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Hello, is anybody there? Corporate accessibility for minority shareholders as a signal of agency problems in China

Xiaofeng ZHAO

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HELLO, IS ANYBODY THERE?
CORPORATE ACCESSIBILITY FOR MINORITY SHAREHOLDERS AS A
SIGNAL OF AGENCY PROBLEMS IN CHINA

by

ZHAO Xiaofeng

A thesis
submitted in partial fulfillment
of the requirements for the Degree of
Master of Philosophy in Business
(Finance & Insurance)

Lingnan University

2013

ABSTRACT

HELLO, IS ANYBODY THERE?

CORPORATE ACCESSIBILITY FOR MINORITY SHAREHOLDERS AS A
SIGNAL OF AGENCY PROBLEMS IN CHINA

by

ZHAO Xiaofeng

Master of Philosophy

My thesis examines whether corporate accessibility for minority shareholders, defined as the ease with which minority shareholders are able to contact corporate insiders, can be a signal of the severity of a firm's agency problems. Using Chinese public listed firms as the testing group, I find that accessible firms are associated with less serious agency problems than is the case for non-accessible firms. Specifically, accessible firms tend to be associated with lower agency costs, lower cost of equity, higher firm valuation, and better operating performance. I also find that accessibility can signal agency problems in firms with different ownership and corporate governance structures, though the signaling effects are weaker in the firms where the incentives of insiders are tied less closely to stock price performance. Overall, my results indicate that corporate accessibility for minority shareholders is a value-relevant signal for investors to detect the quality of the publicly listed firms in China.

DECLARATION

I declare that this is an original work based primarily on my own research, and I warrant that all citations of previous research, published or unpublished, have been duly acknowledged.

(ZHAO Xiaofeng)

July 25, 2013

CERTIFICATE OF APPROVAL OF THESIS

HELLO, IS ANYBODY THERE?

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Master of Philosophy

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Hello, Is Anybody There?

Corporate Accessibility for Minority Shareholders as a Signal of Agency Problems in China

1. INTRODUCTION

In economies where legal protection for minority shareholders is weak, minority shareholders usually have little opportunity to mitigate agency problems or to obtain redress from corporate insiders when the insiders expropriate resources from the firm. In these economies, how to identify the existence and severity of agency problems within corporations is an important question for minority shareholders. If the agency problems can be identified then minority investors can protect their interests by avoiding investing in firms with high agency costs (or else can “price protect” themselves). Identification of agency problems is also an important issue for regulators so that they can better utilize their supervisory resources and target high risk firms. This study examines whether corporate accessibility, defined as the ease with which minority shareholders are able to contact corporate insiders, is a value-relevant signal of the severity of agency problems. I test my hypotheses by using data from China’s listed firms. The legal protection for investors in China is weak and the publicly listed firms are plagued by serious agency problems (Gul et al. 2010; Jiang et al. 2010; Wei et al. 2005). The publicly listed firms in China also have a well-balanced mixture of state-owned and privately listed firms who are operating under different corporate governance structures and institutional environments (Sun and Tong 2003). This provides me with a very useful venue to test the relative effectiveness of corporate accessibility in detecting agency problems in firms with different ownership and corporate governance structures.

Agency problems are inherently difficult to identify because of the inherent information asymmetry between insiders and outsiders (Westphal and Zajac 1994; Gomez-Mejia and Balkin 1992). Here, insiders usually adopt various strategies to hide their self-dealing activities from outsiders (Boubaker and Labégorre 2008; Haw et al. 2004; Leuz et al. 2003). Such information obfuscation is easier to implement when a country's laws are silent on expropriation or when the enforcement of corporate fraud laws is weak (Bushman et al. 2004).

The existing literature has employed three approaches to identify and measure agency problems within corporations. The first approach focuses on the ownership structures of corporate insiders such as ownership stakes and divergence between control rights and cash flow rights (Bebchuk et al. 2000; Ang et al. 2000; La Porta et al. 2000). Here, the major hypothesis is that corporate insiders are less likely to hurt the interests of minority shareholders if their incentives are also tied closely to stock prices. The second approach anchors on internal and external corporate governance mechanisms, such as independent directors and institutional investors (Aggarwal et al. 2011; Harford et al. 2008). The major hypothesis underlying this approach is that the insiders who face stronger governance monitoring and more disciplinary constraints would enjoy less discretion to pursue their own private interests at the expense of the minority shareholders. The final approach seeks to obtain information about insiders' tendencies to expropriate minority shareholders by focusing on insiders' actual decisions and behaviors such as private uses of corporate resources (Yermack 2006) and Directors' and Officers' insurance (Kang and Klausner 2011). This approach builds on the revealed preference approach¹, which suggests that insiders' actual decisions can reveal important and valuable information about the hard-to-observe motivation of

¹ The revealed preference approach I adopted here is in line with the revealed preference theory pioneered by Paul Samuelson. In his study, Samuelson (1938) argues that consumers' preferences can be revealed by their purchasing habits.

insiders and thus allow outsiders to infer the agency problems within corporations.

Recent studies have demonstrated that corporate unethical behaviors are influenced not only by ownership and corporate governance structures, but also other hard to be observed factors such as insiders' personality traits, norms, and values (Graham et al. 2013; Rijssenbilt and Commandeur 2012; Grullon et al. 2009). Furthermore, ownership structure and corporate governance features can be a noisy proxy of corporate insiders' tendency to engage in self-dealing activities in countries with inadequate enforcement capacity (Letza et al. 2004; Fan et al. 2011). Under this circumstance, the revealed preference approach may offer additional information about the severity of agency problems that cannot be captured by ownership and corporate governance variables.

My study follows the reveal preference approach to examine whether corporate accessibility for minority shareholders can be used to detect the severity of agency problems within corporations. Due to rapid technological innovations in the past two decades, outside investors can contact corporate insiders more easily. Nowadays, many corporations have set up their own company websites. Most of these websites include an investor relations section that provides information to investors for contacting corporate insiders. Nevertheless, many publicly listed firms do not provide effective accessibility for outside investors, even though communication facilities such as email addresses and phone numbers are provided. In its 2011 annual report about the IR activities of the firms in the US, the National Institute of Investor Relations indicates that the lack of real accessibility is a problem. In this research, I directly contact the firms listed on China's stock exchanges by using the contact information provided in the IR section on their websites. I find that only 41% of the firms are actually accessible to minority shareholders.

Can accessibility contribute to the identification of agency problems? I expect corporate accessibility to be systematically associated with the severity of agency

problems due to the cost-benefit calculus of corporate insiders in exposing information to outside investors. First, based on the lemon problem articulated by Akerlof (1970), firms with less serious agency problems (hereafter good firms) would suffer an undervaluation and firms with more serious agency problems (hereafter bad firms) would suffer an overvaluation if investors cannot distinguish between the good firms and bad firms. Because of this, good firms have an incentive to disclose corporate information to outside investors in order to correct the undervaluation, while the bad firms would have an incentive to withhold information so as to maintain the overvaluation. As a result, good firms are more likely to be responsive to communications initiated by minority shareholders than the bad firms in order to provide more information to outsiders. This valuation consideration could be especially salient in firms with an ownership structure where insiders' interests are tied closely to equity share prices as, in this case, the insiders are affected more seriously by the valuation of their firms.

Second, bad firms would suffer from more serious sanctions from regulators and other stakeholders than good firms if their self-dealing activities are exposed. As a result, bad firms would have a stronger incentive than the good firms to minimize information disclosure in order to reduce the risk of exposing their self-dealing activities. The need for information obfuscation also implies that bad firms are less likely to be responsive to the communications initiated by minority shareholders than good firms.

In this study, I examine whether corporate accessibility can be a useful signaling device for outside investors to detect the agency problems of the firms listed on the Chinese stock market. Specifically, I identify the existence of signaling effects by examining whether corporate accessibility is significantly associated with the measures of agency costs, cost of equity, and firm performance. Furthermore, I examine how the signaling effects vary with ownership and corporate governance structures.

China's stock market is the largest emerging market in the world and one where the listed firms are plagued by serious agency problems (Jiang et al. 2010; Wei et al. 2005). Investors in China are faced with a particularly daunting challenge in identifying the existence and the extent of agency problems because of its primitive legal framework (Allen et al. 2005) and weak information environment (Piotroski and Wong 2011). Furthermore, most of the individual shareholders in China are inexperienced investors who are usually uneducated and have very little professional knowledge in understanding the complex ownership structure and financial statements of listed firms (see, Ng and Wu 2006). As corporate accessibility is a signal that can be employed easily even by inexperienced investors, it is particularly useful for individual investors who do not have the time and expertise to engage in detailed analysis and research.

The measurement of corporate accessibility for minority shareholders is a major challenge for my study. I focus on three communication channels provided by a firm's investor relations section on their company websites: namely, on-line discussion forum, email, and telephone communications. For the email and telephone communications, I directly contact the listed firms in order to obtain a valid measure of actual accessibility. This is particularly important because only effective accessibility reflects corporate insiders' true incentives to communicate with minority shareholders.

Based on the data obtained from 1555 firms that have been listed on China's two stock exchanges during the period 2008 to 2010, I find that accessible firms are associated with an ownership structure that provides insiders more incentive to pursue profit maximization and higher market valuation. The results are consistent with the cost-benefit calculus I proposed for the provision of corporate accessibility. Furthermore, I find that accessible firms are associated with lower agency costs, lower cost of equity, and better corporate performance. Specifically, I find that accessible firms, on average, have managerial consumption slack and tunneling of corporate funds that are

significantly lower than those for non-accessible firms by around 6.9% and 14.1%, respectively. In addition, accessible firms also tend to enjoy a reduction in cost of equity by 6.8%, and an improvement in firm valuation and profit margin by 6.1%, and 11.7%, respectively.

Further analysis shows that corporate accessibility can have signaling effects in firms regardless of their ownership structure and corporate governance characteristics. Specifically, accessibility can detect agency costs in the state as well as privately owned firms, in firms characterized by high as well as low divergence between control rights and cash flow rights, in firms with high as well as low institutional ownership, and in firms with a large as well as a small proportion of independent directors. The signaling effects become stronger in firms with strong monitoring mechanisms but weaker in firms where the incentives of insiders are tied less closely to stock price performance. Overall, my results indicate that corporate accessibility for minority shareholders is a value-relevant signal of the severity of agency problems and could be helpful for investors in identifying the quality of listed firms in China.

The remainder of the thesis is organized as follows. Section 2 introduces the research background and develops my research hypotheses. The research designs are introduced in Section 3 and the empirical results are presented in Section 4. Conclusions are given in the final section of the thesis.

2. RESEARCH BACKGROUND AND HYPOTHESES DEVELOPMENT

2.1. Institutional Background of the Chinese Market

The Chinese economy has witnessed tremendous growth in the past decades. By the end of 2010, China's GDP has reached 5.9 trillion US\$, the second largest economy in the world. It is expected to overtake the United States and become the largest economy by year 2020. Meanwhile, the Chinese stock market has also seen rapid growth and development. By the last trading day in 2010, the total market capitalization has reached 4.76 trillion US\$² (world's second largest by the total capitalization) with 2063 companies (2041 A shares and 108 B shares) listed on Chinese two stock exchanges—Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZE).

However, the Chinese stock market remains relatively underdeveloped by international standards. Chinese listed firms are plagued by serious agency problems and are often accused of corporate misconducts, such as financial misrepresentation (Firth et al. 2011; Chen and Yuan 2004), corporate fraud (Chen et al. 2006), excessive related party transactions (Jian and Wong 2006), and controlling shareholder tunneling (Jiang et al. 2010). These corporate misconducts have seriously hurt the interests of minority shareholders. The existence of the agency problems is mainly due to Chinese rudimentary legal system, the concentrated ownership structures, weak corporate governance structures, and minority shareholders' lack of experiences and knowledge in investments.

There are several factors that have led to serious agency problems in China. Firstly, China has an underdeveloped legal system with weak enforcement and a capricious judiciary. This has aided the existence of serious agency problems in firms because it is

² The other three countries in top four by capitalization at the end of 2010 are: US (17.13 trillion \$), Japan (4.10 trillion \$), UK (3.11 trillion \$). The data is provided by Wind Information.

difficult for outside shareholders to attain legal redress when they have been harmed by the actions of management or the controlling shareholders. China has a unique legal tradition that the courts are not independent of the state administrative system and the law is an instrument used by the ruling elite to serve administrative interests (Chen 2003; Jones 2003). Hutchens (2003) shows that the budgets and the appointment of judges in local courts are controlled by the local governments. Furthermore, the Communist Party political-legal committees are superimposed on the legal system and oversee the local courts (Chen 2003). Because of this, courts are in effect administrative instruments that the governments use to retain power over the listed firms, most of which are carve-out from large SOE groups which are often owned by local governments. Typically, the courts in hearing the disputes between listed enterprises and small investors will be more inclined to favor the interests of enterprises rather than those of small investors (Allen et al. 2005). As a consequence, the legal protection for minority shareholders is weak and they have limited opportunity to obtain redress from corporate insiders through the legal system.

Secondly, Chinese listed firms have a concentrated ownership structure that is often dominated by a large shareholder (typically the state owner). This ownership structure intensifies the conflicts of interests between corporate insiders and minority shareholders. There are two basic reasons for this: First, most listed firms are spin-offs from existing SOEs. The process creates inherent business and personnel connections between the listed firms and the unlisted parent firms. Insiders might use the listed firm as a vehicle to raise funds from outsider investors and tunnel those resources to their parent companies. For example, the listed firms tunnel funds back to support a parent firm's unprofitable business units (Aharony et al. 2005), or to enhance a controlling shareholder's wealth via a parent firm that is 100% owned by the controlling shareholder. Second, tradable shares held by individual and institutional investors are

separated from the non-tradable shares held by state government state agencies and legal entities. This also aggravates the conflicts of interests. Because the interests of non-tradable shareholders are not directly affected by the movement of the stock market, non-tradable controlling shareholders are less likely to focus on the shareholder value as reflected by stock price performance. Instead, they are likely to make decisions that benefit themselves but hurt the interests of the minority shareholders.

Thirdly, many governance control mechanisms exist in principal but appear less effective in practice. China has adopted a modern enterprise system and corporate governance structure similar to those seen in western countries. For example, the structures and responsibilities of the boards of directors are designed to follow the governance guidelines and practices adopted by the firms in mature markets. Chinese firms also have a supervisory board, the major duties of which are to review the financial statements and oversee the boards of directors. However, the appointment criteria of top executives and directors in Chinese listed firms are different from those in the mature markets such as the U.S. In China, senior managers and directors are often appointed by the state or local governments, and the Communist Party also has substantial influence on the appointments (Chen et al. 2006). Because of this, top executives will be primarily responsible to the controlling shareholders (the state owners) instead of the general public shareholders.

Fourthly, minority shareholders generally lack investment experience and have a limited wherewithal to obtain information about the operations of listed firms. Unlike the stock markets in developed countries, where institutional investors play a significant role, stock market trading in China is dominated by individual investors. Li and Wang (2008) show that individual investors dominate Chinese stock market in terms of both

number of investment accounts and trading volumes³. However, most of the individual shareholders in China are inexperienced investors who have very little professional knowledge⁴ (Ng and Wu 2006). They lack both the time and skills to thoroughly search for and then analyze information from firms' financial reports and other announcements, and thus suffer an information disadvantage. In addition, the shareholdings of the typical minority shareholder are generally too small to have an effective influence on corporate decisions. As a result, they do not have sufficient capacity to protect their interests. Thus, they suffer seriously from agency problems.

To some extent the Chinese government has recognized the problems outlined above and have introduced significant changes and reforms to the legal framework, regulations, and corporate governance. China's Company Law and Securities Law were amended in 2005 with the objective of increasing shareholder protection. For example, it is now possible to take legal actions against listed firms and corporate insiders. As a result, we see an increasing number of lawsuits being filed against listed firms nationwide (Chen 2003). Zou et al. (2008) confirms the increasing level of litigation risk faced by firms in China by evidencing that firms exposed to higher litigation risk are more likely to take out directors' and officers' liability insurance. Therefore, litigation risk has become a concern for corporate insiders in China.

