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Foreign Ownership and Bribery: Agency and Institutional Perspectives

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Abstract

In this study we examine the effectiveness of formal institutions (as the macro-level mechanism) and external auditing (as the micro-level mechanism) in controlling multinational firms' engagement in bribery. We adopt World Bank's data and investigate 38,673 firms in 113 countries. Our results suggest that a firm's engagement in bribery is positively related to its foreign ownership. Furthermore, we demonstrate the substitute effects of formal institutions and external auditing in controlling this unethical activity. We argue that in a situation whereby formal institutions are weak, a firm's internal governance mechanism plays a vital role in controlling bribery.

Keywords: Bribery, Institutions, Auditing, Multinational firms

1. Introduction

Corruption and bribery have drawn enormous attention in the international business field (Birhanu, Gambardella, & Valentini, 2016; Cuervo-Cazurra, 2016; Cuervo-Cazurra & Genc, 2008; Luo & Han, 2009; Puffer, Mccarthy, & Peng, 2013). The illegal nature of corruption and bribery imposes high costs on business and ultimately hurts firms' performance. This has led to the emergence of a large set of studies analyzing the best ways for eliminating or at least controlling corruption (Ashforth, Gioia, Robinson, & Trevino, 2008; Beets, 2005; Gorsira, Denkers, & Huisman, 2016; Lange, 2008).

In the corruption literature, there is an on-going debate about the antecedents of bribery and ways of controlling. Neo-institutional theory emphases on the importance of the institutions and proposes that managers are confronted with different environments where bribery and corruption are socially and culturally acceptable norms though they may have cognitive pressure to implement an ethical and legal behavior (Cuervo-Cazurra, 2006). Enormous studies have shown that non-transparent institutions, under-developed market mechanisms, together with social and cultural norms are the roots of corruption (Luo, 2005a; Martin, Cullen, Johnson, & Parboteeah, 2007; Zheng, El Ghoul, Guedhami, & Kwok, 2013). This stream of study emphases on the role of formal institutions in the form of law in controlling bribery supply and demand across intuitional settings (Cuervo-Cazurra, 2006; 2008). By contrast, agency theorists view corruption as the results of managerial conflict and stresses managers at headquarters in home country can hardly establish control to deter managers at the foreign subsidiaries from engaging in unethical activities because of information asymmetry. Under this view, managers at the foreign subsidiaries are

self-interest opportunists and tend to serve their personal objectives at the expense of the firm's long-term performance (Cuervo-Cazurra, 2016). Based on this reasoning, the root of corruption has shifted from the normative and institutional pressures to goal conflicting organizational members and internal information asymmetry. Hence, appropriate governance mechanisms should be designed to discipline self-interested management from engaging in the unethical and illegal activity.

Neo-institutional theory and agency theory offer macro and micro mechanisms in coping with corruption and bribery. However, limited studies have explicitly discussed the effectiveness of these two mechanisms and explored the possible interplay between them in controlling bribery in the international business field (Cuervo-Cazurra, 2016; Kwok & Tadesse, 2006; Spencer & Gomez, 2011). Agency theory explains the antecedents of bribery by addressing the potential conflicts between a firm's headquarter and its foreign subsidiaries. But what left unexplained from an agency perspective is the question of "why are bribery being conducted at different levels across nations?" A large number of scandals regarding corporate bribery have revealed the fact that multinational corporations' subsidiaries are more likely to bribe in emerging economies than in developed economies. Institutional perspective addresses the role of formal and informal institutional factors in shaping firms' activities. Existing literature on corporate governance goes beyond the simple agency relationship and suggests the agency relationship and corporate governance mechanisms are shaped by external institutional factors across nations (Bruton, Filatotchev, Chahine, & Wright, 2010; Filatotchev, Jackson, & Nakajima, 2013; Kogut, Walker, & Anand, 2002). However, as Kim, Prescott and Kim (2005) argue, the external environment sets up universal and minimum

standards. It is down to the multinational firms to foster good micro-level governance mechanisms to minimise the agency costs and control agent's unlawful behavior, such as bribery.

Our paper endeavors to fill in these gaps and hence makes two contributions. First, in contrast to the rich and fruitful findings on the antecedents of bribery (Collins, Uhlenbruck, & Rodriguez, 2009; Martin et al., 2007) and the consequences of bribery (Lee & Weng, 2013; Uhlenbruck, Rodriguez, Doh, & Eden, 2006; Zhou & Peng, 2012), few studies have adopted multiple-level analyses and offered a comprehensive understanding of bribery and corruption control. In this study, we argue that the firm-level bribery varies significantly with the institutional environment in the firm's host country and the individual firm's governance strength. We integrate agency theory with institutional perspective to explicitly explain the efficiency of bribery control under varied institutional environment settings. In specific, we highlighted the importance of the distinct contextual environment in which firms are embedded, and articulated the interplay of macro-institutions and micro-level governance mechanism in controlling bribery in international business.

Second, our findings contribute to corruption literature by highlighting the substitute effects of the internal governance (as the micro-level mechanism) and the external institution (as the macro-level mechanism) on controlling bribery. Though existing corporate governance studies have discussed the substituting and complementing effects of micro- and macro-level corporate governance mechanisms (Abdi & Aulakh, 2012; Hüttenbrink, Oehmichen, Rapp, & Wolff, 2014; Misangyi & Acharya, 2014), we extend the argument and place the agency relationship under circumstances where a multinational firm's headquarter

and its foreign subsidiaries have different attitudes and interests in supplying bribery. Researchers have studied bribery control in both firm and country levels; but overlooked the possible interplay between the firm and country level elements in reducing bribery (Doh, Rodriguez, Uhlenbruck, Collins, & Eden, 2003; Montiel, Husted, & Christmann, 2012). In this paper, we suggest that in a situation whereby formal institutions are weak, a firm's internal governance mechanism plays a vital role in controlling the firm-level bribery.

2. Theoretical background and hypothesis development

Many researchers adopted a broad definition on corruption and considered corruption as the abuse (or misuse) of public power for private benefits (Bardhan, 1997). Corruption is however a complex and multifaceted phenomenon (Luo & Han, 2009) and has various forms under different contexts (Puffer et al., 2013). To examine the control of corruption, we first refine our research focus on corruption. Corruption occurs at the interface of the public and private sectors where a public agent has discretionary power over resource access and distribution to the private sector (Uhlenbruck et al., 2006). Therefore, illegal payment has to be paid to the public agent to obtain private benefits for an individual or a firm (Rose-Ackerman, 1999). The illegal payment or bribery is one specific form of corruption and is the focus of this study. In this paper, we study the control of corruption that aims to reduce the supply of bribes by managers. We adopt Luo and Han (2009)'s concept and define bribery as the extent to which the firm engages in various forms of payments to public officials to "get things done" with regard to government or public services, such as customs, taxes, licenses, regulations, services, etc.

2.1 Foreign ownership and bribery intensity

Based on agency theory, we argue that foreign ownership will lead to an increase of bribery in the host country. In this paper, we follow World Bank's definition and measure foreign ownership by the percentage of the total share owned by foreign individuals, companies or organizations. The central premise of agency theory is the separation of ownership and control where the principal delegates the work to an agent who then performs the work (Jensen & Meckling, 1976). Specifically, agency theory asserts that the agent can engage in decision-making and behavior that may be inconsistent with principal's interests (Fama, 1980; Fama & Jensen, 1983). Agency theory is concerned with resolving two problems. The first is the agency problem that arises when the desires or goals of the principal and agent conflict. The problem here is that the principal and the agent may prefer different actions because of the different preferences. The second is the problem of monitoring that arises when the principal has difficulties to verify what the agent is doing. The problem here is that the principal cannot verify that the agent has behaved appropriately due to information asymmetry.

