firms in their home country. Our findings suggest that when EMFs are unable to absorb the constraints of powerful foreign firms at home, they may adopt an avoidance strategy by escaping abroad via OFDI. As more EMFs move toward a market-oriented strategy, and at a time when their home-based interdependence with foreign firms increases, they are likely to engage in more OFDI activities. Our study shows that internationalization may be an important way to both manage uncertainty and strengthen power at home.

For policy makers, our findings indicate that privatization policies may be essential to facilitate internationalization by EMFs in response to the interdependence pressures generated by foreign firms in the home market. Transition economies are 'characterized by government policies favoring economic liberalization and the adoption of a free-market system' (Hoskisson *et al.*, 2000: 249). Nevertheless, after decades of reform and institutional

transitions, the state still plays a significant role in many EMFs via ownership ties (Buckley *et al.*, 2007). Our findings clearly demonstrate that the moderating role of state ownership may actually be an obstacle for state-owned EMFs to escape to foreign countries, contradicting national policy that encourages more state firms to go abroad. But our study implies that as more foreign firms enter the emerging markets, privatization will further trigger EMF internationalization. The key reason is that privatized or partially privatized EMFs, compared to EMFs with state backing, are more dependent on markets for resources and are more likely to respond to the increased pressures by foreign firms at home.

### Limitations and future research directions

It is important to acknowledge several limitations of this article that can be regarded as opportunities for future research. In this study, we focus on the interdependence structure in an EMF's home country to explain its OFDI activities. To obtain a more complete understanding, one should explore how the dependence structures among the key stakeholders in the host countries affect EMF internationalization. Host country-based factors are likely to have a 'pull' effect on firms' OFDI activities, whereas home country-based factors will have a 'push' effect. These effects by 'home' and 'host' countries are likely to coexist during the EMFs' internationalization process. Ideally, one should study both.

Moreover, although OFDI is a salient strategy, EMFs may resort to other ways to deal with the dependence uncertainty with foreign firms at home. As a result of market globalization, EMFs may access both domestic and foreign sources of resources in the home market. Future research should consider these alternative strategies and specify the conditions under which one strategy will dominate. Future research with richer data may also examine how various dependence conditions drive different types of OFDI, such as joint ventures, mergers/acquisitions, or wholly owned subsidiaries.

In addition, there is concern about whether the findings from a single country, i.e., China, can be generalized to other emerging/transition economies. We believe these findings are applicable to other economies that are popular FDI destinations when EMFs increasingly depend on

markets for resources and when some EMFs are still state owned. However, it would be useful for future studies to use samples from other transition and emerging economies to verify this reasoning empirically.

Despite these caveats, this study has taken a step to theorize about EMF OFDI by revealing the resource-dependence logic behind such a strategy. We believe this study provides a point of departure from prior studies and will inspire future research to better understand the RDT logic of diversification in general and EMF OFDI in particular.

### ACKNOWLEDGEMENT

We would like to thank Editor Jiatao Li and two anonymous reviewers for their valuable comments. This study was supported by grants from the Research Grants Council of the Hong Kong Special Administrative Region (Projects No.: CUHK451311, CUHK4012-PPR-10, and CUHK458110).

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