Furthermore, China has been making efforts to strengthen the corporate governance system by introducing a series of reforms. One key reform is the introduction of the independent director system formalized by the CSRC in 2001, which requires all companies listed on China's two stock exchanges have to appoint at least two independent directors on their board of directors and ensure that their board

³ By the end of 2007, the market share of individual investors is 72% in terms of account numbers and 51.3% in terms of funds invested (China Securities and Futures Statistical Yearbook, 2007).

⁴ Based on a survey on individual investors conducted by Shenzhen Stock Exchange in 2010, most investors think there are too many terminologies in listed firms' annual/interim reports and the readability is weak. In addition, they think the reliability and relevancy of the contents are not high.

comprises at least one-third independent directors. The regulations specified that the “independent director shall express an independent opinion on the major events that occurred in the listed company”, including “events that the independent director considers detrimental to the interests of the minority shareholders” (CSRC 2001, 2002). As a result, independent directors are assigned with the responsibility of protecting minority shareholders from abuses by corporate insiders.

In the year 2000, the Chinese government made a strategic decision to develop the mutual fund industry in the domestic market (CSRC 2000). In addition, foreign institutional investors have also been allowed to invest in Chinese listed firms through the Qualified Foreign Institutional Investor Scheme (QFIIs) since 2002. As institutional investors tend to have greater incentives as well as the capacity to monitor corporate insiders (Aggarwal et al. 2011), the emergence of institutional investors in China is expected to improve the corporate governance of Chinese listed firms.

In addition to the introduction of independent directors and institutional investors, investor relations management has attracted more attention from the regulators in China. In December 2004, CSRC issued a regulation⁵ urging the listed companies to abstain from abusing their control over the firm and to effectively protect the rights and interests of minority shareholders. In particular, the regulation also requires listed companies to offer various forms of communication channels, such as telephone, and investor relations services and that they be disclosed in companies’ websites in order to allow minority shareholders to communicate with the firms.

Despite the changes and reforms in legal system, regulations, and corporate governance, the institutional environment in China is still poor by international standards (Piotroski and Wong 2011). Piotroski and Wong (2011) show that the

⁵ “The Provisions on Strengthening the Protection of the Rights and Interests of the General Public Shareholders” (No. 118 [2004] of CSRC).

institutional environment for China's listed firms is strong on the basis of regulations and standards alone but weak on the basis of practices. As a result, many of the changes in corporate governance amount to "window dressing" that do not produce much meaningful change in the governance practices. As a consequence, Chinese listed firms are still seriously plagued by agency problems.

2.2. Related Literatures

My research is related to two lines of studies. The most relevant one is the literature on agency problems. The other one is the literature on corporate communications. As I have discussed in the introduction, existing studies on agency problems seek to measure or detect agency problems by three approaches: ownership structure, corporate governance, and revealed preference. Existing studies related to these three approaches are briefly discussed below.

Ownership structure has been shown to be closely related with agency problems (La Porta et al. 2000; La Porta et al. 1999). Specifically, firms are less likely to be associated with serious agency problems if the firms' ownership structure closely aligns the insiders' incentives with those of outside investors. In China, the most salient ownership characteristic is the stakes of the state and local government. Many existing studies have evidenced that state ownership is associated with severe agency problems and thus poor firm performance (Gul et al. 2010; Sun and Tong 2003; Wei et al. 2005). The rise of agency problems due to the existence of state ownership is often attributed to the argument that state owners usually pursue the political and social goals of the government and these diverge from the minority shareholders' goal of profit maximization, and that non-state firms (private and foreign firms), on the other hand, are more likely to focus on maximizing a firm's profit. Although agency problems are prevalent in SOEs due to the lack of incentive structure of state-owners, they are not

unique to SOEs but are also present in private firms (see, Morck and Yeung 2003). This raises the question of whether there is a signal that can detect agency problems in firms with different ownership.

In addition, the agency problems in China's listed firms are severe due to the ownership structure characterized by a high divergence between control rights and cash-flow rights (Wei et al. 2005). Namely, the owners with block-holdings often have significant control rights that are in excess of cash-flow rights. This creates substantial incentives for insiders to engage in "tunneling" and other moral hazard activities because these insiders have a greater capability to divert firm resource for private benefits while they do not need to bear the financial consequences corresponding to those activities (Lin et al. 2011a; López de Silanes et al. 2000). Prior studies on the Chinese market suggest that firms with large control-ownership wedge are more likely to be involved in intra-group capital flows (e.g. inter-corporate loans) that corporate insiders use to transfer firm resources for their private interests (see, Jiang et al. 2010). However, the intra-group capital flows in firms with a large control-ownership wedge can also be motivated by capital allocation efficiency (Fan et al. 2011). In addition, Fan et al. (2012) further show that the creation of a pyramidal ownership structure is also motivated by the need to shield from government interventions – an important source of agency costs in China. The mixed motives associated with pyramidal ownership have introduced noise to the detection of agency problems.

Corporate governance mechanisms have been suggested as ways to inhibit the agency problems as they could exert monitoring and disciplinary pressures on corporate insiders (Shleifer and Vishny 1997). Typical instances of such mechanisms are independent directors and institutional investors. Some early studies in China suggest that independent directors can improve firm performance and firm value (Bai et al. 2005), and ownership by mutual funds has a positive impact on firm performance (Yuan

et al. 2008). These findings are consistent with the regulatory efforts in China to promote independent directors and institutional ownership as governance control mechanisms. However, more recent studies show that these governance mechanisms do not work as effectively as expected. For example, a recent study by Lin et al. (2012b) shows that independent directors are hesitant to oppose the insiders and are reluctant to provide dissenting opinions, and their “voice” is constrained by cultural, social and political factors. Studies also show that most Chinese financial institutions are passive and short-term investors, and play no role in firm performance (e.g. Yuan et al. 2009; Tenev et al. 2002). The findings of ineffective governance mechanisms are likely due to the weak legal framework and poor institutional environment in China.

In addition to the ownership and corporate governance structures, recent studies show that individual heterogeneity (e.g. psychological traits and attitudes) matters in corporate finance and governance (Graham et al. 2013; Rijsenbilt and Commandeur 2012; Grullon et al. 2009). The study by Graham et al. (2013) show that CEOs’ underlying attitudes have significant impacts on corporate capital structure and acquisition decisions. Specifically, they find that risk-tolerant CEOs are more likely to engage in mergers and acquisitions, and that optimistic CEOs are more likely to use short-term debts. Grullon et al. (2009) show that cultural factors have an impact on the likelihood of unethical corporate behavior by evidencing that the likelihood of undesirable corporate behavior (class action lawsuits, option backdating, excessive executive compensation, and earnings management) decreases with higher levels of religiosity.

The mixed findings on the ownership and governance structures in detecting the agency problems and the presence of hard to detect individual heterogeneity in determining the agency problems motivate me to use a revealed preference approach to identify the agency problems within corporations. This approach seeks to obtain

information about insiders' tendencies to expropriate minority shareholders by focusing on insiders' actual decision and behaviors.

Several studies use the revealed preference approach to investigate insiders' tendencies to engage in self-dealing activities by focusing on insiders' behaviors. One such study is Yermack (2006) that focuses on the private uses of corporate resources. He shows that firms experience severe market shortfalls when CEOs are permitted the use of corporate aircraft, which cannot be explained simply by the costs of resources consumed. The consumption of a corporate jet resource can be a signal of waste, poor corporate governance, and other unethical managerial behaviors. The disclosure of this perk consumption thus reveals important information about a firm's quality and can trigger investors' market reaction. Some other related studies are the research on directors' & officers' insurance (Kang and Klausner 2011; Lin et al. 2012a; Lin et al. 2011b). D&O insurance insulates directors and officers from the threat of litigation and personal financial liability resulting from their decisions on behalf of the corporation. Corporate insiders who have the intention to engage in self-dealing and other moral hazard activities could be more likely to purchase the D&O insurance. Therefore, D&O insurance required by insiders could be a good reflection of the hard to observe agency problems. For example, Kang and Klausner (2011) find that D&O premiums are negatively related with measures of corporate governance, which suggests that the D&O premiums are a reflection of the quality of corporate governance and can be used as a signaling device to measure the quality of a firm's governance. My study contributes to the literature by focusing on corporate accessibility as a new detection device and examines its signaling effectiveness in an emerging market rather than in a mature market.

In addition to the literature on agency problems, my study is also related to the studies on communications between corporate insiders and outsiders. Most existing

studies on the communications between corporate insiders and outsiders focus on communications initiated by corporate insiders, such as corporate presentations (Francis et al. 1997), conference calls (Bowen et al. 2002), and private meetings with analysts and investors (Bowen et al. 2002; Green et al. 2012), and examine their impact on the corporate information environment. However, the findings are mixed. Some studies show that communications with outsiders can improve a firm's information environment (Agarwal et al. 2008; Bushee and Miller 2012; Chang et al. 2008; Kirk 2008; Bowen et al. 2002; Green et al. 2012). Some studies, on the other hand, show that communications actually have no impact on corporate information environment (Farraghe et al. 1994; Francis et al. 1997; Gillies and Dennis 1973; Peasnell et al. 2011). Unlike these existing studies, my study focuses on communications initiated by outsiders, which have not been examined in other studies. Instead of focusing on the effects of communications on corporate transparency, I examine whether corporate accessibility might provide us with a plausible device to identify the severity of the agency problems and the quality of corporate governance in listed companies.

My research method and approach is similar to a recent study conducted by Chong et al. (2012). This study examines the government efficiency across countries by mailing letters to non-existent business addresses and measuring whether they come back to a return address. This study finds that the number of days before the mails are returned could be explained by a set of variables that measure the government efficiency, and suggests that a simple and universal post office service could be used as signal for detecting the quality of government. In my study, I contact the Chinese listed firms and use their responsiveness to detect the quality of the firms.

2.3. Hypotheses Development

Given the existence of severe agency problems and the poor institutional

arrangements in China, minority shareholders have little opportunity to mitigate the expropriation problems. In light of this, it is important that outsiders can identify firms with severe agency problems so as to better manage their portfolios and protect their interests. The accessibility of corporate insiders to the communications initiated by outside minority shareholders may shed some light on this issue as the severity of agency problems can be systematically associated with insiders' responsiveness to the communications initiated by minority shareholders. There are two basic reasons for this, which I discuss below:

Firstly, the offering of accessibility for outsider investors reflects corporate insiders' incentives to reduce the information gap between themselves and outsiders. Good firms will benefit more from reducing the gap. If investors cannot distinguish between good firms and bad firms, good firms (bad firms) would experience an undervaluation (overvaluation) (Akerlof 1970). Thus, good firms are more likely to be responsive to communications initiated by shareholders in order to correct the undervaluation. Such incentive is stronger for firms where the incentives of insiders are tied closely to stock price performance (Morck et al. 1988). In contrast, bad firms tend to avoid communications and withhold information so as to maintain the overvaluation (Nagar et al. 2003).

Secondly, the presence of information asymmetry is a pre-condition for the emergence of agency problems (Jensen and Meckling 1976). To the extent that communications with outside shareholders will increase the amount of information disclosed to outsiders, accessible firms face a greater risk of exposing expropriation activities to outsiders than non-accessible firms. As argued by Bushee and Noe (2000), corporate disclosure is a low-cost mechanism for monitoring agency problems. As the risk of exposure is higher and the resulting punishments are heavier for the insiders who have engaged in value-destroying expropriation activities, they will have a lower

incentive to provide accessibility to outside investors. Consistent with this prediction, existing studies have found that firms plagued by more serious agency problems tend to disclose less firm-specific information to outsiders (e.g. Eng and Mak, 2003; Ho and Wong, 2001).

Therefore, I expect that good firms are more likely to be responsive to the communications initiated by minority shareholders than bad firms. Namely, corporate accessibility would be negatively associated with the severity of agency problems and thus agency costs. Accordingly, I make my first hypothesis as follows:

H1a: Accessible firms are associated with lower agency costs than non-accessible firms.

Lin et al. (2011a) show that “tunneling” activities that firms engage in will increase the probability of costly lower-tail outcomes and result in higher uncertainty about firm’s future prospects, consequently resulting in higher external financing costs. To the extent that corporate accessibility is associated with the severity of agency problems among the Chinese listed firms, I expect to observe a negative relation between corporate accessibility and the cost of equity. Accordingly, I hypothesize:

H1b: Accessible firms are associated with a lower cost of equity than non-accessible firms.

Furthermore, the existence of agency problems will detract from a firm’s profitability and eventually reduce firm value (Jensen 1986; Brown and Caylor 2009; Core et al. 1999). I therefore also expect to see a positive relation between corporate accessibility and firm performance. Accordingly, I hypothesize:

H1c: Accessible firms are associated with higher firm value and better operating performance than non-accessible firms.

I define the significant associations as stated in Hypotheses 1a-1c as the signaling effects of corporate accessibility. I expect that the signaling effects may vary with a firm's ownership and corporate governance structures. Specifically, the signaling effects will be less (more) salient if good firms are less (more) willing to incur the costs of communications and choose to be non-accessible (accessible). Among good firms, the insiders whose interests are not tied closely to stock price performance will have a lower level of incentive to offer accessibility to outside investors than are the corresponding insiders whose incentives are tied more closely to stock price. This arises as the former type of insiders enjoys fewer benefits resulting from the valuation improvement. Due to the lower incentive of the good firms (whose managers' incentives are not tied to stock prices) to separate themselves from the bad firms, I expect that corporate accessibility will be a weaker signal of agency problems for this type of insiders. I develop two hypotheses to examine this issue.

First, I focus on the ownership structures of controlling shareholders and test whether the signaling effects are weaker in firms where the controlling shareholders tend to have a lower incentive to maximize shareholder value. Given the disincentive of value maximization in the ownership structures where state is the ultimate owner (see, Wei et al. 2005) and control rights are substantially in excess of cash-flow rights (see, La Porta et al. 2000), I expect that the signaling effects would be weaker in state owned firms and in firms with a higher divergence between control rights and cash-flow rights than that in privately owned firms and in firms with a low divergence. My hypothesis is as follows:

H2a: The signaling effects would be weaker in state owned firms and in firms with higher divergence between control rights and cash-flow rights than in privately owned firms and in firms with a lower divergence between control rights and cash-flow rights.

Second, I focus on internal and external governance structures and examine whether the signaling effects are stronger in firms with superior governance structures. Good firms who face higher disciplinary pressures would have a greater incentive to maximize shareholder value and thus are more likely to provide accessibility than the corresponding good firms who face lower disciplinary pressures. Given the monitoring and disciplinary pressures exerted by institutional ownership (Yuan et al. 2009) and independent directors (Bai et al. 2005), I expect that the signaling effects would be stronger in firms with higher institutional ownership and greater proportion of independent directors than in firms with lower institutional ownership and smaller proportion of independent directors. Accordingly, I make the following hypothesis:

H2b: The signaling effects would be stronger in firms with higher institutional ownership and in firms with greater proportion of independent directors than in firms with lower institutional ownership and smaller proportion of independent directors.

3. RESEARCH DESIGN

3.1. Data Collection and Measures of Corporate Accessibility

I followed a detailed procedure to collect data on the corporate accessibility of China's listed firms. The details of the data collection procedures are provided in the Appendix. I briefly discuss my key procedures here.