Agency theory becomes applicable in bribery once a firm expands overseas. According to Roth and O'Donnell (1996), international investment has distinguished the universe managerial team into two groups, namely managers at headquarters in the home country and managers in the foreign subsidiary. Nohria and Ghoshal (1994) suggest that managers at headquarters, as the principal, cannot effectively make all the decisions; and hence delegate the work and responsibilities to foreign subsidiaries. This process creates an agency problem.

First, managers at headquarters and managers in the foreign subsidiaries may have different goals. Subsidiary management thus may make decisions that are not congruent with those desired by headquarters. Managers at headquarters seek to gain competitive advantages and maximize financial return while minimizing additional costs and risks associated overseas operation in an ethical and legal way (Kostova & Zaheer, 1999). By contrast, managers in the foreign subsidiary act as self-interested agents whose interest is to improve the success of their business operations in the short term and thus enhance their career prospects (Cuervo-Cazurra, 2016). The principal-agent relationship between the headquarters and foreign subsidiary due to interest conflict has been well documented (Kim et al., 2005; Nohria & Ghoshal, 1994; Roth & O'Donnell, 1996). Second, it is hard for the headquarter to obtain detailed and accurate information about foreign subsidiaries' activities and multinational firm's global presence magnifies the information asymmetry problem (O'Donnell, 2000). Luo (2005b) for example suggests that a firm's global expansion creates a list of far-flung enterprises and aggravates information asymmetries between the headquarter and foreign subsidiaries.

It is well recognized that without proper governance, the agent will be more likely to deviate from the interests of the principal (Fama & Jensen, 1983). Following this logic, managers in the foreign subsidiary are more likely to serve their own interest due to information asymmetry and insufficient monitoring means following the geographical distance (Filatotchev & Wright, 2011). Because the actions and outputs of the foreign subsidiary become less verifiable and accountable, adverse selection and moral hazard may occur simultaneously (Kim et al., 2005). Following this line of research, we argue that

foreign ownership leads to an increase of bribery in the host country. In specific, managers in the foreign subsidiary are more likely to bribe government officials to smooth the market penetration and enhance performance in the short term. Competition from other multinational firms and local firms impel the foreign subsidiary to resort to bribery as a means of seeking competitive advantages (Robertson & Watson, 2004). Kwok and Tadesse (2006) also admit that offering bribery to a public agent might be more financially meaningful in the short term than endeavoring to shape the institutional environment. Hence, we hypothesize:

Hypothesis 1. There is a positive relationship between a firm's foreign ownership and bribery intensity.

2.2 Institutions, foreign ownership, and bribery intensity

Institutions, which are defined as "the rules of the game" (North, 1990; Scott, 1995), have been proved to exhibit formal and informal pressures for firms, and in turn affect a firm's behavior. The neo-institutional theory focuses on the interactions between institutions and firms and states that a firm's activities are the outcomes of such interactions (Peng & Heath, 1996; Peng, Wang, & Jiang, 2008). In other words, institutions determine how firms formulate and implement strategy because both formal and informal institutions have capacities to control and constrain managerial behavior. Formal institutions include politics, legal aspects, and market-supporting institutions while informal institutions refer to social norms and culture within a society (North, 1990; Peng, 2003).

The impact of external institutional factors on corruption has been well researched and a number of country-level institutions have been identified to be associated with corruption

(Rose-Ackerman, 1999; Tonoyan, Strohmeyer, Habib, & Perlitz, 2010). This paper stresses the importance of formal institutions and argues that foreign subsidiaries' attributes towards bribery depend on the peculiarities of formal institutions in host countries. Formal institutions in the host country facilitate information distribution and enhance foreign subsidiaries' decision-making accountability. Corporate governance literature has suggested that information flow is a prerequisite of good corporate governance practice because information asymmetry leads to moral hazard and opportunism (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000; Shleifer & Vishny, 1997). Well-developed formal institutions, such as solid company law and corporate governance code, mandate firms to disclose information completely and accurately. An extensive literature has suggested that a firm's disclosure strategy is subject to legal and proprietary constraints (Grossman, 1981; Grossman & Hart, 1980; Healy & Palepu, 2001; Verrecchia, 2001). Corporate governance literature suggests a positive relationship between disclosure and control of agency problem. The underlying notion is that greater disclosure allows management to be closely monitored and in turn "forces" the management to scrupulously exercise their rights. For instance, Lang and Lundholm (1996) suggested a significant positive relationship between disclosure and following-up analyses of companies' financial affairs. Thus, strong formal institutions (e.g. legal requirement) offer quality investor protection and effectively control of agent opportunism (e.g. bribery). For example, Cuervo-Cazurra (2016) asserts that formal institutions, such as counter-corruption laws, impartial and efficient legal reinforcement, determine the prevalence of bribery. He argues the fact that a large number of countries with very similar historical and cultural traditions have very different levels of corruption can be

attributed to formal institution diversity across countries. Rose-Ackerman (1999) has also attributed corruption to the weak counter-corruption institutions.

The neo-institutional theory emphasizes how organizations adjust to pressures for "legitimacy" under specific institutional environments (Scott, 1995). Following this line of argument, foreign firms have to adjust their behaviour (e.g. disclosure strategy) to adopt "the rule of the game in a society" (North, 1990: p.3). Different nations have different formal institutions in corporate governance and disclosure regimes. In contexts characterized by strong formal institutions, investors' interest can be better protected and agent's opportunism can be effectively controlled because of the more transparent corporate disclosure system. In contrast, under weak formal institution context where legal framework is inadequate, it has been observed that firms engage in widespread opportunistic and unlawful behaviours (Li & Atuahene-Gima, 2001; Peng & Health, 1996). These arguments suggest that in setting with strong formal institutions, agency conflicts could be mitigated as the transparent disclose system helps the headquarter to deter foreign subsidiaries' from engaging in bribery (Cuervo-Cazurra, 2016). On the other hand, a weak formal institutional environment could aggravate the agency conflicts due to the absence of the efficient corporate disclose requirement and other counter-corruption laws. Thus, we propose that:

Hypothesis 2. Formal institutions negatively moderate the relationship between foreign ownership and bribery intensity.

2.3 Auditing, foreign ownership, and bribery intensity

Auditing is an important internal controlling and self-regulatory elements of corporate governance. Auditing process normally involves a wide set of intermediaries, such as financial analysts, internal and external auditors (Palepu & Healy, 2003). A well-functioning system of auditing verifies the completeness and accuracy of financial transactions, and hence is important to discipline agent and minimize agency problem (Lambert, 2001). In order to verify management behavior in the host countries, the headquarter has to systematically review management perquisites, audit financial statements and reject inappropriate spending. Thus, financial auditing can effectively ratify management initiatives and evaluate managerial performance; consequently, award and penalize management by criteria that are set by the headquarter management.