First, I obtain the website addresses of all the firms listed on China's two stock exchanges from the China Securities Market and Accounting Research (CSMAR), and then check whether there is an investor relations section (IR section or IR subpage) identified on the main page. If yes, I then proceed to that section and examine whether the following disclosures are made: 1) whether there was an on-line discussion forum with records of communications between investors and the firm. If yes, then *FORUM_ACS* is set equal to 1 (accessible), and 0 (non-accessible) otherwise. 2) whether the IR section offers an email contact. If yes, I then contact the listed firm to confirm its accessibility. I directly send an email to the firm asking a general question—the major locations where the firms have their business operations. If the firm actually replied to me, then *EMAIL_ACS* is set to 1 (accessible), and 0 (non-accessible) otherwise. 3) whether the IR section offered telephone contact information. To confirm a firm's accessibility by phone, I directly made a call to a firm by enquiring whether shareholders can pay a visit to the firm. If I get to talk with the company on this issue, I set *CALL_ACS* to 1 (accessible), and 0 otherwise (non-accessible). In addition, I create another dummy variable *IR_ACS*. It is set to 1 if at least one of the above three communication channels is accessible, and 0 if none of them is accessible⁶. This data-collection process took me 3 months from July to

⁶ The four accessibility measures (*IR_ACS*, *CALL_ACS*, *EMAIL_ACS*, and *FORUM_ACS*) take the value of 0 (non-accessible) if there is not an IR section on the firm's website.

September in 2010⁷, covering all firms listed on two Chinese stock exchanges at the end of 2009.

3.2. Empirical Models and Methodology

3.2.1 Self-selection Problems and The Determinants of Accessibility

The sample selection problem is the a major concern in my study as my data collection involves a progress step by step survey where nonrandom sampling in any step might introducue a selection bais in the estimation⁸. If this is the case, the responsiveness of firms with an IR section might not be a reliable estimate of what firms without an IR section would have done. Basically, there may be two sources of selection problem. First, I contact firms using the contact information collected from the IR section on their website. There may be unobservable factors that that make some firms more likely to set the IR section. For example, companies with good past performance are more likely to have a well-established IR communication partform. Second, if there are any unovervable factors affect firms' responsiveness, or the first source of slection problem exists, then the estimates of the signaling effects of corporate accessibility will be inconsistent.

I follow Campa and Kedia (2002) and Hoechle et al. (2012) and use a two-step Heckman (1979) framework to deal with the existence of the two sources of self-selection. This framework involves the estimations of two decisions. The first decision is the decision to set up an IR section on a firm's website and the second decision is the decision to be accessible or not accessible to outside shareholders.

Specifically, I first estimate a probit model for the IR section decision (equation 1), and obtain the inverse Mill's ratio to capture the unobservable characteristics of the

⁷ During this period, I was employed as a research assistant before enrolling in the MPhil program in the Finance & Insurance Department at Lingnan University.

firms that have an IR section on their websites. I use this inverse Mills ratio as an explanatory variable when I estimate a probit model for the accessibility decision (equation 2). I obtain another inverse Mill's ratio from the accessibility decision model and then use it as an explanatory variable when I estimate the association between corporate accessibility and agency costs (cost of equity and firm performance). The models are:

$$\begin{aligned}
WIR_{i,t} = & \alpha_0 + \alpha_1 STATE_{i,t} + \alpha_2 CO_{i,t} + \alpha_3 IO_{i,t} + \alpha_4 INDP_{i,t} + \alpha_5 SIZE_{i,t} + \alpha_6 LEV_{i,t} \\
& + \alpha_7 VOL_{i,t} + \alpha_8 ILLIQ_{i,t} + \alpha_9 ROA_{i,t} + \alpha_{10} D2004_{i,t} + \alpha_{11} OCL_{i,t} \\
& + \sum IND_{i,t} + \sum Year_t \tag{1}
\end{aligned}$$

$$\begin{aligned}
ACS_{i,t} = & \beta_0 + \beta_1 STATE_{i,t} + \beta_2 CO_{i,t} + \beta_3 IO_{i,t} + \beta_4 INDP_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} \\
& + \beta_7 VOL_{i,t} + \beta_8 ILLIQ_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} D2004_{i,t} + \beta_{11} OCL_{i,t} \\
& + \beta_{12} Lambda_{i,t} + \sum IND_{i,t} + \sum Year_t \tag{2}
\end{aligned}$$

Where, *i* and *j* indexes observations of firms and years, respectively. The dependent variable in IR decision model is *WIR*, which is a dummy variable that takes the value of 1 if a firm has an IR section on its website and 0 otherwise. The dependent variable in the accessibility decision model is *ACS*, which is one of the four corporate accessibility measures, namely, *IR_ACS*, *CALL_ACS*, *EMAIL_ACS*, and *FORUM_ACS*.

As I have discussed previously, firms are more likely to provide accessibility to outsiders when there is an ownership structure where the benefits of insiders are tied closely to the movement of share prices, and when strong internal and external governance mechanisms are implemented. Therefore, I control for a set of variables that capture a firm's ownership and governance structures. The first variable is *STATE*, a dummy variable that takes the value of 1 if the ultimate controlling shareholder is a

state entity and 0 otherwise. The second variable is *CO*. It is a ratio of the ultimate controlling shareholders' control rights over the cash-flow ownership rights. The third variable is *IO*. It is the percentage shares owned by institutional investors. Lastly, I control for the independence of directors measured by the number of independent directors over the total directors on the board (*INDP*).

In addition, I control for firm's profitability (*ROA*) because more profitable firms may select to set up the IR and provide accessibility. I will further address this endogeneity issue using a formal two-stage IV method in the robustness check (the details and results can be seen in section 4.5.1). Finally, I control for a set of firm characteristics and risk factors that might have impacts on the decision to set up an IR and the determinant of corporate accessibility, including firm size (*SIZE*), financial leverage (*LEV*), standard deviation of the *EPS* in the past five year (*VOL*), stock trading illiquidity (*ILLIQ*), and industry ($\sum IND_i$) and time year ($\sum Year_i$) fixed effects. *ILLIQ* is defined as the annual average ratio of the daily absolute returns to the trading volume (in 100 million RMB) on that day (see, Amihud 2002).

In my Heckman approach, I use two variables as instruments when I estimate the accessibility decision. The first one is the length of optical cable lines in the province where a firm is located (*OCL*). It is very likely a good instrument for my accessibility variable because most communications between firms and outside investors in China are carried out via telecommunication means. Optical cable lines are the medium for connecting remote communication terminals (including computers and phones). I expect that the firms in a region with better development of the telecommunication technology will have a greater inclination to provide accessibility to outside investors via computers and phones. Thus, I expect the length of optical cable lines in each province should be correlated with our accessibility measures.

The second instrument is a dummy variable that takes the value of 1 if the firm was

listed after the year 2004, and 0 otherwise (*D2004*). The CSRC issued “The Provisions on Strengthening the Protection of the Rights and Interests of the General Public Shareholders” (No. 118 [2004] of CSRC) in 2004, which required listed firms in China to offer communication channels to minority shareholders. The compliance with this regulation will be an important consideration when a firm seeks approval from the CSRC to go public. I believe that firms listed after year 2004 are more likely to have an IR section and offer accessibility to minority shareholders. As a result, a dummy variable indicating whether a firm is listed after the year 2004 or not could serve as an instrumental variable for the corporate accessibility.

3.2.2 Empirical Models in Testing Hypothesis 1

H1a and **H1b** state that there is a negative association between corporate accessibility and agency costs, and between corporate accessibility and capital costs. **H1c** on the other hand, predicts that there is a positive association between corporate accessibility and firm performance. I estimate the following three equations to test these three hypotheses:

$$\begin{aligned}
 AC_{i,t} = & \gamma_0 + \gamma_1 ACS_{i,t} + \gamma_2 STATE_{i,t} + \gamma_3 CO_{i,t} + \gamma_4 IO_{i,t} + \gamma_5 INDP_{i,t} + \gamma_6 SIZE_{i,t} + \gamma_7 LEV_{i,t} \\
 & + \gamma_8 VOL_{i,t} + \gamma_9 ILLIQ_{i,t} + \gamma_{10} ROA_{i,t} + \gamma_{11} Lambda_{i,t} \\
 & + \sum IND_{i,t} + \sum Year_t
 \end{aligned} \tag{3}$$

$$\begin{aligned}
 COC_{i,t} = & \mu_0 + \mu_1 ACS_{i,t} + \mu_2 STATE_{i,t} + \mu_3 CO_{i,t} + \mu_4 IO_{i,t} + \mu_5 INDP_{i,t} + \mu_6 SIZE_{i,t} \\
 & + \mu_7 LEV_{i,t} + \mu_8 VOL_{i,t} + \mu_9 ILLIQ_{i,t} + \mu_{10} AdjRet_{i,t} + \mu_{11} Lambda_{i,t} \\
 & + \sum IND_{i,t} + \sum Year_t
 \end{aligned} \tag{4}$$

$$\begin{aligned}
FP_{i,t} = & \delta_0 + \delta_1 ACS_{i,t} + \delta_2 STATE_{i,t} + \delta_3 CO_{i,t} + \delta_4 IO_{i,t} + \delta_5 INDP_{i,t} + \delta_6 SIZE_{i,t} + \delta_7 LEV_{i,t} \\
& + \delta_8 VOL_{i,t} + \delta_9 ILLIQ_{i,t} + \delta_{10} AdjRet_{i,t} + \delta_{11} Lambda_{i,t} \\
& + \sum IND_i + \sum Year_i
\end{aligned} \tag{5}$$

The dependent variable (*AC*) in equation 3 is the measure of a firm's agency costs. *AC* is measured in two ways (*ORECA* and *EXPR*). *ORECA* is defined as other account receivables scaled by total assets. Jiang et al. (2010) show that the controlling shareholders of China's listed firms have siphoned funds from the listed firm by the use of inter-corporate loans (typically reported as part of "other receivables"). Jiang et al. (2010) suggest that the tendency of the Chinese firms to use inter-corporate loans to tunnel funds has been mitigated since 2006 due to the government's intensified efforts to control this kind of tunneling activity. However, I expect that the government efforts may not be able to totally eliminate this kind of tunneling activity and *ORECA* is still a good measure of the cross-sectional variation of the agency costs among the listed firms. To verify my conjecture, I follow Jiang et al. (2010) and repeat all their cross-sectional analyses. I obtain the same cross-sectional patterns (with the same significant relations) as those obtained by Jiang et al. (2010).

The second measure of agency cost is the expense ratio (*EXPR*), defined as operating expense (the total expenses less cost of goods sold, interest expense, and managerial compensation) scaled by annual sales. Ang et al. (2000) suggest that the expense ratio captures excessive expenses including perks consumption and therefore could also be a good proxy of agency costs. I expect this variable can capture the agency costs caused by the controlling shareholders as well as by the managers.

The dependent variable (*COC*) in equation 4 is a measure of firms' cost of equity financing. I use the ex-ante or implied cost of equity capital (*COC*) which is calculated based on Easton (2003)'s modified PEG ratio model to measure the equity

costs. The model is specified below:

$$r^2 - r \left(\frac{dps_1}{p_0} \right) - \frac{eps_2 - eps_1}{p_0} = 0$$

Where p_0 = current price per share, date t=0

dps_1 = expected dividends per share, date t=1

eps_1 = expected earnings per share, date t=1

eps_2 = expected earnings per share, date t=2

The positive root of this quadratic equation (r) is the estimate of the cost of equity based on the modified PEG ratio where the modification is the inclusion of expected dividends. I follow Easton (2003) to constrain $eps_2 \geq eps_1 \geq 0$ so that the solution to the equation has two real roots one of which is positive. Forecast earnings per share in t=1 and t=2 are extracted from the CSMAR. However, as the forecast of dividends are not reported in the CSMAR, I use the current dividend per share (dps_0) as the estimate of the expected dividend per share (dps_1).

I use two variables in equation 5 to measure firm's corporate performance. One is Tobin's q (*TobinQ*), which measures relative firm value. It is defined as the ratio of the sum of market value of equity and net debt over total assets after subtracting net intangible assets. The other performance variable is net operating margin (*NOM*), which measures firm operating performance. It is defined as the net profit over operating revenue.

I include a set of ownership and governance variables, namely *STATE*, *CO*, *IO*, and *INDP*, as control factors. The inclusion of these variables into the regression models allow me to isolate the effects of corporate accessibility from the confounding influences on our dependent variables that are caused by ownership and governance structures. In addition, I also control firm characteristics, and industry and time year

fixed effects. However, to avoid the pitfall of multicollinearity, I use market adjusted annual return (*AdjRet*) instead of *ROA* in equation 5 following Yuan et al. (2008) to control for firm's performance because the correlation between *ROA* and *NOM* (between *ROA* and *TobinQ*) is as high as 0.61 (0.26).

Finally, the inverse Mill's ratio (*lamda*) computed from accessibility determinant models is included in all the three regression models in order to mitigate the self-selection problems.

3.2.3 Empirical Models in Testing Hypothesis 2

I use two basic methods to test Hypothesis 2, which examines how the signaling effects vary with the ownership and corporate governance structures. The first one is the portfolio sort technique. Specifically, I first sort my sample ascendingly based on the measures of ownership structures (*STATE*, and *CO*) and the governance structures (*IO*, *INDP*), and create two subsamples (Low: below the mean; High: above the mean) based on the value of *STATE* (*CO*, *IO*, or *INDP*). Then, within each of the Low and High subsamples, I further divide them into two subsamples (*ACS*: accessible; *Non_ACS*: non-accessible). Lastly, I separately conduct a T-test on the mean spread of agency costs, cost of equity, and firm performance between *ACS* and *Non_ACS* in both the Low and High samples respectively.

I expect that the spreads of agency costs, cost of equity, firm value, and net operating margin between *ACS* and *Non_ACS* would be weaker in the High *STATE* and *CO* samples than in the Low *STATE* and *CO* samples (**H2a**). I also expect the spreads to be smaller in the Low *IO* and *INDP* than in the High *IO* and *INDP* samples (**H2b**).

The second technique is regression analysis. I create interaction terms between each of my governance variables (*STATE*, *CO*, *IO*, and *INDP*) and the measures of corporate accessibility *ACS* (*IR_ACS*, *CALL_ACS*, *EMAIL_ACS*, and *FORUM_ACS*).

The models are specified as follows:

$$\begin{aligned}
AC_{i,t} = & \theta_0 + \theta_1 ACS_{i,t} + \theta_2 STATE_{i,t} * ACS_{i,t} + \theta_3 CO_{i,t} * ACS_{i,t} + \theta_4 IO_{i,t} * ACS_{i,t} \\
& + \theta_5 INDP_{i,t} * ACS_{i,t} + \theta_6 STATE_{i,t} + \theta_7 CO_{i,t} + \theta_8 IO_{i,t} + \theta_9 INDP_{i,t} \\
& + \theta_{10} SIZE_{i,t} + \theta_{11} LEV_{i,t} + \theta_{12} VOL_{i,t} + \theta_{13} ILLIQ_{i,t} + \theta_{14} ROA_{i,t} \\
& + \theta_{15} Lambda_{i,t} + \sum IND_{i,t} + \sum Year_t
\end{aligned} \tag{6}$$

$$\begin{aligned}
COC_{i,t} = & \varphi_0 + \varphi_1 ACS_{i,t} + \varphi_2 STATE_{i,t} * ACS_{i,t} + \varphi_3 CO_{i,t} * ACS_{i,t} + \varphi_4 IO_{i,t} * ACS_{i,t} \\
& + \varphi_5 INDP_{i,t} * ACS_{i,t} + \varphi_6 STATE_{i,t} + \varphi_7 CO_{i,t} + \varphi_8 IO_{i,t} + \varphi_9 INDP_{i,t} \\
& + \varphi_{10} SIZE_{i,t} + \varphi_{11} LEV_{i,t} + \varphi_{12} VOL_{i,t} + \varphi_{13} ILLIQ_{i,t} + \varphi_{14} AdjRet_{i,t} \\
& + \theta_{15} Lambda_{i,t} + \sum IND_{i,t} + \sum Year_t
\end{aligned} \tag{7}$$

$$\begin{aligned}
FP_{i,t} = & \rho_0 + \rho_1 ACS_{i,t} + \rho_2 STATE_{i,t} * ACS_{i,t} + \rho_3 CO_{i,t} * ACS_{i,t} + \rho_4 IO_{i,t} * ACS_{i,t} \\
& + \rho_5 INDP_{i,t} * ACS_{i,t} + \rho_6 STATE_{i,t} + \rho_7 CO_{i,t} + \rho_8 IO_{i,t} + \rho_9 INDP_{i,t} \\
& + \rho_{10} SIZE_{i,t} + \rho_{11} LEV_{i,t} + \rho_{12} VOL_{i,t} + \rho_{13} ILLIQ_{i,t} + \rho_{14} AdjRet_{i,t} \\
& + \theta_{15} Lambda_{i,t} + \sum IND_{i,t} + \sum Year_t
\end{aligned} \tag{8}$$

Based on my hypothesis **H2a**, I predict that $\theta_1 < 0$, and $\theta_2 > 0$ and $\theta_3 > 0$ ($\varphi_1 < 0$, and $\varphi_2 > 0$ and $\varphi_3 > 0$; $\rho_1 > 0$, and $\rho_2 < 0$ and $\rho_3 < 0$). Thus, state ownership and the divergence between control rights and cash-flow rights weaken the association between corporate accessibility and agency costs (cost of equity and firm performance). Similarly, from hypothesis **H2b**, I predict that $\theta_1 < 0$, and $\theta_4 < 0$ and $\theta_5 < 0$ ($\omega_1 < 0$, and $\omega_4 < 0$ and $\omega_5 < 0$; $\rho_1 > 0$, and $\rho_4 > 0$ and $\rho_5 > 0$). That is, institutional ownership and independent directors strengthen the association between corporate accessibility and agency costs (cost of equity and firm performance).

To further examine whether the signaling effects prevail in firms with different ownership and governance structures, I conduct tests on the marginal effects of

corporate accessibility at two different levels of the governance variables, namely, the 20th and 80th percentiles among *STATE* (*CO*, *IO*, *INDP*)⁹. Assuming that other variables are at their mean level (\bar{X}), the marginal effects of corporate accessibility on agency costs *AC* (*Marginal* (AC_{ACS})), cost of equity *COC* (*Marginal* (COC_{ACS})), and firm performance *FP* (*Marginal* (FP_{ACS})), with respect to the governance variable *Gov* at the level of *l* (*Gov@l*) is specified as follow¹⁰:

$$\text{Marginal}(AC_{ACS}|Gov@l) = F(ACS = 1|Gov@l, \bar{X}) - F(ACS = 0|Gov@l, \bar{X})$$

$$\text{Marginal}(COC_{ACS}|Gov@l) = F(ACS = 1|Gov@l, \bar{X}) - F(ACS = 0|Gov@l, \bar{X})$$

$$\text{Marginal}(FP_{ACS}|Gov@l) = F(ACS = 1|Gov@l, \bar{X}) - F(ACS = 0|Gov@l, \bar{X})$$

I expect the marginal effects are significant with expected signs at the different governance levels, indicating that the signaling effects of corporate accessibility generally exist in different ownership and governance circumstances although the effects may be weaker in some circumstances. In particular, I expect the marginal effects will be weaker when *STATE* and *CO* are at the 80% percentile than when they are at the 20% percentile, while the effects are stronger when *IO* and *INDP* are at the 80% percentile than when they are at the 20% percentile. This accords with **H2a** and **H2b**, respectively.

3.3. Sample Description and Summary Statistics

I obtain financial and firm characteristics data from the CSMAR. Due to the high costs involved in collecting data on corporate accessibility, I assume that a firm's accessibility would be persistent over a reasonable period of years so as to extend my

⁹ *STATE* takes the value of 0 when it is at or below the 20% percentile, and takes the value of 1 when it is at or above the 80% percentile.

¹⁰ Let me use *Gov=CO* as an example. The marginal effects of corporate accessibility on agency costs with respect to *CO* at the 20th and 80th percentiles are computed by:

$$\text{Marginal}(AC_{ACS}|CO@20\%) = \theta_1 + \theta_3 * CO@20\% + (\theta_2 * \overline{STATE} + \theta_2 * \overline{IO} + \theta_2 * \overline{IND})$$

$$\text{Marginal}(AC_{ACS}|CO@80\%) = \theta_1 + \theta_3 * CO@80\% + (\theta_2 * \overline{STATE} + \theta_2 * \overline{IO} + \theta_2 * \overline{IND})$$

analysis over a 3-year period¹¹. Thus, in the regressions, the corporate accessibility variables are time-invariant, while other quantitative variables vary over 2008 to 2010. Similar approaches in dealing with such kind of data limitation problems can be seen in Cull and Xu (2005), Lin et al. (2010), and Ayyagari et al. (2010). Finally, after excluding firms that are in the financial industry, have negative equity, have been listed for less than 1 year, and whose main page has been published for less than 1 year¹², my final sample comprises 4247 firm-year observations.

Table 1 provides definitions of the variables used in this study. Summary statistics for my sample are presented in Table 2. Panel A provides an overview of the corporate accessibility measures. I investigate 1555 firms in total and 67% of them have an IR section under their website main page. In firms with an IR section, about 85% (64%, 28%) of the firms provide phone (email, forum) communication channels and about 20% (15%, 85%) of these channels are actually accessible. Taken together (see last column), about 93% of firms with an IR section provide at least one communication channel. Among these firms, 41% of them are accessible either by online discussion, email, or by phone.

In Panel B, I present the basic statistics for the key variables used in this study on a pooled basis. The average of *ORECA* is about 2%, which is lower than the mean of 5.7% reported by Jiang et al. (2010). The reduction may be caused by the intensified efforts of the regulators in China to address this type of tunneling activity in July 2006. However, the magnitude of *ORECA* is still significant and we can also see substantial variations across firms. The mean of *EXPR* is 0.39. The average levels of this ratio in the US sample firms in Ang et al. (2000) are 0.47 and 0.52 at insider-managed firms and outsider-managed firms, respectively. The mean cost of equity (*COC*) is 5.91 percent.

¹¹ To verify this assumption, I collected data by re-visiting the companies' website in August 2011, and found that changes were rare. Over 95% firms had no change in its investor relation contact information.

¹² Newly launched websites generally need a period for testing, during which the information provided may be incorrect and thus create bias in the initiation of accessibility.

This is slightly higher than that of around 4% that is estimated in Firth et al. (2011) based on the O'Hanlon and Steele model. The mean of *CO* is 1.36. It shows that controlling shareholder's voting rights is on average greater than his cash flow rights. The percentage of state-owned firms (0.54) is lower than the mean of 0.67 as reported by Gul et al. (2010). This is consistent with the fact that more and more Chinese firms are being privatized and that the ownership of government has declined over time. In Panel C, I present the statistics of agency cost, cost of equity, and performance variables by year. The variations on these variables over the period are consistent with the movement of the macro-economy.

Table 3 presents the matrix of Pearson pairwise correlations among the major variables. The four accessibility measures are highly correlated with each other. They are negatively correlated with the agency costs and cost of equity, and positively correlated with firm value and operating performance. These results are consistent with my first hypothesis that accessible firms who are responsive to the communications initiated by minority shareholders are associated with lower agency costs, higher firm value, superior operating performance, and lower cost of equity than the non-accessible firms. In addition, corporate accessibility is negatively correlated with the state ownership and the ratio of voting rights over cash-flow ownership rights, and positively correlated with the ownership by institutional investors. These results are consistent with my conjecture that a structure that provides insiders an incentive to pursue stock price appreciation is positively associated with the provision of corporate accessibility.

4. EMPIRICAL RESULTS

4.1. Univariate Tests

To provide a preliminary analysis on the determinants of corporate accessibility, and the association between corporate accessibility and agency costs (cost of equity and firm performance), I first divide my sample into two groups: accessible firm group (ACS) and non-accessible firm group (Non_ACS). I then conduct a T-test on the mean differences of key experimental variables as well as other firm characteristics between the two types of firm groups. The results are presented in Table 4. The results show that, compared with the non-accessible firms, the accessible firms on average are more likely to be non-state owned (*STATE*), have lower divergence between the voting rights and the cash-flow rights (*CO*), and have higher institutional ownership (*IO*). Accessible firms also have more independent directors on the board although the difference is not significant.

Accessible firms tend to perform better than non-accessible in terms of agency costs, equity costs, and financial and operating performance. Table 4 shows that accessible firms (measured by *IR_ACS*) have *ORECA (EXPR)* as much as 0.61% (0.06) lower than the non-accessible firms have. The cost of equity (*COC*) in accessible firms is about 1.31% at most (*IR_ACS*) and 0.65% at least (*CALL_ACS*) lower than that of non-accessible firms. The Tobin's Q (*TobinQ*) of accessible firms is, on the average, about 0.2 higher than that of non-accessible firms. This means an improvement of about 9% in firm valuation. Furthermore, the net profit margin (*NOM*) of accessible firms (measured by *IR_ACS*) is around 2.7 percentage points higher than that of non-accessible firms. Accessible firms also have higher *ROA* than non-accessible firms. These results are consistent with my hypothesis that accessible firms are associated with lower agency costs, lower costs of equity financing, higher firm valuation, and better

operating performance.

I also examine firm characteristic differences between the two groups. I find that accessible firms are smaller in size (*SIZE*), have lower financial leverage (*LEV*), have lower volatility (*VOL*) in earnings, and have more liquidity in stock trading (*ILLIQ*). The negative association between financial leverage and accessibility is also consistent with the view that the firms who rely more on minority shareholders for fund-raising are more likely to provide investor relation services to investors (London Stock Exchange 2010).

4.2. The Determinants of Corporate Accessibility

The regression results for the determinants of corporate accessibility as specified in equation 2 are presented in Table 5. As we can see from the table, the coefficients on *STATE* and *CO* are significantly negative. These results suggest that firms with an ownership structure that provides insiders more incentive to pursue profit maximization and high market valuation are more likely to be responsive to the communications initiated by minority shareholders. In addition, the coefficients on *IO* are significantly positive except in the last column (*FORUM_ACS*). However, in the last column, a significant positive coefficient for *INDP* is found, but there are no significant results in the other columns. Overall, these results suggest that firms facing strong monitoring are more likely to provide accessibility to outsiders.

The coefficients on the two instrumental variables (*D2004* and *OCL*) are highly significant. Firms listed after the year 2004 and located in a province with more optical line length are more likely to provide accessibility. At the bottom of the table, I report the results of the F-test on the null hypothesis that the coefficients on the IVs are jointly non-different from zero. I reject this hypothesis and conclude that *D2004* and *OCL* are valid IVs for the measures of accessibility. The adjusted R-square also substantially

rises after the inclusion of the IVs as shown in the last second row.

Firm characteristics such as firm size (*SIZE*), financial leverage (*LEV*), and volatility of earnings (*VOL*), are negatively associated with the provision of accessibility. Furthermore, the table shows that firms who are more profitable as measured by return on assets (*ROA*) are more likely to be responsive to the communications initiated by minority shareholders. The results are basically consistent with those in the previous T-test. Finally, the coefficients on the *lambda* that is computed from equation 1 are statistically significant. This suggests that it is necessary to consider a firm's decision in setting the IR to correct the selection bias in the estimate of the determinants of accessibility and the association between accessibility and the measures of agency problems.

4.3. Corporate Accessibility and Agency Problems

4.3.1. Corporate Accessibility and Agency Costs

Table 6 presents the results for the estimates of equation 3 that examines the association between corporate accessibility and agency costs controlling for governance factors and other firm characteristics. In Panel A, the explained variable is the expense ratio (*EXPR*). The measures of accessibility (*IR_ACS*, *CALL_ACS*, *EMAIL_ACS*, and *FORUM_ACS*) are significantly negatively associated with the expense ratio. This means accessible firms are associated with lower agency costs. In column 1, the coefficient on *IR_ASC* is negative 0.027, which means, on average, firms with at least one accessible communication channel have *EXPR* 0.027 lower than that of firms without any accessible communication channels. It is economically significant as it implies a 6.9% reduction in *EXPR* if we compare to the mean of 0.39.

STATE and *CO* are positively associated with the expense ratio. These results are consistent with the literature that argues that firms ultimately owned by state and firms

with voting rights in excess of cash-flow rights are more likely to engage in self-dealing and other moral hazard activities (see, Lin et al. 2011a; Wei et al. 2005). Institutional ownership (*IO*), on the other hand, is negatively associated with the expense ratio. This is expected and consistent with the literature that states that institutional ownership exerts monitoring on managerial behaviors and thus inhibits moral hazard activities (see, Aggarwal et al. 2011; Chung and Zhang 2011).

In Panel B, the explained variable is the other receivables scaled by total assets (*ORECA*), which measures firms' "tunneling" activities through inter-corporate loans (Jiang et al. 2010). As expected, corporate accessibility is negatively associated with the amount of intra-group capital flows. Specifically, in column 5, the coefficient on *IR_ACS* is negative 0.269, which implies a 14.1% ($0.27/1.91=0.141$) reduction in *ORECA* for the accessible firms. An even larger reduction ($0.531/1.91=27.8\%$) is implied for *FORUM_ACS* as shown in column 8.

The findings on the coefficients of *CO* and *IO* are similar to those in Panel A. However, the negative association between *STATE* and *ORECA* is a surprise. Jiang et al. (2010) also has the same finding. One possible explanation for this negative relationship is that state owned firms tend to have better access to bank loans in China (Dinc 2005; Sapienza 2004). As a result, these companies tend to have a lower incentive to directly tunnel funds through inter-corporate loans. The results on the coefficients of *SIZE* and *ROA* are consistent with those in Jiang et al. (2010).

Finally, there are no significant findings on *INDP* in both panels. A robustness check using a dummy variable (*IND(>50%)*) that takes the value of 1 if the number of independent directors exceeds one half of the total number of directors on the board, also shows no significant results. This could imply that independent directors are ineffective in monitoring agency costs.

Overall, my results show that there is a signaling effect in which corporate

accessibility is significantly negative associated with the agency costs measured by *EXPR* and *ORECA*. This gives support to the argument that corporate accessibility is a signaling device to detect the agency problems of firms.

4.3.2. Corporate Accessibility, Cost of Equity, and Firm Performance

The regression estimates of equations 4 and 5 are reported in Table 7. The results examine the associations between corporate accessibility and cost of equity (firm performance). Panel A presents the coefficients estimated when *COC* is used as the dependent variable. The coefficient on *IR_ACS* is -0.438 which is statistically significant at the level of 1%. The coefficients for the other three accessibility measures range from -0.316 to -0.427 and are also highly significant. This means, holding all else constant, accessible firms on average have a cost of equity of about 0.4% lower than that of non-accessible firms. This is economically meaningful when compared to the *COC* mean of 5.91%.

I expect there are two effects that shape the relationship between state ownership (*STATE*) and the cost of equity (*COC*). The first one is that state owned firms tend to have a close relationship with the state commercial banks, and thus find it much easier to acquire capital financing from the banks. This reduces their demand on financing from the equity market and thus reduces their cost of equity. The other effect is the governance effect. If state owned firms are plagued by more severe agency problems than are non-state firms, investors would require a higher rate of return to compensate for the governance risks borne, consequently raising the cost of equity. The negative coefficients on the measures of accessibility suggest that the first effect appears to be more significant. I also find a negative association between institutional ownership (*IO*) and cost of equity (*COC*) but the coefficients on control-ownership wedge (*CO*) and director independence (*INDP*) are not significant. In addition, higher financial leverage

and volatility in earnings are shown to be associated with higher cost of equity. These results are reasonable as higher financial leverage and more volatile earnings are associated with higher firm operating risks and thus higher cost of equity.