Agency theory suggests auditor effectiveness hinges on its ability to perform independently as a gatekeeper. Researchers have offered enormous evidence about the beneficial role of external independent actors on governance. For example, Montiel et al. (2012) suggest that passing a third-party auditing performed by an independent firm verifies the firm's adherence to the requirements specified by the standard under a corrupted environment. Although some observers criticize auditing increases the firm's dependency on its large clients (Palepu & Healy, 2003), a large number of studies have suggested that auditors are unlikely to risk their reputation on a single client's indiscretions (Coffee Jr., 2004; DeFond, Raghunandan, & Subramanyam, 2002).

Prior research reveals that agency cost is more intense without effective internal corporate governance mechanisms (Coles, McWilliams, & Sen, 2001; Hu, Tam, & Tan, 2010) and auditing as an internal mechanism plays an instrumental role in disciplining

agent's behavior (Brennman & Solomon, 2010; DeFond & Zhang, 2014). In specific, we argue that the auditing as a micro-level disciplining mechanism provides an effective oversight of the foreign subsidiaries' managers and mitigates self-serving behavior. Firms adopting reputable and independent auditor tend to be characterized by transparent financial reporting and voluntary disclosures (Brennman & Solomon, 2010). Under such environment, foreign subsidiaries' self-serving behavior can be mitigated because headquarters have sufficient and accurate information to ratify foreign subsidiaries' initiatives, and hence to deter and prevent managers in foreign subsidiaries from engaging in bribery. Conversely, firms without having external auditing tend to have less accountable financial information and less transparent decision making process, which in turn exacerbates information asymmetric and strengthen the link between foreign ownership and bribery supply. Thus, we hypothesize:

Hypothesis 3. A firm's adoption of external auditing negatively moderates the relationship between foreign ownership and bribery intensity.

External auditor's influence on the relationship between foreign ownership and bribery may depend on upon the institutional environment. Jensen and Meckling (1976) suggest that there is an "agency cost" involved in making the agent work in the principals' interests instead of their own. Monitoring expenditure is one important element of agency costs. The fact that large audit fees and consulting fees received by auditors is a well-known norm (Ascioglu, Hegde, & McDermott, 2005; Frankel, Johnson, & Nelson, 2002).

Bribery is hard to detect in practice. Luo and Han (2009) for example address the various forms of illegal payments to public officials, such as cash and gifts. Moreover, given that there are important cultural differences in how bribery is viewed, it is not always clear if one activity is bribery or not. For example, gift giving is a prevalent social custom in China in all areas of life. However, the borderline between gifts and bribery is often blurred (Steidlmeier, 1999). Thus, monitoring the management in the foreign subsidiaries is a significant cost as the headquarter has to develop a clear standard to verify the difference between social reciprocity and bribery.

We posit that multinational firms have the desire of controlling bribery level to reduce nonmarket-based costs. Weak formal institutions, however, make foreign subsidiaries less likely to disclose information about operation and transactions and raise the possibility for foreign subsidiaries to bribe government officials in the host country. External auditing, therefore, becomes vital because it is the only means to mitigate agency problem and ensure an ethical conduct of foreign subsidiaries. In contrast, the multinational firm may become a free-rider when well-developed formal institutions bear the costs of monitoring alone, whereas all foreign investors benefit from the monitoring efforts. Therefore, we propose:

Hypothesis 4. The weaker the formal institutions in the host country, the more important role a firm's adoption of external auditing would play in moderating the relationship between foreign ownership and bribery intensity.

3. Methods

3.1 Sample and data

We acquire the dataset from the World Enterprise Surveys (WES) to test our hypotheses. The survey was carried out in 139 countries with over 100,000 firms participating between 2006 and 2014. Some countries are surveyed every three to four years. Due to the nature of the survey, our sample is a cross-sectional dataset. The Enterprise Survey covers a wide range of topics about the business environment as well as detailed performance measures for each firm. The use of this unique dataset has three important advantages. First, the World Bank carefully follows a stratified random-sampling procedure for selecting samples to ensure the representation of sample firms in each country. Firms in the survey present a rich structure coverage in terms of size, ownership, industry, location, business plans, and market orientations[1]. Second, the respondents of the survey are senior business executives or entrepreneurs in each country and WES set up careful criteria to ensure the validity and reliability of responses. Third, the validity of components of the bribery items and the credibility of using WES data for bribery research have been confirmed by substantial studies (Uhlenbruck et al., 2006). This is the best available source of data on the studies of this topic (Birhanu et al., 2016).

To test our hypotheses on country-level factors, we merge the dataset with the business freedom index from the Heritage Foundation and country development index from World Development Indicators Database from the World Bank. It has been widely acknowledged that there are noticeable missing data for some countries in WES dataset (Goedhuys & Sleuwaegen, 2016; Luo & Han, 2009). But missing observations across bribery analyses are not likely related to any systematic pattern (Birhanu et al., 2016). We have followed the

[1] For more details on questionnaire and methodology, see: http://www.enterprisesurveys.org/Methodology.

normal practice to carefully remove observations with missing values for our main variables of interest (Goedhuys & Sleuwaegen, 2016), and have a sample consisted of 38,673 firms from 18 sectors, across 113 countries. There might be a concern about the missing data for our whole sample. To control for this limitation, we have applied robustness checks on non-response biases and sample selection biases (i.e. t-test, Kolmogorov-Smirnov test, Heckman test and Hausman test). There is no evidence suggesting that missing observations and sample selection bias might be the concern in our study, which is consistent with the previous studies using the WES dataset (Lee & Weng, 2013; Svensson, 2003). Table 1 presents a brief summary of our sample distribution.

[Insert Table 1 about here]

3.2 Measurement

Dependent Variable. Following previous studies (Lee & Weng, 2013; Luo & Han, 2009), our dependent variable "bribery intensity" is defined as the percentage of total annual sales paid as informal payments to "get things done" with regard to customs, taxes, licenses, regulations, services, etc.

Independent Variable. Following previous research (Lee, Oh, & Eden, 2010), foreign ownership is measured by the percentage of the total share owned by foreign individuals, companies or organizations.

Moderators. Our first moderator, *business freedom*, is measured by the logarithm of the business freedom index from Heritage Foundation. Business freedom is an overall indicator of the efficiency of government regulation of business, which has been used in international business studies to measure formal institutions (Meyer, Estrin, Bhaumik, & Peng, 2009). The

quantitative score is derived from an array of measurements of the difficulty of starting, operating, and closing a business. The business freedom score ranges between 0 and 100, in which a higher score indicates a more free business environment. The score is based on factors including measuring the procedures and costs to starting a business, obtaining a license, and closing a business.

Our second moderator, *external auditing*, is a binary variable, which equals to 1 if the firm had its annual financial statement checked and certified by an external auditor and 0 otherwise. Consistent with previous studies (Wu, 2009; Zhou, Han, & Wang, 2013), external auditing is a good indicator to corporate governance and plays an important role in controlling bribery.

Control Variables. We follow previous studies to control for a comprehensive set of firm-level and country-level determinants of bribery. We include *firm size* as a continuous variable measured by the logarithm of the total employees of the firm (Blasi, Conte, & Kruse, 1996). *Firm age* is the logarithm of the number of years the firm has established (Lee & Weng, 2013). *Manager's experience* in working in the industry she/he is currently employed is also considered (Birhanu et al., 2016). *Export orientation* is proxied by the percentage of export sales to total sales (Lee et al., 2010). In addition, we include *government contract*, a dummy variable that equals 1 if the firm has attempted to secure a government contract (Ufere, Perelli, Boland, & Carlsson, 2012). *Public listing* is a dummy variable that equals 1 if the firm is publicly listed, and 0 otherwise. *Product quality* is measured by whether the firm received ISO (e.g., 9000, 9002 or 14,000) certification, which a dummy variable that equals 1 if yes and 0 otherwise. *Ownership concentration* is measured by the percentage of the share

owned by the largest shareholder, which captures the influence and existence of a block holder (Lee & O'Neill, 2003). Regarding the country level controls, *GDP growth* (annual growth rate) and *FDI inflows* (measured as the percentage of FDI inflows to GDP) are also controlled (Habib & Zurawicki, 2002). Finally, we use a group of dummy variables to control for industry, region, and year effects. Table 2 presents the summary of our variables definitions.