In panel B, the dependent variable is *TobinQ*, a measure of firm value. The coefficients on the accessibility measures are both statistically and economically significant. On average, the *TobinQ* in accessible firms range from 0.092 to 0.165 higher than the *TobinQ* in non-accessible firms. This means a relative improvement in valuation ranging from 0.43% to 7.6% (the mean of *TobinQ* is 2.16). The results are consistent with my hypothesis that accessible firms enjoy a higher valuation than non-accessible firms. In addition, as expected, state ownership (*STATE*) and control-ownership wedge (*CO*) are negatively associated with firm valuation, and institutional ownership (*IO*) is positively associated with firm valuation, while there are no significant results for *INDP*. Lastly, firms that are small in size and low in financial leverage are associated with higher valuation.

The regression results on the association between corporate accessibility and firm operating performance measured by *NOM* are reported in Panel C. The coefficients on the accessibility measures are statistically significant and positive in sign. *NOM* in accessible firms in terms of *IR_ACS* is around 0.91% higher than that in non-accessible firms. It is economically significant as compared to the *NOM* mean of 7.67%. State ownership (*STATE*) is shown to detract from a firm's operating performance. However, the negative association between *IO* and *NOM* is unexpected. Finally, firms with large size and low earnings volatility are associated with superior operating performance.

Overall, the results show that accessible firms are associated with a lower cost of equity and better corporate performance (higher firm valuation and superior operating performance). This confirms the existence of a signaling effect where accessible firms suffer less severe agency problems and thus perform better than non-accessible firms. In

addition, the significant results on the ownership and corporate governance structures suggest that they are effective, to some extent, in detecting agency problems. This means there is a need to further examine how the signaling effects vary with these structures and whether corporate accessibility has incremental predictive power in firms with different ownership and corporate governance structures.

4.4. Ownership and Governance Structures and The Signaling Effects of Corporate Accessibility

4.4.1. Examining the Signaling Effects Using Portfolio Sort Analysis

Table 8 reports the T-test results on the mean difference of agency costs using the portfolio sort technique. In Panel A, the outcome variable is *EXPR*. The results show that the differences between accessible firms and non-accessible firms are generally significantly negative regardless of the governance structure. This confirms the general existence of the signaling effects of corporate accessibility. However, the spreads appear to diminish in state owned firms and in firms with high divergence between control rights and cash-flow rights, which is consistent with **H2a**. For example, the spread of *EXPR* between ACS and Non_ACS (*IR_ACS*) in the *NON_STATE* firms is -0.071, which is statistically significant, while the spread contracts to -0.028 in the *STATE* firms. Similarly, the spread is significant at -0.078 in the Low *CO* firms, but it declines to -0.028 in the High *CO* firms. In addition, the results show that the spreads are strengthened in firms with higher institutional ownership and larger placement of independent directors. This is consistent with **H2b**. For example, in the second column (*CALL_ACS*), the difference is -0.022 in the Low *IO* firms, while it expands to -0.043 in the High *IO* firms. In Panel B, the outcome variable is *ORECA*. Similarly, I find that accessible firms generally have a lower *ORECA* than do non-accessible firms, and the spreads become less significant in the *STATE* and High *CO* firms but more significant in

High *IO* and High *INDP* firms.

Table 9 reports the results of the T-test on the mean differences of corporate performance between accessible firms and non-accessible firms under different governance circumstances. In Panel A, the outcome variable is cost of equity (*COC*). The spreads between ACS and Non_ACS are generally significant with negative signs, suggesting lower costs of external financing for accessible firms than for non-accessible firms. The magnitude of the spreads is smaller in the *STATE* firms and High *CO* firms than that in the *NON-STATE* and Low *CO* firms. This is consistent with **H2a**. For example, in the first column (*IR_ACS*), the spread of *COC* in the *STATE* firm sample is -0.729, which is much smaller in magnitude than that (-2.052) in the *NON-STATE* firm sample. In addition, the spreads in the High *IO* firm sample have magnitude larger than those in the Low *IO* firm sample. This is consistent with **H2b**. However, the results appear to be mixed for *INDP*.

In Panel B and Panel C, the outcome variables are *TobinQ* and *NOM*, respectively. The results are generally consistent with my expectation that the mean differences of *TobinQ* (*NOM*) between accessible firms and non-accessible firms are significantly positive, and become weaker in the *STATE* firms and High *CO* firms but stronger in the High *IO* and High *INDP*. For instance, in the first column (*IR_ACS*), the mean difference of *TobinQ* (*NOM*) between ACS and Non_ACS is -0.053 (-2.1) in the *STATE* firm sample, which is 0.182 (0.39) lower than that in the *NON_STATE* firm sample.

Overall, the results of the portfolio sort analysis confirm the general existence of the signaling effects of corporate accessibility under different governance circumstances. The strength of the signaling effects varies with the ownership structures and corporate governance characteristics, and the results are consistent with **H2a** and **H2b**.

4.4.2. Examining the Signaling Effects Using Regression Analysis

Table 10 reports the results of the regression analysis in examining the signaling effects of corporate accessibility on the agency costs measured by *ORECA*. To save space, I do not report the coefficients on the firm characteristics and other control variables (this set of variable is denoted as *X*). The coefficients on the accessibility measures continue to be significantly negative, suggesting that accessible firms are associated with lower agency costs. The coefficients on *ACS*STATE* and *ACS*CO* are significantly positive. For example, in column 1, the coefficients of *ACS*STATE* and *ACS*CO* are 0.611 and 0.281, respectively. The results mean that *STATE* and *CO* weaken the negative association between accessibility and *ORECA*, and are thus consistent with **H2a**. However, this does not mean the disappearance of the signaling effects. At the bottom of the table, the results show that the marginal effects of corporate accessibility at the 80% percentile of *STATE* and *CO* are significantly negative (-0.230 and -0.249, respectively), although they are smaller in absolute magnitude than those at the 20% percentile. In addition, the negative coefficients on *ACS*IO* and *ACS*INDP* suggest that institutional ownership and independent directors strengthen the signaling effects (consistent with **H2b**), but the results are not statistically significant. The results of the marginal tests (20%, 80% comparisons) are also consistent with the hypothesis. In Table 11, the explained variable is the agency costs measured by *EXPR*. In general, the findings are similar to those in Table 10. The estimated coefficients on the interaction terms are consistent with **H2a** and **H2b**. The results on the marginal tests are also consistent with the two hypotheses. Lastly, the coefficients on the standalone accessibility variables are significantly negative. However, the coefficients on the standalone governance variables become less significant as compared with those in the previous Table 6.

Table 12 presents the results on the regression analysis in examining the signaling effects when the explained variable is cost of equity (*COC*). The coefficients on the

standalone accessibility variables are significantly negative. For example, it is -1.159 and significant at the level of 1% in column 1 where the accessibility measure is *IR_ACS*. Significant positive coefficients are shown on *ACS*STATE* and *ACS*CO*, and negative coefficients on *ACS*IO*. The marginal effects of corporate accessibility are generally significantly negative. The effects are weaker when *STATE* and *CO* are at the 80% percentile, but stronger when *IO* is at the 80% percentile. The results suggest that accessible firms are generally associated with lower costs of external financing than for non-accessible firms, but the association varies with ownership and governance characteristics.

In Table 13 and Table 14, the explained variables are *TobinQ* and *NOM*, respectively. The coefficients on the standalone accessibility variables are highly significantly positive. This confirms that accessible firms are associated with higher firm value and better operating performance. The association is weakened by the state ownership and the divergence between control rights and cash-flow rights as evidenced by the significant negative coefficients on *ACS*STATE* and *ACS*CO*, while it is strengthened by the institutional ownership as evidenced by the significant positive coefficients on *ACS*IO*. The coefficients on *ACS*INDP* are positive, but they lack significance. These results are confirmed by those in the marginal effect tests, which show that the marginal effects of corporate accessibility is significantly positive on firm value and operating performance but the effects are diminished (increased) when *STATE* and *CO* (*IO* and *INDP*) are at the 80% percentile.

In conclusion, the results of the regression analyses confirm with the existence of the signaling effects that corporate accessibility is associated with lower agency costs, lower external financing costs, higher firm value, and superior operating performance. The results also suggest that the signaling effects vary with ownership and governance

structure characteristics. Specifically, the effects become weaker in firms with state ownership and high divergence between control rights and cash-flow rights than in firms with non-state ownership and low control-ownership wedge, and the effects become stronger in firm with high institutional ownership and a large proportion of independent directors than in firms with low institutional ownership and a small proportion of independent directors.

4.5. Robustness Tests

4.5.1. The Endogeneity of Corporate Accessibility

I have used the Heckman approach to capture the unobservable factors that drive the firms into accessible versus non-accessible firms. Nevertheless, my estimations on the relations between corporate accessibility and the performance variables may still be plagued by the omission of some relevant variables. There is a possibility that the performance variables are inversely affect corporate accessibility. Under these circumstances, my estimates would be biased and inconsistent. I attempt to mitigate these concerns by employing instrumental variables to re-estimate the models.

I use *OC*L and *D2004* as my IVs whose validity have been discussed previously and run a probit model with corporate accessibility measures as the dependent variables. I include the same set of control variables as used in previous regressions (the first stage). Then I use the fitted value of corporate accessibility as an explanatory variable and re-estimate equation 3-4 (the second stage). The results are reported in Table 15.

In Panel A, I present the test statistics about the validity of my instrumental variables. The results show that the over-identifying statistics (nR^2) are not significant in any one of the four models. Thus I do not reject that null hypothesis that the instruments adopted are exogenous. In addition, the Hausman test statistics are weakly significant, indicating that the instrumental variables estimators are more efficient than

the OLS estimators. Overall, the tests suggest that two instruments *OCL* and *D2004* are valid.

The results of the second stage are reported in panel B. To save space, I only report the coefficients on the experimental variables. The coefficients for each measure of corporate accessibility are still significant. Though the significance level of the coefficients is reduced to some extent, the results are still robust at the normal significance levels. For *ORECA* and *TobinQ*, the magnitudes of the new coefficients are even larger than those obtained without the use of IVs. Overall, the results of the IV method are robust and consistent with our prior analysis.

4.5.2. Controlling for More Governance Variables and Regional Dummies

I have demonstrated that the signaling effects of corporate accessibility exist after controlling the key corporate governance variables of state ownership, control-ownership wedge, institutional ownership, and independent directors. Nevertheless, previous studies have shown that other corporate governance mechanisms, such as managerial shareholding, board of directors, auditors, and financial analysts, may also generate monitoring effects on insiders. Furthermore, it is possible that accessible firms tend to have lower agency costs and better performance because they are located in different regions where legal and market developments are different. To deal with these concerns, I control for a set of additional governance variables and also include regional dummies in my models (RegEst—east of China, RegMid—middle of China, RegNE—north east of China, others belong to west of China). I re-estimate equation 3-5, and the the results are presented in Tabel 16.

The results show that the coefficients on *IR_ACS* are significant and they are very close to the estimates without the inclusion of the control variables. This implies that the quality of corporate governance and the regional effects do not distort my results on the

association between accessibility and agency costs.

4.5.3. Is the Existence of an IR Section a Signal of Agency Problems?

In this section, I examine whether the mere existence of an IR section and related information released in the section on a company website is a value-relevant signal of the severity of agency problems. I use three such kinds of variables: *WIR*—a dummy variable that takes the value of 1 if a firm has IR section and 0 otherwise; *WIR_FRs*—a dummy variable that takes the value of 1 if a firm provides financial information in the IR section and 0 otherwise; and *WIR_Ann*—a dummy variable that takes the value of 1 if a firm releases firm news in the IR section and 0 otherwise. I use those variables to separately replace the corporate accessibility measures and re-estimate Equations 3-5.

The results of the analysis of equations 3-5 (unreported) show that the coefficients on the three IR variables estimated are generally not statistically significant. The results suggest that, unlike corporate accessibility, the mere existence of the IR section and related information in the section is not a good signal of agency costs and corporate performance.

4.5.4. Other Robustness Tests

In my previous analysis, I assume that corporate accessibility persists over the period of 2008-2010. However, one may argue that the 3-year period is too long and the persistency assumption may not be held. To mitigate this concern, I re-do the analysis based on a shorter period time from 2009 to 2010, and the year of 2010 alone. However, the results are largely the same as before.

I also estimate lagged and median regressions. In the lagged regression, the dependent variables at time t are matched with independent variables at time $t-1$. To avoid extreme observations that might distort my results, I also run the regressions

using the median values of the variables. Though the results become less significant, they are still robust at the normal significance levels and their signs are consistent with my previous analyses.

Lastly, I also run regressions with alternative definitions of variables. For example, I estimate the cost of equity using Gebhardt et al. (2001)'s residual income model and Claus and Thomas (2001)'s abnormal earnings model, use the book to market ratio (book value of total assets/(market value of equity+net debts)) to measure a firm's relative value, and use return on equity (*ROE*) and return on assets (*ROA*) to measure a firm's operating performance. The results from these alternative specifications are similar to the results reported earlier. These robustness tests thus confirm my main research findings.

5. CONCLUSION

Nowadays, more and more publicly listed firms state that they have set up facilities such as emails and phone lines for minority shareholders to contact corporate insiders. However, I find that many firms do not provide real accessibility for minority shareholders. I examine whether corporate accessibility, defined as the ease with which minority shareholders are able to contact corporate insiders, can be a signal for the severity of a firm's agency problems. I measure corporate accessibility by directly contacting the listed firms via the contact information provided by the IR section on a firm's website.

Based on a sample of Chinese listed firms during the period from 2008 to 2010, I analyze the determinants of corporate accessibility, and find that firms with an ownership structure where the interests of corporate insiders are tied closely with the movement of share prices are more likely to provide accessibility. I then address the existence of the signaling effects by examining the association between corporate accessibility and measures of agency costs and firm performance. The results show that accessible firms are associated with less agency costs, lower costs of external financing, higher firm valuation, and superior operating performance than non-accessible firms. In addition, I examine how the signaling effects vary with ownership structures and corporate governance characteristics. I find that the signaling effects generally exist under different governance conditions but the effects are weaker in state owned firms and in firms with a high divergence between control rights and cash flow rights than in non-state owned firms and in firms with a low control-ownership wedge. The effects become stronger in firms with high institutional ownership and larger proportion of independent directors than in firm with low institutional ownership and lower proportion of independent directors. Finally, the signaling effects are robust after I

control for additional governance and regional effects.

Overall, my results suggest that corporate accessibility is systematically associated with the severity of agency problems, and could be a value-relevant signal to help investors, especially minority shareholders to make inferences about the agency problems that plague listed firms in China.

Table 1

Definitions of Variables

Variables	Definitions/Descriptions
<i>IR_ACS</i>	A dummy variable, that takes the value of 1 if at least one of the three communication channels (phone, email, forum) is accessible, and 0 otherwise.
<i>CALL_ACS</i>	A dummy variable, that takes the value of 1 if the communication channel by phone is accessible, and 0 otherwise.
<i>EMAIL_ACS</i>	A dummy variable, that takes the value of 1 if the communication channel by email is accessible, and 0 otherwise.
<i>FORUM_ACS</i>	A dummy variable, that takes the value of 1 if the communication channel by online discussion forum is accessible, and 0 otherwise.
<i>EXPR</i>	The expense ratio, that is operating expense (total expenses less cost of goods sold, interest expense, and managerial compensation) scaled by annual sales.
<i>ORECA</i>	Other account receivables scaled by total assets.
<i>COC</i>	The ex ante or implied cost of equity capital which is calculated based on the Easton (2003) modified PEG ratio model.
<i>TobinQ</i>	(Market value of equity + net debt) / (total assets - net intangible assets)
<i>NOM</i>	Net profit/operating revenue
<i>STATE</i>	A dummy variable, that takes the value of 1 if the ultimate controlling shareholder is in the nature of government ownership based on the "Classification Standard for Related Party Nature" in CSMAR, and 0 otherwise.
<i>CO</i>	The ratio of a ultimate controlling shareholder's voting rights over its cash-flow ownership rights.
<i>IO</i>	Percentage of shares owned by institutional investors.
<i>INDP</i>	The number of independent directors over the number of directors on the board.
<i>SIZE</i>	The logarithm of total market capitalization.
<i>LEV</i>	The ratio of long-term debts over total assets.
<i>VOL</i>	The standard deviation of the earnings per share in the past five years.
<i>ILLIQ</i>	The annual average ratio of the daily absolute stock return to the trading volume (in 100 millions) on that day.
<i>ROA</i>	(Total profit + financial expenses)/total assets)
<i>AdjRet</i>	Lagged market-adjusted annual stock return of a firm
<i>D2004</i>	A dummy variable, that takes the value of 1 if the listing year is 2005 or after, and 0 otherwise.
<i>OCL</i>	The length of optical cable line in the province where the company is located.
<i>WIR</i>	A dummy variable, that takes the value of 1 if a firm has an IR section, and 0 otherwise.
<i>WIR_FRs</i>	A dummy variable, that takes the value of 1 if a firm provides financial reports information in the IR section, and 0 otherwise.
<i>WIR_Ann</i>	A dummy variable, that takes the value of 1 if a firm releases firm news in the IR section, and 0 otherwise.
<i>Mgt_Hld</i>	The number of shares held by managers over the total number of shares outstanding
<i>BOARD</i>	The logarithm of the number of directors on the board.
<i>MEETING</i>	The logarithm of the number of board meetings.
<i>BIG4</i>	A dummy variable, that takes the value of 1 if foreign Big 4 auditors are employed, and 0 otherwise.
<i>COVERAGE</i>	The logarithm of the number of analysts following the company's stock.
<i>RegEst</i>	A dummy variable, that takes the value of 1 if the registry province located in the east of China.
<i>RegMid</i>	A dummy variable, that takes the value of 1 if the registry province located in the middle of China.
<i>RegNE</i>	A dummy variable, that takes the value of 1 if the registry province located in the north east of China.

Table 2

Sample Descriptive Statistics

Panel A: Descriptive statistics of accessibility measures in 2010, number (percentage)

Sample	Number of companies surveyed: 1555			
Investor Relation	Companies equipped with investor relation subpages: 1042 (67%)			
Communications	PHONE	EMAIL	FORUM	IR
Exist	888 (85.2%)	670 (64.3%)	295 (28.3%)	971 (93.2%)
Accessible	173 (19.5%)	99 (14.8%)	252 (85.4%)	398 (41%)

Panel B: Descriptive statistics on pooled sample (2008-2010)

Variables	N	Mean	Std. dev.	Minimum	25th Pctl	Median	75th Pctl.	Maximum
<i>IR_ACS</i>	4247	0.26	0.44	0.00	0.00	0.00	1.00	1.00
<i>CALL_ACS</i>	4247	0.11	0.32	0.00	0.00	0.00	0.00	1.00
<i>EMAIL_ACS</i>	4247	0.04	0.19	0.00	0.00	0.00	0.00	1.00
<i>FORUM_ACS</i>	4247	0.17	0.37	0.00	0.00	0.00	0.00	1.00
<i>ORECA (%)</i>	4247	1.91	2.75	0.02	0.39	0.94	2.16	16.77
<i>EXPR</i>	4247	0.39	0.35	0.04	0.15	0.28	0.49	1.88
<i>COC (%)</i>	3046	5.91	3.38	0.60	2.95	4.50	7.27	27.82
<i>TobinQ</i>	4247	2.16	0.95	0.81	1.28	1.78	2.47	5.43
<i>NOM (%)</i>	4247	7.67	12.80	-31.06	2.05	6.14	12.97	45.26
<i>CO</i>	4247	1.36	0.70	1.00	1.00	1.00	1.43	4.90
<i>STATE</i>	4247	0.54	0.50	0.00	0.00	1.00	1.00	1.00
<i>IO</i>	4247	0.05	0.05	0.00	0.01	0.03	0.07	0.30
<i>INDP</i>	4247	0.36	0.05	0.25	0.33	0.33	0.38	0.57
<i>SIZE</i>	4247	22.21	1.09	19.85	21.48	22.08	22.78	26.37
<i>LEV</i>	4247	0.07	0.11	0.00	0.00	0.02	0.10	0.80
<i>VOL</i>	4247	0.21	0.22	0.00	0.05	0.13	0.28	1.18
<i>ILLIQ</i>	4247	0.12	0.25	0.00	0.03	0.05	0.11	5.25
<i>ROA (%)</i>	4247	6.48	5.87	-19.46	3.38	5.98	9.39	27.37
<i>AdjRet</i>	4247	-0.01	0.79	-1.77	-0.41	-0.07	0.19	5.51

Panel C: Descriptive statistics of key variables by year

	2008		2009		2010	
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
<i>EXPR</i>	0.63	0.47	0.28	0.21	0.29	0.26
<i>ORECA (%)</i>	2.26	3.29	1.81	2.62	1.66	2.34
<i>COC (%)</i>	10.94	7.09	3.91	2.03	4.54	2.72
<i>TobinQ</i>	1.33	0.39	2.27	0.88	2.35	1.03
<i>NOM (%)</i>	6.01	11.12	8.20	11.26	9.84	9.68
Number of firms	1283		1409		1555	
Total observations	4247					

Table 3

Correlation Matrix

This table presents the correlation between the variables used in this study. All other variables are defined in Table 1. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>IR_ACS</i>	0.37***	0.28***	0.21***	-0.19***	-0.03**	0.03**	0.02	-0.01	-0.07***
<i>CALL_ACS</i>	1	0.13***	0.24***	-0.16***	-0.02*	0.04***	0.01	-0.08***	-0.09***
<i>EMAIL_ACS</i>		1	0.02*	-0.14***	-0.02*	0.02**	0.01	-0.03***	-0.06***
<i>FORUM_ACS</i>			1	-0.15***	-0.04***	-0.02*	0.03***	0.02**	-0.07***
<i>STATE</i>				1	-0.18***	0.01	0.05***	0.17***	0.2***
<i>CO</i>					1	0.04***	-0.03***	-0.07***	-0.01
<i>IO</i>						1	-0.02	0.26***	-0.06***
<i>INDP</i>							1	0.11***	0.01
<i>SIZE</i>								1	0.16***
<i>LEV</i>									1

Variable	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
<i>IR_ACS</i>	0.01	0.01	0.13***	-0.03*	-0.09***	-0.07***	-0.08***	0.06***	0.09***
<i>CALL_ACS</i>	-0.02*	-0.03***	0.1***	0.01	-0.03***	-0.04***	-0.04***	0.08***	0.05***
<i>EMAIL_ACS</i>	0.02*	0.02	0.09***	-0.03*	-0.08***	-0.05***	-0.08***	0.03***	0.05***
<i>FORUM_ACS</i>	-0.03**	-0.02**	0.1***	-0.04**	-0.06***	-0.09***	-0.03***	0.06***	0.09***
<i>STATE</i>	0.05***	0	-0.15***	-0.02	-0.05***	0.2***	0.06***	-0.21***	-0.05***
<i>CO</i>	-0.03*	0.01	-0.01	0.01	0.04***	0.04***	0.01	-0.02*	-0.03***
<i>IO</i>	0.05***	0.02*	0.3***	0.01	-0.03***	0.02*	0.05***	0.22***	0.13***
<i>INDP</i>	-0.02	0.01	0.01	-0.01	0.03***	0.04***	0.01	-0.04***	-0.01
<i>SIZE</i>	0.2***	0.13***	0.27***	0.04***	-0.13***	-0.21***	-0.06***	0.1***	0.33***
<i>LEV</i>	0.1***	0.02*	-0.08***	0	-0.07***	0.01	0.12***	-0.25***	-0.03**
<i>VOL</i>	1	0.03**	0.03*	0.05**	-0.06***	0.01	0.18***	-0.07***	0.01
<i>ILLIQ</i>		1	0.03***	0.03*	-0.04***	-0.09***	-0.09***	0.11***	0.02*
<i>ROA</i>			1	0.06***	-0.12***	-0.21***	-0.06***	0.26***	0.61***
<i>AdjRet</i>				1	0.03*	-0.08***	0.13***	0.08***	0.01
<i>ORECA</i>					1	0.04***	-0.02	0.06***	-0.09***
<i>EXPR</i>						1	0.36***	-0.44***	-0.22***
<i>COC</i>							1	-0.41***	-0.03**
<i>TobinQ</i>								1	0.08***
<i>NOM</i>									1

Table 4

Corporate Accessibility and Firm Characteristics-Univariate Analysis

This table presents the results of the mean differences between the accessible and non-accessible firms. I divide the sample into two groups based on the accessibility measures (*IR_ACS*, *CALL_ACS*, *EMAIL_ACS*, and *FORUM_ACS*). One group includes firms that do not respond to the communications initiated by outsiders (Non_ACS, non-accessible group), and the other one includes firms that respond to the communications initiated by outsiders (ACS, accessible). I then conduct a T-test on the mean difference of the two groups. The difference using ACS minus Non_ACS is reported in the column denoted with Diff. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Variable	<i>IR_ACS</i>			<i>CALL_ACS</i>			<i>EMAIL_ACS</i>			<i>FORUM_ACS</i>		
	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff
<i>STATE</i>	0.668	0.478	-0.190***	0.614	0.456	-0.158***	0.617	0.478	-0.139***	0.583	0.389	-0.193***
<i>CO</i>	1.372	1.353	-0.019**	1.370	1.347	-0.023**	1.372	1.349	-0.023*	1.372	1.300	-0.072***
<i>IO</i>	0.049	0.051	0.002*	0.049	0.052	0.003**	0.049	0.051	0.002*	0.050	0.048	-0.002
<i>INDP</i>	0.362	0.364	0.002	0.364	0.363	-0.001	0.363	0.364	0.001	0.363	0.365	0.002
<i>SIZE</i>	22.223	22.212	-0.011	22.290	22.108	-0.181***	22.252	22.177	-0.075***	22.204	22.274	0.070*
<i>LEV</i>	0.078	0.063	-0.015***	0.075	0.059	-0.016***	0.074	0.063	-0.012***	0.072	0.053	-0.019***
<i>VOL</i>	0.230	0.235	0.006	0.247	0.226	-0.022**	0.231	0.243	0.012	0.244	0.218	-0.026***
<i>ILLIQ</i>	0.183	0.281	0.099	0.316	0.119	-0.197**	0.160	0.318	0.157	0.271	0.125	-0.146**
<i>ROA</i>	5.402	6.926	1.524***	5.880	7.035	1.155***	5.950	6.780	0.829***	6.058	7.791	1.733***
<i>ORECA</i>	2.279	1.665	-0.614***	2.003	1.746	-0.257***	2.141	1.635	-0.506***	2.105	1.467	-0.638***
<i>EXPR</i>	0.434	0.375	-0.060***	0.409	0.381	-0.028***	0.417	0.376	-0.042***	0.414	0.315	-0.099***
<i>COC</i>	6.773	5.467	-1.307***	6.195	5.544	-0.652***	6.435	5.405	-1.030***	6.049	5.383	-0.666***
<i>TobinQ</i>	1.882	2.087	0.205***	1.926	2.133	0.207***	1.946	2.078	0.132***	1.976	2.179	0.203***
<i>NOM</i>	6.348	9.041	2.692***	7.496	8.793	1.297***	7.142	8.974	1.833***	7.399	11.103	3.705***

Table 5

The Determinants of Corporate Accessibility

This table presents regression results on the analysis of the determinants of corporate accessibility using a probit model. The dependent variable is *IR_ACS* in (1), *CALL_ACS* in (2), *EMAIL_ACS* in (3), and *FORUM_ACS* in (4). All variables are defined in Table 1. The sample consists of 4247 firm-year observations covering the period of 2008-2010. Wald chi-square statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	<i>IR_ACS</i>	<i>CALL_ACS</i>	<i>EMAIL_ACS</i>	<i>FORUM_ACS</i>
	(1)	(2)	(3)	(4)
<i>STATE</i>	-1.617*** (31.13)	-1.414*** (29.52)	-0.835*** (11.04)	-0.965*** (12.44)
<i>CO</i>	-0.279*** (19.95)	-0.266*** (21.34)	-0.113** (4.24)	-0.174** (5.55)
<i>IO</i>	2.640*** (12.83)	2.209*** (9.94)	2.290*** (10.91)	1.210 (1.97)
<i>INDP</i>	0.601 (1.35)	-0.255 (0.27)	0.379 (0.63)	0.934* (2.94)
<i>SIZE</i>	-0.357** (5.95)	-0.285 (1.84)	-0.152 (1.75)	-0.602*** (15.13)
<i>LEV</i>	-0.782*** (8.49)	-0.352 (1.74)	-0.873*** (10.23)	-0.945*** (8.85)
<i>VOL</i>	-0.365*** (7.53)	-0.364*** (8.89)	-0.105 (0.76)	-0.315** (5.14)
<i>ILLIQ</i>	-0.092 (0.31)	-1.548 (0.82)	2.838 (1.42)	-3.574 (1.78)
<i>ROA</i>	0.013** (5.53)	0.015** (6.54)	0.010* (3.34)	0.012* (3.89)
<i>D2004</i>	1.369*** (78.15)	0.69*** (13.02)	0.628*** (11.37)	1.047*** (27.46)
<i>OCL</i>	12.021*** (55.23)	6.606*** (19.59)	7.669*** (27.82)	4.408*** (8.13)
<i>lambda (from WIR)</i>	2.741*** (15.97)	2.362*** (12.51)	2.191*** (11.26)	1.869** (6.10)
Intercept	-1.610*** (18.12)	-1.814*** (24.28)	-1.873*** (26.65)	-1.932*** (21.71)
Industry effects	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes
R2, R2[with IVs]	14.21%, 17.31%	10.57%, 11.43%	6.99%, 8.05%	11.00%, 12.40%
Wald, Wald[IVs=0]	491.5***, 70.6***	307.7***, 27.0***	208.4***, 31.6***	316.0***, 29.0***

Table 6

Agency Costs and Corporate Accessibility

This table presents the regression results on the analysis of the association between agency costs and corporate accessibility. The dependent variables are *EXPR* in Panel A, and *ORECA* in Panel B. All variables are defined in Table 1. The sample consists of 4247 firm-year observations covering the period of 2008-2010. The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	Panel A: <i>EXPR</i>				Panel B: <i>ORECA</i>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>IR_ACS</i>	-0.027** (-2.11)				-0.269*** (-3.53)			
<i>CALL_ACS</i>		-0.034** (-2.45)				-0.131** (-2.12)		
<i>EMAIL_ACS</i>			-0.032** (-2.39)				-0.205*** (-2.78)	
<i>FORUM_ACS</i>				-0.044*** (-3.75)				-0.531*** (-5.28)
<i>STATE</i>	0.093*** (6.16)	0.092*** (6.11)	0.093*** (6.22)	0.088*** (5.39)	-0.383*** (-4.73)	-0.357*** (-4.42)	-0.360*** (-4.47)	-0.422*** (-5.19)
<i>CO</i>	0.023*** (3.53)	0.022*** (3.47)	0.023*** (3.54)	0.021*** (3.27)	0.086* (1.70)	0.085* (1.68)	0.093* (1.83)	0.076 (1.50)
<i>IO</i>	-0.278*** (-3.17)	-0.275*** (-3.14)	-0.277*** (-3.16)	-0.285*** (-3.26)	-1.431* (-1.91)	-1.419* (-1.89)	-1.419* (-1.89)	-1.570** (-2.10)
<i>INDP</i>	0.084 (1.56)	0.081 (1.53)	0.082 (1.57)	0.081 (1.52)	0.371 (1.47)	0.374 (1.39)	0.385 (1.51)	0.347 (1.37)
<i>SIZE</i>	0.016*** (2.94)	0.016*** (2.85)	0.016*** (2.91)	0.015*** (2.78)	-0.160*** (-3.36)	-0.158*** (-3.29)	-0.160*** (-3.34)	-0.157*** (-3.31)
<i>LEV</i>	0.100** (2.43)	0.099** (2.42)	0.099** (2.43)	0.091** (2.21)	-1.125*** (-3.11)	-1.089*** (-3.01)	-1.105*** (-3.06)	-1.210*** (-3.35)
<i>VOL</i>	-0.002 (-0.08)	-0.001 (-0.05)	-0.001 (-0.06)	-0.001 (-0.05)	-0.155 (-1.18)	-0.169 (-1.28)	-0.153 (-1.15)	-0.186 (-1.42)
<i>ILLIQ</i>	-1.296** (-2.53)	-1.299** (-2.53)	-1.291** (-2.52)	-1.346*** (-2.63)	-2.926 (-0.99)	-3.187 (-1.08)	-2.912 (-0.99)	-3.522 (-1.20)
<i>ROA</i>	-0.008*** (-8.57)	-0.008*** (-8.53)	-0.008*** (-8.55)	-0.008*** (-8.38)	-0.017** (-2.08)	-0.017** (-2.15)	-0.017** (-2.08)	-0.016** (-1.99)
<i>lambda</i>	0.027* (1.68)	0.029* (1.81)	0.028* (1.74)	0.039** (2.44)	-0.322** (-2.27)	-0.401*** (-2.87)	-0.375*** (-2.68)	-0.282** (-2.00)
<i>Intercept</i>	-0.135 (-1.09)	-0.123 (-0.99)	-0.131 (-1.06)	-0.107 (-0.87)	7.580*** (7.14)	7.457*** (6.99)	7.503*** (7.06)	7.496*** (7.09)
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj Rsq	12.42%	12.44%	12.43%	12.75%	11.68%	11.46%	11.57%	12.03%