[Insert Table 2 about here]

4. Results

4.1 Empirical results

Table 3 lists the means, standard deviations, and correlations of our variables. In the sample, firms are found to pay on average 1.6% of their sales in bribery, and 5.91 % of firms in the sample is controlled by foreign investors. Further, we calculate the variance inflation factor (VIF), and the value ranges from 1.01 to 1.44, which is below the critical value of 10 (Neter, Wasserman, & Kutner, 1985) and reduces the concern of multicollinearity.

[Insert Table 3 about here]

We apply a Tobit model in the context of censored dependent variables and deal with the possible threat of heteroscedasticity by the Huber-White correction (White, 1980). The use of Tobit models is based on the nature of the dependent variable. In our sample about 77% of the firms have zero bribery payment. The dependent variable is left censored at zero (Weigelt & Miller, 2013; Wu, Pangarkar, & Wu, 2016), nonnegative (Alexeev & Song, 2013; Fu, Hou, & Sanfilippo, 2016), and has non-normal distribution (Bertrand & Mol, 2013), so the appropriate estimation technique is Tobit rather than OLS. This is consistent with previous

bribery research using this dataset (Breen, Gillanders, McNulty, & Suzuki, 2016; Khalil, Saffar, & Trabelsi, 2015). In addition, we follow previous research to mean-center variables in the interaction terms to avoid problems of multicollinearity and to increase the interpretability of interactions (Aiken, West, & Reno, 1991). To test the predictions of different levels of business freedom, we divide the full sample into two groups. If the business freedom in the country is lower than the median value, it is categorized as the "low" group and the "high" group otherwise. We run Tobit regressions on the full sample and two subsamples to test our hypotheses. Table 4 shows the results of the Tobit analyses. Model 1 in Table 4 includes control variables only. Model 2 adds the main explanatory variable, foreign ownership, as well as our moderators, business freedom, and external auditing. Models 3 and 4 add an interaction term sequentially.

[Insert Tables 4 about here]

Model 2 in Table 4 tests our Hypothesis 1, which predicts that there is a positive relationship between a firm's foreign ownership and bribery intensity. The coefficients are all positive and significant in each model ($p<0.01$). Therefore, Hypothesis 1 is supported. Model 3 in Table 4 test the moderating effect of formal institutions– business freedom – on the relationship between foreign ownership and bribery intensity. Regarding the direct effect, we can find that business freedom negatively influences bribery intensity significantly. Regarding the moderating effect, the result of the interaction term between business freedom and foreign ownership is significantly negative ($p<0.01$), which supports Hypothesis 2, i.e. formal institutions negatively moderate the relationship between foreign ownership and bribery intensity. Model 4 in Table 4 tests the moderating effect of external auditing on the

relationship between foreign ownership and bribery. Regarding the direct, we can find that external auditing has a negative and significant impact on bribery intensity. Regarding the moderating effect, the interaction term between external auditing and foreign ownership is insignificant. Thus, Hypothesis 3 is not supported. Since the role of external auditing is not significant in the full sample, we further explore the moderating effects of external auditing on foreign ownership and bribery intensity in countries with different levels of business freedom.

Models 5-6 in Table 4 tests our Hypothesis 4, which posits that the weaker the formal institutions in the host country, the more important role the external auditing would play in moderating the relationship between foreign ownership and bribery intensity. As shown in Model 5 in Table 4, the interaction term between external auditing and foreign ownership is insignificant in the high business freedom group, which implies that external auditing plays no role in controlling bribery of FOEs in the country with stronger formal institutions. However, the interaction term between external auditing and foreign ownership in Model 6 is significantly negative ($p<0.01$) in the low business freedom group, which indicates that the external auditing plays an important role in controlling bribery of FOEs in the country with weaker formal institutions. Therefore, Hypothesis 4 is supported.

Regarding control variables, we find that the firm size, firm age, GDP growth and FDI inflows are negatively related to bribery intensity in the full sample. Export orientation, engaging in the government contract, and ownership concentration have positive impacts on bribery behavior. Manager's experience, public listing, and product quality are not significantly related to bribery behavior.

4.2 Robust analyses

We run several robustness checks to ensure the robustness of our results to alternative measures and methods. First, there might be concerns about noticeable missing data and potential sample selection biases. To address the issue, we run two-step Heckman test to check the robustness of our results. The first step is to run Probit regression on a firm's response to the bribery question. The dependent variable takes the value 1 if the firm responded to bribery questions, and 0 otherwise. Following the previous studies using Heckman model, we remain all the independent variables in our main model and add two instrument variables (corruption perception index and the log of GNI per capita) that are found to affect the response to bribery questions (Jensen, Li, & Rahman, 2010). The second step is to add inverse mills ratio from the first stage regression to the second stage Tobit regression (i.e. our main model). The results show that the coefficient of inverse mills ratio is not significant in all model specifications, which indicates that sample selection bias should not be the concern in our study. Furthermore, we conduct Hausman test to check if the results from two models including and excluding inverse mills ratio are fundamentally different. The results cannot reject the null hypothesis, indicating that the difference in coefficients is not systematic. Therefore, our results are robust to the issues of missing observations and possible sample selection biases.

Second, we use different measures of our main independent variable to check the robustness of our results. While any shareholding by a shareholder may indicate different interference and interest in the firm, scholars have used different cutoffs of foreign

shareholding in firms when assigning FOE status (Demirbag, Glaister, & Tatoglu, 2007; Desender, Aguilera, López-puertas-Lamy, & Crespi, 2016). To address the control power of foreign ownership, we consider dummy variables with cutoff at 50% as alternative measure of foreign ownership. The results in Table 5 are consistent with those results reported in Table 4. The results for dummy variables with cutoff at 30% and 5% as alternative measures of foreign ownership are also consistent.

Third, we check if our results are robust to different model specifications. We run OLS regression as the baseline results although it might not be appropriate in the context of censored dependent variables. We report the results in Table 6 and find that the results are qualitatively consistent with those in Table 4. In addition, we conduct Probit analyses with bivariate dependent variable (i.e. bribery propensity yes/no) as an alternative model specification. The results in Table 7 are consistent with those presented in Table 4.

Finally, it has been argued that the interaction effect in nonlinear models may not be simply judged by its coefficient (Ai & Norton, 2003). Following the previous studies (Holburn & Bergh, 2014; Mishra, 2017; Wiersema & Bowen, 2008), we examine the marginal effect of the interaction terms in Table 8. The marginal effects of foreign ownership are positive and significant ($p<0.01$), consistent with our results in Table 4. We can find that the marginal effect of foreign ownership is decreasing as the level of business freedom increase in the full sample and that the marginal effect of foreign ownership is decreasing when external auditing exists in the low business freedom subgroup. To better demonstrate the marginal effects on interaction terms, we plot the graph of predicted bribery intensity to

show the interaction effects in Fig.1 and 2. We can see the existence of moderating effects (at the 95% confidence interval) as indicated in H2 and H4.