Table 7

Corporate Performance and Corporate Accessibility

The dependent variable is *COC* in Panel A, *TobinQ* in Panel B, and *NOM* in panel C. All variables are defined in Table 1. The sample consists of 4247 (3046 for *COC*) firm-year observations covering the period of 2008-2010. The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	Panel A: <i>COC</i>				Panel B: <i>TobinQ</i>				Panel C: <i>NOM</i>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>IR_ACS</i>	-0.438*** (-5.01)				0.132*** (4.44)				0.910*** (4.14)			
<i>CALL_ACS</i>		-0.316*** (-3.65)				0.140*** (4.73)				0.435** (1.99)		
<i>EMAIL_ACS</i>			-0.427*** (-5.10)				0.092*** (3.17)				0.628*** (2.95)	
<i>FORUM_ACS</i>				-0.412*** (-3.74)				0.165*** (4.15)				1.110*** (3.83)
<i>STATE</i>	-0.268*** (-2.87)	-0.233** (-2.51)	-0.237*** (-2.57)	-0.258*** (-2.74)	-0.274*** (-4.67)	-0.277*** (-4.85)	-0.285*** (-5.18)	-0.272*** (-4.54)	-0.434* (-1.87)	-0.524** (-2.26)	-0.521** (-2.26)	-0.412* (-1.76)
<i>CO</i>	0.004 (0.07)	0.003 (0.05)	0.013 (0.22)	-0.001 (-0.02)	-0.124*** (-4.27)	-0.121*** (-4.15)	-0.127*** (-4.44)	-0.123*** (-4.22)	0.111 (0.76)	0.108 (0.74)	0.087 (0.60)	0.115 (0.79)
<i>IO</i>	-3.960*** (-4.79)	-3.968*** (-4.79)	-3.955*** (-4.79)	-4.161*** (-5.03)	4.140*** (7.10)	4.139*** (7.11)	4.151*** (7.12)	4.204*** (7.32)	-7.533*** (-3.27)	-7.429*** (-3.22)	-7.506*** (-3.26)	-7.183*** (-3.12)
<i>INDP</i>	0.518 (1.46)	0.467 (1.31)	0.544 (1.59)	0.495 (1.42)	-0.147 (-1.51)	-0.127 (-1.31)	-0.149 (-1.53)	-0.138 (-1.41)	-0.854 (-1.22)	-0.783 (-1.11)	-0.879 (-1.25)	-0.800 (-1.14)
<i>SIZE</i>	0.502*** (6.59)	0.500*** (6.51)	0.496*** (6.45)	0.509*** (6.71)	-0.175*** (-3.82)	-0.176*** (-3.85)	-0.178*** (-3.90)	-0.183*** (-3.09)	1.226*** (3.52)	1.179*** (3.30)	1.204*** (3.41)	1.181*** (3.33)
<i>LEV</i>	3.945*** (6.62)	3.981*** (6.69)	3.955*** (6.65)	3.919*** (6.53)	-1.865*** (-8.75)	-1.878*** (-8.86)	-1.876*** (-8.82)	-1.855*** (-8.66)	3.648 (1.57)	3.534 (1.45)	3.576 (1.49)	3.766* (1.67)
<i>VOL</i>	1.492*** (4.54)	1.457*** (4.36)	1.475*** (4.46)	1.448*** (4.32)	-0.031 (-0.60)	-0.027 (-0.53)	-0.028 (-0.55)	-0.015 (-0.29)	-0.867** (-2.26)	-0.793** (-2.07)	-0.851** (-2.22)	-0.771** (-2.02)
<i>ILLIQ</i>	-29.503*** (-5.05)	-30.328*** (-5.19)	-29.831*** (-5.11)	-30.300*** (-5.18)	4.438*** (3.27)	4.494*** (3.35)	4.419*** (3.23)	4.525*** (3.39)	-3.003 (-0.56)	-2.747 (-0.52)	-3.118 (-0.59)	-2.435 (-0.46)
<i>AdjRet</i>	0.119** (2.14)	0.118** (2.07)	0.119** (2.13)	0.118** (2.01)	0.066* (1.83)	0.066* (1.77)	0.066 (1.60)	0.067 (1.62)	0.010 (0.39)	0.009 (0.47)	0.012 (0.40)	0.032 (0.45)
<i>lambda</i>	0.398** (2.34)	0.298* (1.78)	0.334** (2.00)	0.330* (1.95)	-0.155*** (-2.79)	-0.137** (-2.52)	-0.126** (-2.31)	-0.143*** (-2.59)	0.566 (1.38)	0.829** (2.05)	0.771* (1.90)	0.634 (1.55)
<i>Intercept</i>	-7.012*** (-5.89)	-7.037*** (-5.89)	-6.913*** (-5.80)	-7.252*** (-6.09)	6.305*** (5.40)	6.328*** (5.45)	6.406*** (5.53)	6.507*** (5.75)	-23.613*** (-4.77)	-22.302*** (-4.50)	-22.873*** (-4.62)	-22.368*** (-4.54)
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj Rsq	20.78%	20.48%	20.80%	20.50%	28.77%	28.83%	28.58%	28.73%	29.73%	29.58%	29.64%	29.70%

Table 8

Examining The Signaling Effects On Agency Costs Using Portfolio Sort Analysis

This table presents the mean difference of agency costs between accessible and non-accessible firms at different levels of governance structures. In Panel A, I calculate the mean difference of *EXPR* between accessible and non-accessible firms within the Low and High *STATE* (*CO*, *IO*, *INDP*) samples. In Panel B, I calculate the mean difference of agency costs measured by *ORECA*. All variables are defined in Table 1. The sample consists of 4247 firm-year observations covering the period of 2008-2010. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: *EXPR* by Governance and Corporate Accessibility

		<i>IR ACS</i>			<i>CALL ACS</i>			<i>EMAIL ACS</i>			<i>FORUM ACS</i>		
		Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff
<i>NON-STATE</i>	Low	0.369	0.298	-0.071***	0.327	0.306	-0.021**	0.337	0.293	-0.044***	0.328	0.267	-0.061***
<i>STATE</i>	High	0.469	0.441	-0.028**	0.463	0.451	-0.012*	0.468	0.445	-0.023**	0.475	0.391	-0.084***
<i>CO</i>	Low	0.442	0.364	-0.078***	0.412	0.369	-0.043***	0.410	0.362	-0.048***	0.417	0.309	-0.108***
<i>CO</i>	High	0.421	0.393	-0.028**	0.397	0.394	-0.003	0.426	0.391	-0.035**	0.412	0.352	-0.060**
<i>IO</i>	Low	0.437	0.387	-0.050***	0.415	0.393	-0.022**	0.424	0.388	-0.036***	0.420	0.332	-0.089***
<i>IO</i>	High	0.427	0.342	-0.085***	0.393	0.350	-0.043***	0.402	0.343	-0.059***	0.396	0.276	-0.120***
<i>INDP</i>	Low	0.429	0.375	-0.053***	0.406	0.380	-0.026**	0.416	0.373	-0.043***	0.412	0.316	-0.096***
<i>INDP</i>	High	0.445	0.374	-0.071***	0.414	0.381	-0.033**	0.420	0.380	-0.040***	0.418	0.313	-0.105***

Panel B: *ORECA* by Governance and Corporate Accessibility

		<i>IR ACS</i>			<i>CALL ACS</i>			<i>EMAIL ACS</i>			<i>FORUM ACS</i>		
		Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff
<i>NON-STATE</i>	Low	2.796	1.754	-1.042***	2.266	1.816	-0.449***	2.449	1.726	-0.723***	2.256	1.304	-0.953***
<i>STATE</i>	High	2.022	1.567	-0.456***	1.837	1.661	-0.176**	1.950	1.535	-0.415***	1.806	1.565	-0.240**
<i>CO</i>	Low	2.333	1.534	-0.799***	1.991	1.607	-0.384***	2.135	1.506	-0.629***	1.973	1.426	-0.547***
<i>CO</i>	High	2.103	1.927	-0.176**	2.017	2.011	-0.006	2.153	1.881	-0.272**	2.152	1.627	-0.525***
<i>IO</i>	Low	2.430	1.874	-0.556***	2.095	1.914	-0.181**	2.187	1.743	-0.444***	2.143	1.565	-0.578***
<i>IO</i>	High	1.997	1.381	-0.616***	1.759	1.330	-0.429***	1.882	1.346	-0.536***	1.925	1.258	-0.667**
<i>INDP</i>	Low	2.035	1.661	-0.374***	1.859	1.724	-0.135*	1.972	1.620	-0.352***	1.885	1.389	-0.496***
<i>INDP</i>	High	2.639	1.671	-0.967***	2.210	1.778	-0.432***	2.389	1.657	-0.732***	2.155	1.427	-0.728***

Table 9

Examining The Signaling Effects On Firm Performance Using Portfolio Sort Analysis

This table presents the mean difference of firm performance between accessible and non-accessible firms at different levels of governance structures. In Panel A, I calculate the mean difference of *COC* between accessible and non-accessible firms within the Low and High *STATE* (*CO*, *IO*, *INDP*) samples. In Panel B and Panel C, I calculate the mean difference of firm performance measured by *TobinQ* and *NOM*, respectively. All variables are defined in Table 1. The sample consists of 4247 (3046 for *COC*) firm-year observations covering the period of 2008-2010. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: <i>COC</i> by Governance and Corporate Accessibility													
		<i>IR ACS</i>			<i>CALL ACS</i>			<i>EMAIL ACS</i>			<i>FORUM ACS</i>		
		Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff
<i>NON-STATE</i>	Low	7.161	5.109	-2.052***	5.972	5.229	-0.743***	6.330	5.069	-1.262***	5.814	4.971	-0.843***
<i>STATE</i>	High	6.606	5.877	-0.729***	6.330	5.946	-0.383*	6.497	5.796	-0.702***	6.212	6.113	-0.099
<i>CO</i>	Low	6.717	5.304	-1.413***	6.095	5.388	-0.706***	6.343	5.240	-1.103***	5.918	5.201	-0.717***
<i>CO</i>	High	6.948	5.933	-1.015***	6.508	5.974	-0.534*	6.730	5.861	-0.870***	6.340	5.823	-0.517*
<i>IO</i>	Low	6.395	5.460	-0.935***	5.936	5.540	-0.396**	6.151	5.416	-0.734***	5.875	5.329	-0.546***
<i>IO</i>	High	7.324	5.478	-1.846***	6.620	5.549	-1.071***	6.861	5.385	-1.476***	6.338	5.478	-0.860***
<i>INDP</i>	Low	6.822	5.488	-1.334***	6.191	5.621	-0.570***	6.531	5.374	-1.158***	6.066	5.447	-0.619***
<i>INDP</i>	High	6.707	5.440	-1.267***	6.203	5.434	-0.769***	6.305	5.455	-0.849***	6.028	5.297	-0.731***

Panel B: <i>TobinQ</i> by Governance and Corporate Accessibility													
		<i>IR ACS</i>			<i>CALL ACS</i>			<i>EMAIL ACS</i>			<i>FORUM ACS</i>		
		Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff
<i>NON-STATE</i>	Low	2.063	2.298	0.235***	2.124	2.351	0.227***	2.173	2.285	0.112***	2.192	2.388	0.196***
<i>STATE</i>	High	1.801	1.855	0.053**	1.808	1.874	0.066**	1.813	1.853	0.040	1.826	1.861	0.036
<i>CO</i>	Low	1.831	2.140	0.309***	1.917	2.190	0.273***	1.932	2.128	0.196***	1.982	2.245	0.263***
<i>CO</i>	High	1.893	1.957	0.064*	1.955	2.071	0.116**	1.953	1.965	0.012	1.954	2.103	0.149**
<i>IO</i>	Low	1.841	1.980	0.139***	1.863	2.025	0.162***	1.889	1.969	0.080***	1.906	2.045	0.139***
<i>IO</i>	High	1.984	2.376	0.392***	2.091	2.420	0.330***	2.087	2.381	0.293***	2.164	2.496	0.332***
<i>INDP</i>	Low	1.896	2.081	0.185***	1.940	2.115	0.175***	1.960	2.065	0.105***	1.969	2.221	0.251***
<i>INDP</i>	High	1.861	2.096	0.235***	1.906	2.159	0.253***	1.926	2.097	0.171***	1.986	2.118	0.132***

Table 9 (Continued)Panel C: *NOM* by Governance and Corporate Accessibility

		<i>IR ACS</i>			<i>CALL ACS</i>			<i>EMAIL ACS</i>			<i>FORUM ACS</i>		
		Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff	Non_ACS	ACS	Diff
<i>NON-STATE</i>	Low	7.636	10.126	2.490***	8.614	10.298	1.684***	8.310	10.331	2.021***	8.310	12.108	3.798***
<i>STATE</i>	High	5.724	7.824	2.100***	6.794	6.961	0.167	6.421	7.454	1.033***	6.453	9.606	3.153***
<i>CO</i>	Low	6.172	9.653	3.481***	7.742	9.181	1.439***	7.211	9.563	2.352***	7.626	11.664	4.038***
<i>CO</i>	High	6.732	8.284	1.552**	6.795	7.749	0.954**	6.940	7.441	0.501	6.789	9.341	2.552***
<i>IO</i>	Low	5.085	7.758	2.673***	6.278	7.474	1.196***	6.649	8.421	1.772***	6.280	9.280	3.000***
<i>IO</i>	High	9.307	12.334	3.027***	10.510	12.070	1.559***	10.612	12.676	2.063***	10.255	15.026	4.771***
<i>INDP</i>	Low	6.457	9.318	2.861***	7.516	9.274	1.759***	7.428	9.106	1.678***	7.590	11.421	3.832***
<i>INDP</i>	High	6.190	8.635	2.445***	7.468	8.072	0.604	6.727	8.780	2.053***	7.120	10.633	3.514***

Table 10

The Impact of Ownership and Governance Structures on The Signaling Effects (*ORECA*)