[Insert Tables 5-8 about here]

[Insert Figures 1-2 about here]

5. Discussion

In this study, we distinguished two corruption (i.e. bribery supply) control mechanisms and explained the interplay between external auditing and formal institutions in controlling bribery associated with foreign ownership. Our analysis of 38,673 enterprises across 113 countries supported our hypotheses and demonstrated foreign ownership exacerbates bribery. Such result challenges previous corruption literature in the international business field. Previous studies adopt resource dependence theory and imply that the crux of bribery is firm's dependency of external resources in the host country (Luo & Han, 2009). The important role that bribery plays is a mechanism for complementing resource dependencies and a vehicle for co-opting important external actors, especially local government officials. However, resource dependency theory in explaining corruption has viewed foreign investors as an aggregate construct and overemphasized its relationship with the other public actors. Pervious research becomes even more problematic when we take multinational firms into consideration. We argue that there is an agency problem between multinational firm's headquarter and its foreign subsidiaries and propose foreign subsidiaries are assigned the role of being the agents of headquarters. Hence our findings reflect resource dependency theory's inability to identify the diversity of attributes towards bribery within the multinational firm. In specific, we suggest that foreign subsidiaries act as self-interested agent and may engage in bribery that is inconsistent with headquarters' ethics. Our findings acknowledge the

differences between multinational firm's headquarter and its foreign subsidiaries and imply that identities of the headquarter and foreign subsidiaries have important implications because they may have different objectives and decision-making horizons. Our finding thus contributes to the agency theory literature by explicitly placing the agency relationship under circumstances where the principal and the agent have different attitudes and interests in supplying bribery in the host market.

Furthermore, our study analyzes how institutional context affects the agency problem between a multinational firm's headquarter and its foreign subsidiaries regarding bribery intensity. In particular, our study demonstrates that formal aspect of the institutions (i.e. market freedom) affects such agency relationship. Critiques of agency theory point out its "under-contextualised" nature (Aguilera & Jackson, 2003) and hence its inability to identify and explain the diversity of principal and agent's activities across different institutional settings. By integrating the institutional theory with agency theory, the study provides an opportunity to examine bribery intensity under varied formal institutional settings. In settings with developed formal institutions, foreign subsidiaries tend to engage less in bribery because government regulations discipline a firm's behavior and compel information disclosure. However, in settings where there are weak formal institutions and information asymmetry is severe, foreign subsidiaries are more likely to act as self-interest opportunists and bribe the local government officials and other public agents.

Our empirical results also demonstrate the substitute effects between formal institution as a macro-level governance mechanism and external auditing as a micro-level governance mechanism. In specific, we found that in settings with weak formal institutions, a

multinational firm adopts external auditing as a mechanism to monitor subsidiaries' operation to eliminating bribery more effectively. By contrast, in settings with well-developed formal institutions, a multinational firm's headquarter can rely on the macro-level governance mechanism to discern subsidiaries' bribery-related conducts. Our findings indicate that the host country's institutional setting signals ethical foreign investors to strengthen internal governance under an environment where external governance is weak.

Our finding has important implications for foreign investors, particularly with respect to a multinational firm's managers who seek to control bribery in the host countries. First, awareness of foreign subsidiaries' attitudes towards corruptions is pre-condition to develop ethical conducts. Effective communication and monitoring processes are viable mechanisms to counterbalance the managerial opportunism. Second, a firm's engaging in bribery is found to be contingent on its external formal institutional settings, foreign investors can then monitor the managerial behavior in different manners and strengths according to the developmental level of the formal institutions of the host countries.

This paper has three limitations, which requires further studies in the future. First, our sample concentrates on the monetary feature of bribery. Bribery, nevertheless, can be offered in many other different forms, such as personal favor, gifts, etc. Further research can develop an alternative and more comprehensive measure for bribery to better capture the nature of this unethical behavior. Second, our study has discussed governance of the firm-level bribery from the supply perspective. Since government officials may be demanding bribery in many occasions, further research should concentrate on exploring possible governance mechanisms to control bribery demands. Third, it is important to understand the roles of different types of

foreign investors are playing in bribery control across institutional settings. For example, strategic foreign investors and foreign institutional investors may have different attributes towards corruption and different means of controlling bribery in foreign subsidiaries. In the future, researchers should endeavor to solve this puzzle using field research methods.

6. Conclusion

In this paper we go beyond the traditional view of agency theory and stress the agency relationship between managers at headquarter and managers in the foreign subsidiaries in a multinational enterprise. We address bribery, as a consequence of such agency relationship and articulate the substitute effects of macro-institutions and micro-level governance mechanism in controlling bribery under international business context. Future studies can extend our research in two ways. First, the institutional theory is a stimulating theoretical lens for extending our understanding of bribery supply. The underdeveloped formal institutions in emerging economies may pressure foreign investor to comply with local unwritten rules to gain legitimacy. Second, the agency theory can be extended in international business context by differentiating the actors within the agency relationship in more detail. In specific, how different types of foreign investors and managers in the foreign subsidiaries (i.e. local hired manager and expatriate managers) affect bribery control at the firm level is underexplored.

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Table 1 Sample Distribution

Panel A: Sample distribution by country

Country	Obs.	Percent	Country	Obs.	Percent	Country	Obs.	Percent	Country	Obs.	Percent
Albania	126	0.33	Cote d'Ivoire	108	0.28	Lithuania	9	0.02	Sierra Leone	20	0.05
Angola	504	1.3	DRC	239	0.62	Madagascar	64	0.17	Slovak Republic	17	0.04
Argentina	1,290	3.34	Dominica	148	0.38	Malawi	79	0.2	Slovenia	5	0.01
Armenia	33	0.09	Dominican Republic	305	0.79	Mali	580	1.5	South Africa	877	2.27
Azerbaijan	16	0.04	Ecuador	684	1.77	Mauritania	192	0.5	Sri Lanka	518	1.34
Bangladesh	506	1.31	Elsalvador	298	0.77	Mauritius	7	0.02	St Lucia	145	0.37
Barbados	119	0.31	Eritrea	158	0.41	Mexico	946	2.45	St Vincent and Grenadines	139	0.36
Belarus	13	0.03	Estonia	1	0	Micronesia	7	0.02	Suriname	143	0.37
Belize	137	0.35	Ethiopia	454	1.17	Moldova	39	0.1	Swaziland	283	0.73
Benin	64	0.17	Fiji	128	0.33	Mongolia	33	0.09	Tajikistan	89	0.23
Bhutan	216	0.56	Fyr Macedonia	27	0.07	Montenegro	8	0.02	Tanzania	363	0.94
Bolivia	605	1.56	Gabon	11	0.03	Mozambique	369	0.95	Timor Leste	93	0.24
Bosnia and Herzegovina	18	0.05	Georgia	4	0.01	Namibia	529	1.37	Togo	74	0.19
Botswana	486	1.26	Ghana	455	1.18	Nepal	296	0.77	Tonga	76	0.2
Brazil	130	0.34	Guatemala	735	1.9	Nicaragua	478	1.24	Trinidad and Tobago	252	0.65
Bulgaria	721	1.86	Guinea	175	0.45	Niger	69	0.18	Turkey	422	1.09
Burkina Faso	190	0.49	Guinea Bissau	98	0.25	Nigeria	2,180	5.64	Uganda	431	1.11
Burundi	240	0.62	Guyana	140	0.36	Pakistan	250	0.65	Ukraine	104	0.27
Cameroon	259	0.67	Honduras	484	1.25	Panama	519	1.34	Uruguay	594	1.54
Cape Verde	82	0.21	Hungary	11	0.03	Paraguay	382	0.99	Uzbekistan	147	0.38
Central African republic	89	0.23	Indonesia	1,072	2.77	Peru	1,231	3.18	Vanuatu	13	0.03
Chad	94	0.24	Jamaica	233	0.6	Philippines	883	2.28	Venezuela	158	0.41
Chile	1,691	4.37	Kazakhstan	74	0.19	Poland	16	0.04	Vietnam	548	1.42
China	1,714	4.43	Kenya	645	1.67	Romania	28	0.07	Yemen	318	0.82
Colombia	1,509	3.9	Kyrgyz Republic	56	0.14	Russia	3,292	8.51	Zambia	445	1.15
Congo	11	0.03	Lao PDR	367	0.95	Rwanda	357	0.92	Zimbabwe	468	1.21
Costa Rica	34	0.09	Latvia	12	0.03	Samoa	56	0.14			
Croatia	452	1.17	Lesotho	10	0.03	Senegal	463	1.2			
Czech Republic	13	0.03	Liberia	28	0.07	Serbia	47	0.12			

Panel B: Sample distribution by year

Year	Obs.	Percent		Obs.	Percent	Year	Obs.	Percent	Year	Obs.	Percent
2006	8,845	22.87	2008	779	2.01	2010	8,759	22.65	2012	4,984	12.89
2007	7,892	20.41	2009	5,712	14.77	2011	1,702	4.4			

Panel C: Sample distribution by industry

Industry	Obs.	Percent	Industry	Obs.	Percent	Industry	Obs.	Percent	Industry	Obs.	Percent
Basic Metals	633	1.64	Food	3,819	9.88	Non-Metallic Mineral Products	750	1.94	Transport	156	0.4
Chemicals	1,630	4.21	Garments	2,280	5.9	Other Manufacturing	10,326	26.7	Whole retail	7,046	18.22
Construction	399	1.03	Hotels & Restaurants	225	0.58	Other services	7,448	19.26			
Electronics	424	1.1	IT	638	1.65	Rubber & Plastics Products	306	0.79			
Fabricated metal products	493	1.27	Machinery & Equipment	539	1.39	Textiles	1,561	4.04			

Table 2 Variable definitions

Variables	Definitions
Dependent variable	
Bribery intensity	The percentage of total annual sales paid as informal payments to "get things done" with regard to customs, taxes, licenses, regulations, services, etc.
Independent variables	
Foreign ownership	The percentage of the total share owned by foreign individuals, companies or organizations.
Business freedom	The logarithm of the business freedom index from Heritage Foundation
External auditing	1 for the firm having its annual financial statement checked and certified by an external auditor, and 0 otherwise.
Control variables	
Firm size	The logarithm of firm total employees
Firm age	The logarithm of the number of years the firm has established
Manager's experience	The logarithm of the number of years that the top manager worked in the sector in which s/he is working.
Export orientation	The percentage of export sales to total sales
Government contract	1 for the firm having secured or attempted to secure a government contract, and 0 otherwise.
Public listing	1 for the firm being publicly listed, and 0 otherwise.
Product quality	1 for the firm having received ISO, and 0 otherwise.
Ownership concentration	The percentage of share the largest shareholder own
GDP growth	The annual growth rate of GDP in the country
FDI inflow	The percentage of FDI inflows to GDP

Table 3 Summary statistics and correlation matrix

	Mean	St. Dev	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Bribery intensity	0.0163	0.0559													
2. Foreign ownership	0.0591	0.2359	0.0272												
3. Business freedom	4.0724	0.2298	-0.0702	0.0928											
4. External auditing	0.4776	0.4995	-0.0378	0.1338	0.0862										
5. Firm size	3.2293	1.2887	-0.0626	0.1525	0.0940	0.3418									
6. Firm age	2.6731	0.9200	-0.0434	0.0209	0.0432	0.1750	0.2828								
7. Manager's experience	2.6727	0.6990	-0.0336	-0.0228	0.1077	0.1002	0.1794	0.3915							
8. Export orientation	0.0793	0.2234	-0.0102	0.1310	0.0677	0.1162	0.2690	0.0534	0.0685						
9. Government contract	0.0937	0.7098	0.0114	0.0040	0.0201	0.0365	0.0474	0.0043	0.0434	-0.0058					
10. Public listing	0.0405	0.1972	-0.0070	0.0452	0.0318	0.0850	0.1687	0.0770	0.0190	0.0384	0.0082				
11. Product quality	0.1946	0.3959	-0.0270	0.1437	0.0336	0.2375	0.3842	0.1417	0.0889	0.1816	0.0121	0.1014			
12. Ownership concentration	0.6060	0.3853	0.0449	0.0240	0.0816	-0.0956	-0.0587	-0.0970	-0.0637	-0.0236	-0.0041	0.0042	-0.0481		
13. GDP growth	5.1990	3.9147	-0.0458	0.0202	-0.2708	0.0420	0.0039	-0.0059	-0.0228	0.0006	-0.0012	-0.0175	0.0106	0.0073	
14. FDI inflow	4.2986	3.6196	-0.0394	0.0598	0.2007	0.0235	0.0217	0.0149	0.0770	0.0660	0.0163	0.0138	0.0447	0.0745	0.0947

Table 4 Tobit analysis of foreign ownership and bribery

Dependent variable	Bribery intensity					
Estimation method	Tobit					
Measure of foreign ownership	Continuous variable					
Level of business freedom					High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Independent Variable						
Foreign ownership		0.0436***	1.3758***	0.0528***	-0.0079	0.1831***
		(0.0047)	(0.0907)	(0.0079)	(0.0131)	(0.0110)
Moderators						
Business freedom		-0.0730***	-0.0514***	-0.0728***		
		(0.0056)	(0.0056)	(0.0056)		
External auditing		-0.0108***	-0.0104***	-0.0101***	0.0161***	-0.0222***
		(0.0024)	(0.0024)	(0.0024)	(0.0038)	(0.0031)
Interactions						
Foreign ownership×Business freedom			-0.3258***			
			(0.0221)			
Foreign ownership×External auditing				-0.0132	-0.0004	-0.0473***
				(0.0094)	(0.0154)	(0.0130)
Control Variables						
Firm size	-0.0026***	-0.0018*	-0.0017*	-0.0018*	-0.0090***	-0.0050***
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0016)	(0.0013)
Firm age	-0.0056***	-0.0061***	-0.0056***	-0.0060***	-0.0089***	-0.0079***
	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0021)	(0.0019)
Manager's experience	0.0012	0.0015	0.0008	0.0015	-0.0027	-0.0108***
	(0.0017)	(0.0017)	(0.0017)	(0.0017)	(0.0026)	(0.0023)
Export orientation	0.0172***	0.0128**	0.0131**	0.0128**	0.0050	0.0216***
	(0.0051)	(0.0051)	(0.0051)	(0.0051)	(0.0086)	(0.0061)
Government contract	0.0124***	0.0133***	0.0133***	0.0133***	0.0159***	0.0099***
	(0.0028)	(0.0029)	(0.0028)	(0.0029)	(0.0045)	(0.0031)
Public listing	0.0067	0.0075	0.0080	0.0075	0.0155**	0.0102
	(0.0054)	(0.0053)	(0.0053)	(0.0053)	(0.0077)	(0.0075)
Product quality	-0.0041	-0.0042	-0.0037	-0.0041	-0.0015	-0.0148***
	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0047)	(0.0040)
Ownership concentration	0.0284***	0.0263***	0.0249***	0.0265***	0.0392***	0.0547***
	(0.0034)	(0.0034)	(0.0033)	(0.0034)	(0.0050)	(0.0037)
GDP growth	-0.0003	-0.0012***	-0.0010***	-0.0012***	-0.0061***	-0.0035***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0005)	(0.0004)
FDI inflow	-0.0040***	-0.0034***	-0.0034***	-0.0034***	-0.0031***	-0.0001
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0006)
Constant	-0.1719***	0.1379***	0.0499**	0.1369***	-0.0945***	-0.0396***
	(0.0096)	(0.0243)	(0.0244)	(0.0243)	(0.0093)	(0.0080)
Year/industry/region effects	Yes	Yes	Yes	Yes	Yes	Yes
N	38673	38673	38673	38673	17892	20781
Log likelihood / R^2	-5570.7237	-5432.7345	-5298.4502	-5431.8391	-3158.1560	-3315.9015

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5 Robust analysis: foreign ownership as dummy variable

Dependent variable	Bribery intensity					
Estimation method	Tobit					
Measure of foreign ownership	Dummy variable (cutoff at 50%)					
Level of business freedom					High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Independent Variable						
Foreign ownership		0.0370***	1.1724***	0.0402***	-0.0133	0.1560***
		(0.0043)	(0.0781)	(0.0072)	(0.0125)	(0.0095)
Moderators						
Business freedom		-0.0723***	-0.0530***	-0.0723***		
		(0.0056)	(0.0056)	(0.0056)		
External auditing		-0.0106***	-0.0103***	-0.0104***	0.0158***	-0.0222***
		(0.0024)	(0.0024)	(0.0024)	(0.0037)	(0.0032)
Interactions						
Foreign ownership×Business freedom			-0.2778***			
			(0.0191)			
Foreign ownership×External auditing				-0.0046	0.0059	-0.0355***
				(0.0086)	(0.0145)	(0.0114)
Control Variables						
Firm size	-0.0026***	-0.0017	-0.0016	-0.0017	-0.0090***	-0.0048***
	(0.0010)	(0.0010)	(0.0010)	(0.0010)	(0.0016)	(0.0013)
Firm age	-0.0056***	-0.0061***	-0.0056***	-0.0061***	-0.0089***	-0.0081***
	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0021)	(0.0019)
Manager's experience	0.0012	0.0015	0.0009	0.0015	-0.0027	-0.0109***
	(0.0017)	(0.0017)	(0.0017)	(0.0017)	(0.0026)	(0.0023)
Export orientation	0.0172***	0.0135***	0.0135***	0.0135***	0.0051	0.0230***
	(0.0051)	(0.0051)	(0.0052)	(0.0051)	(0.0086)	(0.0062)
Government contract	0.0124***	0.0133***	0.0134***	0.0133***	0.0158***	0.0101***
	(0.0028)	(0.0029)	(0.0028)	(0.0029)	(0.0045)	(0.0031)
Public listing	0.0067	0.0077	0.0081	0.0077	0.0154**	0.0106
	(0.0054)	(0.0053)	(0.0053)	(0.0053)	(0.0077)	(0.0075)
Product quality	-0.0041	-0.0039	-0.0036	-0.0039	-0.0015	-0.0146***
	(0.0031)	(0.0031)	(0.0031)	(0.0031)	(0.0047)	(0.0040)
Ownership concentration	0.0284***	0.0265***	0.0254***	0.0266***	0.0391***	0.0551***
	(0.0034)	(0.0034)	(0.0033)	(0.0034)	(0.0050)	(0.0037)
GDP growth	-0.0003	-0.0012***	-0.0010***	-0.0012***	-0.0061***	-0.0035***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0005)	(0.0004)
FDI inflow	-0.0040***	-0.0034***	-0.0034***	-0.0034***	-0.0031***	-0.0002
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0006)
Constant	-0.1719***	0.1346***	0.0558**	0.1343***	-0.0942***	-0.0397***
	(0.0096)	(0.0243)	(0.0244)	(0.0243)	(0.0093)	(0.0081)
Year/industry/region effects	Yes	Yes	Yes	Yes	Yes	Yes
N	38673	38673	38673	38673	17892	20781
Log likelihood	-5570.7237	-5439.3296	-5322.7491	-5439.2019	-3157.8185	-3344.1118

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6 Robust analysis: OLS regression

Dependent variable	Bribery intensity					
Estimation method	OLS					
Measure of foreign ownership	Continuous variable					
Level of business freedom					High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Independent Variable						
Foreign ownership		0.0094***	0.4034***	0.0148***	-0.0023	0.0690***
		(0.0016)	(0.0445)	(0.0034)	(0.0018)	(0.0089)
Moderators						
Business freedom		-0.0180***	-0.0134***	-0.0207***		
		(0.0016)	(0.0015)	(0.0015)		
External auditing		-0.0012**	-0.0012**	-0.0014**	0.0006	-0.0016*
		(0.0006)	(0.0006)	(0.0006)	(0.0007)	(0.0010)
Interactions						
Foreign ownership×Business freedom			-0.0949***			
			(0.0105)			
Foreign ownership×External auditing				-0.0061	0.0032	-0.0345***
				(0.0037)	(0.0024)	(0.0100)
Control Variables						
Firm size	-0.0015***	-0.0014***	-0.0014***	-0.0017***	-0.0017***	-0.0029***
	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0003)	(0.0004)
Firm age	-0.0006*	-0.0009**	-0.0007**	-0.0009**	-0.0011***	-0.0008
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0006)
Manager's experience	0.0000	0.0001	-0.0000	0.0004	0.0012**	-0.0024***
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0008)
Export orientation	0.0024	0.0016	0.0017	0.0020	0.0005	0.0013
	(0.0015)	(0.0015)	(0.0015)	(0.0015)	(0.0017)	(0.0022)
Government contract	0.0012**	0.0013***	0.0013***	0.0013***	0.0018***	0.0011
	(0.0005)	(0.0005)	(0.0005)	(0.0013)	(0.0004)	(0.0008)
Public listing	0.0005	0.0004	0.0005	0.0001	0.0013	0.0025
	(0.0013)	(0.0013)	(0.0013)	(0.008)	(0.0015)	(0.0023)
Product quality	0.0014*	0.0011	0.0012	0.0013	0.0003	-0.0010
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0009)	(0.0012)
Ownership concentration	0.0032***	0.0028***	0.0025***	0.0013	0.0028***	0.0086***
	(0.0008)	(0.0008)	(0.0008)	(0.0008)	(0.0009)	(0.0011)
GDP growth	0.0002*	-0.0000	-0.0000	-0.0000	-0.0011***	-0.0008***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)
FDI inflow	-0.0005***	-0.0003***	-0.0003**	-0.0002*	-0.0002***	-0.0002
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)
Constant	0.0132***	0.0896***	0.0709***	0.1154***	0.0200***	0.0379***
	(0.0021)	(0.0071)	(0.0069)	(0.0070)	(0.0017)	(0.0029)
Year/industry/region effects	Yes	Yes	Yes	Yes	Yes	Yes
N	38673	38673	38673	38673	17892	20781
R^2	0.039	0.044	0.049	0.042	0.015	0.026

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7 Robust analysis: Probit models

Dependent variable	Bribery propensity					
Estimation method	probit					
Measure of foreign ownership	Continuous variable					
Level of business freedom					High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Independent Variable						
Foreign ownership		0.3468***	35.8824***	0.4640***	-0.0223	2.5420***
		(0.0330)	(2.3138)	(0.0587)	(0.0905)	(0.2494)
Moderators						
Business freedom		-0.5504***	-0.3235***	-0.7294***		
		(0.0413)	(0.0416)	(0.0378)		
External auditing		-0.1055***	-0.1118***	-0.0914***	0.1468***	-0.2196***
		(0.0171)	(0.0174)	(0.0171)	(0.0254)	(0.0216)
Interactions						
Foreign ownership×Business freedom			-8.5352***			
			(0.5569)			
Foreign ownership×External auditing				-0.1063	-0.0697	-1.3220***
				(0.0689)	(0.1039)	(0.2592)
Control Variables						
Firm size	0.0117*	0.0201***	0.0166**	0.0071***	-0.0474***	-0.0037
	(0.0071)	(0.0074)	(0.0075)	(0.0038)	(0.0105)	(0.0094)
Firm age	-0.0482***	-0.0527***	-0.0468***	-0.0497***	-0.0600***	-0.0789***
	(0.0096)	(0.0098)	(0.0099)	(0.0093)	(0.0141)	(0.0126)
Manager's experience	0.0057	0.0098	0.0015	0.0119	-0.0495***	-0.0860***
	(0.0122)	(0.0123)	(0.0124)	(0.0121)	(0.0176)	(0.0154)
Export orientation	0.1298***	0.0983***	0.0950***	0.1405***	0.0358	0.2057***
	(0.0354)	(0.0356)	(0.0367)	(0.0348)	(0.0539)	(0.0462)
Government contract	0.1008***	0.1097***	0.1155***	0.1044***	0.0997***	0.0960***
	(0.0189)	(0.0198)	(0.0207)	(0.0196)	(0.0283)	(0.0222)
Public listing	0.0645*	0.0712*	0.0785**	0.0990**	0.1116**	0.0618
	(0.0387)	(0.0387)	(0.0397)	(0.0383)	(0.0526)	(0.0561)
Product quality	-0.0543**	-0.0530**	-0.0456**	-0.0873***	-0.0153	-0.1418***
	(0.0221)	(0.0224)	(0.0229)	(0.0217)	(0.0319)	(0.0285)
Ownership concentration	0.2640***	0.2489***	0.2323***	0.2504***	0.3000***	0.4586***
	(0.0240)	(0.0241)	(0.0245)	(0.0241)	(0.0325)	(0.0239)
GDP growth	-0.0060**	-0.0132***	-0.0115***	-0.0131***	-0.0440***	-0.0314***
	(0.0025)	(0.0026)	(0.0026)	(0.0026)	(0.0030)	(0.0030)
FDI inflow	-0.0366***	-0.0318***	-0.0315***	-0.0318***	-0.0265***	0.0011
	(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0039)	(0.0039)
Constant	-1.2603***	1.0937***	0.1724	1.0873***	-0.5257***	-0.1928***
	(0.0657)	(0.1897)	(0.1919)	(0.1898)	(0.0576)	(0.0534)
Year/industry/region effects	Yes	Yes	Yes	Yes	Yes	Yes
N	38673	38673	38673	38673	17892	20781
Log likelihood	-17959.7190	-17803.6010	-17404.8490	-17634.432	-7595.2103	-11466.9050

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8 The analyses of the marginal effect of foreign ownership conditional upon the value of moderators

Sample	Moderator variable	Level of moderator[1]	Total marginal effects[2]
Full sample	Business freedom	Low	0.1375***
		Mean	0.0561***
		High	0.0398***
Low business freedom sample	External auditing	0	0.1831***
		1	0.1358***

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

1. For business freedom, its low (high) value is its value one standard deviation below (above) its mean.

2. The total marginal effect is calculated as the effect of a one unit increase in foreign ownership on firm bribery intensity at the given value of moderator variable.

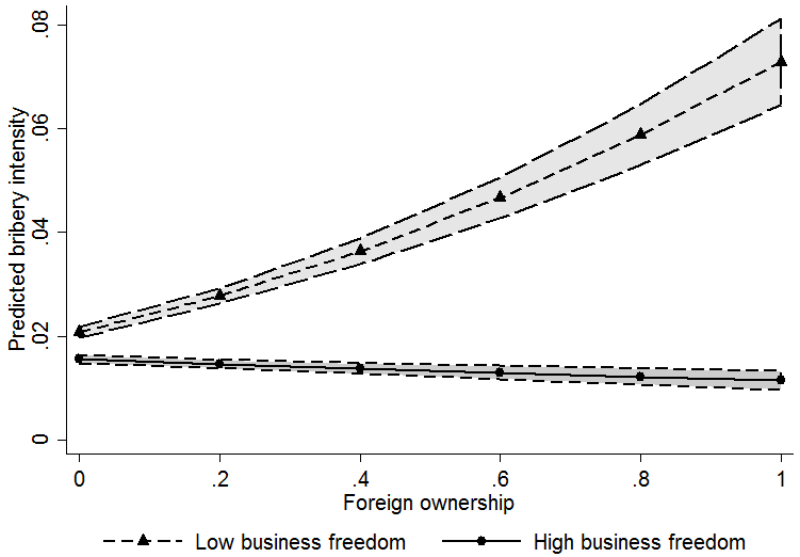

Figure 1 Graphic presentations of the interaction effect between business freedom and foreign ownership in the full sample

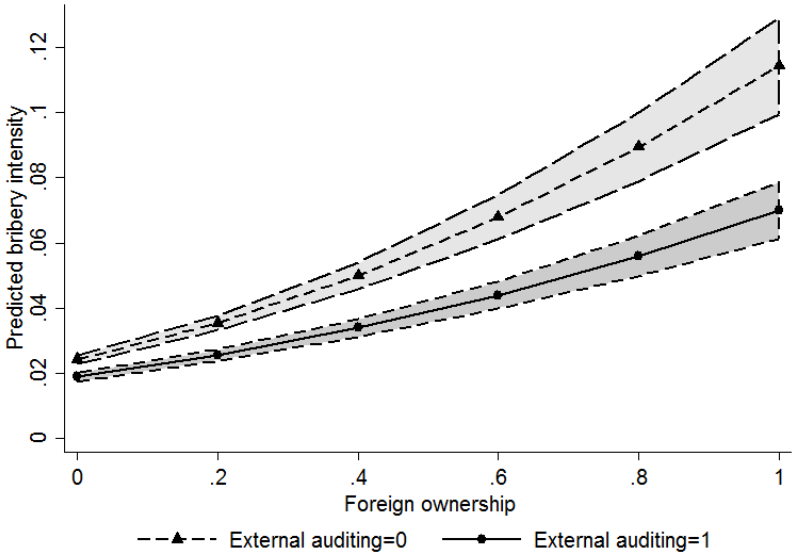

Figure 2 Graphic presentations of the interaction effect between external auditing on bribery intensity in the subsample