This table presents the regression results on the impact of ownership structures and governance structures on the signaling effects of corporate accessibility on *ORECA*. The experimented accessibility variables (*ACS*) are *IR_ACS* in (1), *CALL_ACS* in (2), *EMAIL_ACS* in (3), and *FORUM_ACS* in (4). All variables are defined in Table 1. The sample consists of 4247 firm-year observations covering the period of 2008-2010. The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	<i>IR_ACS</i>	<i>CALL_ACS</i>	<i>EMAIL_ACS</i>	<i>FORUM_ACS</i>
	(1)	(2)	(3)	(4)
<i>ACS</i>	-1.041*** (-4.80)	-0.654*** (-3.11)	-0.753*** (-3.66)	-1.132*** (-4.37)
<i>ACS * STATE</i>	0.611*** (3.83)	0.343** (2.23)	0.370** (2.43)	0.575*** (2.86)
<i>ACS * CO</i>	0.281*** (2.75)	0.338*** (3.18)	0.271*** (2.68)	0.102 (0.73)
<i>ACS * IO</i>	-0.309 (-0.23)	-2.534** (-2.13)	-1.821* (-1.76)	-1.143 (-1.53)
<i>ACS * INDP</i>	-0.122 (-0.19)	-0.522** (-1.97)	-0.402 (-0.82)	0.547 (0.89)
<i>STATE</i>	-0.778*** (-5.98)	-0.513*** (-4.84)	-0.541*** (-5.00)	-0.531*** (-6.06)
<i>CO</i>	-0.085 (-1.09)	-0.040 (-0.64)	-0.041 (-0.59)	0.053 (0.96)
<i>IO</i>	-1.276 (-1.16)	-0.337 (-0.36)	-0.986 (-1.00)	-2.020** (-2.54)
<i>INDP</i>	0.490 (0.78)	0.505* (1.79)	0.569* (1.69)	0.024 (0.09)
Controlling <i>X</i>	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes
Adj Rsq	12.05%	11.80%	11.78%	12.54%
<i>STATE@20%</i> (<i>STATE</i> =0)	-0.641*** (-3.04)	-0.542** (-2.34)	-0.570*** (-2.76)	-0.818*** (-6.03)
<i>STATE@80%</i> (<i>STATE</i> =1)	-0.230* (-1.76)	-0.233* (-1.92)	-0.242** (-2.07)	-0.131 (-1.57)
<i>CO@20%</i>	-0.426*** (-4.78)	-0.478** (-2.25)	-0.314*** (-3.68)	-0.483*** (-4.23)
<i>CO@80%</i>	-0.249*** (-3.04)	-0.259 (-1.22)	-0.143* (-1.82)	-0.418*** (-3.71)
<i>IO@20%</i>	-0.306*** (-3.09)	-0.247 (-1.13)	-0.335* (-1.77)	-0.258* (-1.86)
<i>IO@80%</i>	-0.345*** (-3.82)	-0.447** (-2.08)	-0.399** (-2.14)	-0.506*** (-2.96)
<i>INDP@20%</i>	-0.235*** (-2.61)	-0.104 (-1.17)	-0.145* (-1.67)	-0.471*** (-3.91)
<i>INDP@80%</i>	-0.466*** (-5.09)	-0.208** (-2.30)	-0.331*** (-3.77)	-0.412*** (-3.44)

Table 11

The Impact of Ownership and Governance Structures on The Signaling Effects (*EXPR*)

This table presents the regression results on the impact of ownership structures and governance structures on the signaling effects of corporate accessibility on *EXPR*. The experimented accessibility variables (*ACS*) are *IR_ACS* in (1), *CALL_ACS* in (2), *EMAIL_ACS* in (3), and *FORUM_ACS* in (4). All variables are defined in Table 1. The sample consists of 4247 firm-year observations covering the period of 2008-2010. The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	<i>IR_ACS</i>	<i>CALL_ACS</i>	<i>EMAIL_ACS</i>	<i>FORUM_ACS</i>
	(1)	(2)	(3)	(4)
<i>ACS</i>	-0.112*** (-4.47)	-0.137*** (-5.61)	-0.059** (-2.48)	-0.108*** (-3.61)
<i>ACS * STATE</i>	0.054*** (3.13)	0.037** (2.19)	0.033* (1.90)	-0.003 (-0.14)
<i>ACS * CO</i>	0.064*** (5.41)	0.071*** (5.70)	0.042*** (3.56)	0.055*** (3.30)
<i>ACS * IO</i>	-0.251* (-1.92)	-0.225 (-1.48)	-0.449*** (-2.98)	-0.283** (-2.09)
<i>ACS * INDP</i>	-0.083 (-1.48)	-0.124* (-1.91)	-0.031 (-0.37)	-0.049 (-0.54)
<i>STATE</i>	0.058*** (2.91)	0.074*** (4.14)	0.078*** (4.30)	0.086*** (4.54)
<i>CO</i>	-0.017 (-1.56)	-0.005 (-0.65)	0.001 (0.10)	0.011* (1.80)
<i>IO</i>	-0.116 (-0.89)	-0.160* (-1.91)	-0.046 (-0.40)	-0.237** (-2.56)
<i>INDP</i>	0.122* (1.87)	0.103 (1.19)	0.086 (0.72)	0.103 (1.10)
Controlling <i>X</i>	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes
Adj Rsq	13.21%	13.29%	12.86%	13.30%
<i>STATE@20% (STATE=0)</i>	-0.067*** (-2.77)	-0.074*** (-2.79)	-0.024* (-1.75)	-0.057*** (-3.66)
<i>STATE@80% (STATE=1)</i>	-0.030* (-1.75)	-0.035* (-1.82)	-0.010 (-0.92)	-0.058** (-2.43)
<i>CO@20%</i>	-0.059*** (-2.76)	-0.078*** (-3.22)	-0.020** (-2.00)	-0.066*** (-5.02)
<i>CO@80%</i>	-0.028* (-1.83)	-0.033** (-1.98)	-0.006 (-0.66)	-0.035*** (-2.69)
<i>IO@20%</i>	-0.025* (-1.75)	-0.045* (-1.83)	0.014 (1.25)	-0.037** (-2.41)
<i>IO@80%</i>	-0.045** (-2.07)	-0.063** (-2.51)	-0.021** (-2.09)	-0.059*** (-4.13)
<i>INDP@20%</i>	-0.015* (-1.68)	0.003 (0.25)	-0.010 (-1.18)	-0.037** (-2.10)
<i>INDP@80%</i>	-0.018* (-1.87)	-0.027** (-2.55)	-0.017* (-1.76)	-0.050*** (-4.17)

Table 12

The Impact of Ownership and Governance Structures on The Signaling Effects (*COC*)

This table presents the regression results on the impact of ownership structures and governance structures on the signaling effects of corporate accessibility on *COC*. The experimented accessibility variables (*ACS*) are *IR_ACS* in (1), *CALL_ACS* in (2), *EMAIL_ACS* in (3), and *FORUM_ACS* in (4). All variables are defined in Table 1. The sample consists of 4247 firm-year observations covering the period of 2008-2010. The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	<i>IR_ACS</i>	<i>CALL_ACS</i>	<i>EMAIL_ACS</i>	<i>FORUM_ACS</i>
	(1)	(2)	(3)	(4)
<i>ACS</i>	-1.159*** (-4.63)	-0.623*** (-2.60)	-0.724*** (-3.09)	-1.147*** (-4.01)
<i>ACS * STATE</i>	0.406** (2.22)	0.132* (1.75)	0.077 (0.45)	0.723*** (3.28)
<i>ACS * CO</i>	0.553*** (4.72)	0.345*** (2.85)	0.333*** (2.87)	0.406*** (2.58)
<i>ACS * IO</i>	-5.460*** (-3.67)	-4.278*** (-2.93)	-3.929*** (-2.74)	-2.349 (-1.17)
<i>ACS * INDP</i>	0.261 (0.47)	0.671 (0.98)	0.706 (1.28)	-0.360 (-0.41)
<i>STATE</i>	-0.527** (-2.48)	-0.289 (-1.38)	-0.282 (-1.27)	-0.383*** (-2.77)
<i>CO</i>	-0.325*** (-2.62)	-0.121 (-1.25)	-0.144 (-1.32)	-0.074 (-1.16)
<i>IO</i>	-0.561 (-0.45)	-2.184 (-1.41)	-1.898 (-1.32)	-3.878*** (-3.38)
<i>INDP</i>	0.408 (0.76)	0.448 (0.79)	0.242 (0.37)	0.620 (1.43)
Controlling <i>X</i>	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes
Adj Rsq	21.61%	21.31%	21.12%	21.52%
<i>STATE@20% (STATE=0)</i>	-0.707*** (-4.72)	-0.363*** (-2.69)	-0.464*** (-3.46)	-0.841** (-2.45)
<i>STATE@80% (STATE=1)</i>	-0.279** (-2.55)	-0.211* (-1.83)	-0.392*** (-3.59)	-0.118 (-0.36)
<i>CO@20%</i>	-0.676*** (-6.56)	-0.402*** (-4.02)	-0.550*** (-5.64)	-0.493*** (-3.97)
<i>CO@80%</i>	-0.315*** (-3.31)	-0.183* (-1.95)	-0.325*** (-3.58)	-0.236* (-1.89)
<i>IO@20%</i>	-0.245** (-2.06)	-0.091 (-0.78)	-0.251** (-2.24)	-0.261* (-1.75)
<i>IO@80%</i>	-0.664*** (-6.70)	-0.436*** (-4.56)	-0.566*** (-6.01)	-0.424*** (-3.27)
<i>INDP@20%</i>	-0.526*** (-5.04)	-0.314*** (-3.05)	-0.507*** (-5.06)	-0.323** (-2.43)
<i>INDP@80%</i>	-0.401*** (-3.72)	-0.232** (-2.19)	-0.303*** (-2.97)	-0.392*** (-3.00)

Table 13

The Impact of Ownership and Governance Structures on The Signaling Effects (*TobinQ*)

This table presents the regression results on the impact of ownership structures and governance structures on the signaling effects of corporate accessibility on *TobinQ*. The experimented accessibility variables (*ACS*) are *IR_ACS* in (1), *CALL_ACS* in (2), *EMAIL_ACS* in (3), and *FORUM_ACS* in (4). All variables are defined in Table 1. The sample consists of 4247 firm-year observations covering the period of 2008-2010. The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	<i>IR_ACS</i>	<i>CALL_ACS</i>	<i>EMAIL_ACS</i>	<i>FORUM_ACS</i>
	(1)	(2)	(3)	(4)
<i>ACS</i>	0.460*** (5.49)	0.514*** (6.21)	0.173** (2.13)	0.415*** (4.04)
<i>ACS * STATE</i>	-0.132** (-2.14)	-0.219*** (-3.63)	-0.161* (-1.92)	-0.167** (-2.12)
<i>ACS * CO</i>	-0.273*** (-6.95)	-0.199*** (-4.76)	-0.157*** (-3.97)	-0.233*** (-4.21)
<i>ACS * IO</i>	2.752*** (4.89)	0.694 (1.26)	3.168*** (5.80)	3.017*** (3.87)
<i>ACS * INDP</i>	0.176 (0.91)	0.189 (1.32)	0.085 (0.44)	0.066 (0.23)
<i>STATE</i>	-0.189*** (-3.78)	-0.177*** (-4.33)	-0.268*** (-6.41)	-0.243*** (-7.15)
<i>CO</i>	0.029 (0.99)	-0.052** (-2.15)	-0.054** (-2.05)	-0.088*** (-4.11)
<i>IO</i>	2.336*** (4.92)	3.850*** (9.82)	2.455*** (5.76)	3.745*** (11.10)
<i>INDP</i>	-0.277* (-1.86)	-0.055 (-0.49)	-0.210 (-1.57)	-0.147 (-1.42)
Controlling <i>X</i>	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes
Adj Rsq	30.05%	29.40%	29.44%	29.30%
<i>STATE@20%</i> (<i>STATE</i> =0)	0.290*** (3.48)	0.174* (1.94)	0.119** (2.51)	0.277*** (5.03)
<i>STATE@80%</i> (<i>STATE</i> =1)	0.157** (2.12)	0.050 (1.29)	0.091** (2.43)	0.100* (1.68)
<i>CO@20%</i>	0.316*** (4.29)	0.220*** (6.44)	0.157*** (4.65)	0.267*** (5.85)
<i>CO@80%</i>	0.139* (1.91)	0.099*** (3.09)	0.061* (1.95)	0.112** (2.51)
<i>IO@20%</i>	0.100** (2.03)	0.118*** (3.06)	0.055 (1.06)	0.084* (1.79)
<i>IO@80%</i>	0.314*** (4.16)	0.181*** (5.08)	0.242*** (3.26)	0.288*** (2.63)
<i>INDP@20%</i>	0.154*** (4.33)	0.142*** (4.08)	0.103*** (2.98)	0.132*** (4.41)
<i>INDP@80%</i>	0.172*** (4.72)	0.169*** (4.75)	0.105*** (3.02)	0.165*** (2.85)

Table 14

The Impact of Ownership and Governance Structures on The Signaling Effects (*NOM*)

This table presents the regression results on the impact of ownership structures and governance structures on the signaling effects of corporate accessibility on *NOM*. The experimented accessibility variables (*ACS*) are *IR_ACS* in (1), *CALL_ACS* in (2), *EMAIL_ACS* in (3), and *FORUM_ACS* in (4). All variables are defined in Table 1. The sample consists of 4247 firm-year observations covering the period of 2008-2010. The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	<i>IR_ACS</i>	<i>CALL_ACS</i>	<i>EMAIL_ACS</i>	<i>FORUM_ACS</i>
	(1)	(2)	(3)	(4)
<i>ACS</i>	1.891*** (3.03)	1.489** (2.42)	2.021*** (3.39)	1.518** (2.04)
<i>ACS * STATE</i>	-0.851* (-1.95)	-1.007** (-2.26)	-1.407*** (-3.22)	-0.796* (-1.93)
<i>ACS * CO</i>	-1.028*** (-3.53)	-0.658** (-2.11)	-0.932*** (-3.20)	-1.111*** (-2.79)
<i>ACS * IO</i>	13.779*** (3.36)	8.080** (2.00)	15.450*** (3.88)	29.711*** (5.35)
<i>ACS * INDP</i>	0.485 (0.35)	1.810 (1.11)	0.503 (0.36)	0.643 (0.42)
<i>STATE</i>	-0.200 (-0.53)	-0.071 (-0.23)	0.168 (0.54)	-0.274 (-1.09)
<i>CO</i>	0.681*** (3.16)	0.344* (1.94)	0.526*** (2.72)	0.296* (1.88)
<i>IO</i>	-16.278*** (-4.73)	-10.924*** (-3.80)	-15.471*** (-5.01)	-11.970*** (-4.87)
<i>INDP</i>	-1.717* (-1.68)	-1.247 (-1.54)	-1.204 (-1.53)	-1.312 (-1.59)
Controlling <i>X</i>	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes
Adj Rsq	30.08%	29.79%	29.96%	39.88%
<i>STATE@20%</i> (<i>STATE</i> =0)	1.275*** (3.41)	1.650** (2.48)	1.580*** (4.63)	1.599*** (4.09)
<i>STATE@80%</i> (<i>STATE</i> =1)	0.888*** (3.28)	0.643* (1.74)	0.169 (0.62)	0.937** (2.17)
<i>CO@20%</i>	1.420*** (5.53)	1.343** (2.21)	1.137*** (4.63)	1.620*** (4.92)
<i>CO@80%</i>	0.781*** (3.30)	0.916 (1.50)	0.562** (2.47)	0.937*** (2.90)
<i>IO@20%</i>	0.527** (2.13)	0.759* (1.91)	0.193 (1.57)	0.109 (1.02)
<i>IO@80%</i>	1.502*** (5.59)	1.387** (2.25)	1.323*** (5.16)	2.237*** (6.29)
<i>INDP@20%</i>	0.873*** (3.27)	0.413** (1.98)	-0.145* (-1.67)	-0.471*** (-3.91)
<i>INDP@80%</i>	1.195*** (4.60)	0.590** (2.31)	-0.331*** (-3.77)	-0.412*** (-3.44)

Table 15

The Signaling Effects of Instrumented Corporate Accessibility

The table presents the results on the analysis of the signaling effects of instrumented corporate accessibility. Panel A reports test results on the validity of IVs. Panel B reports the regression results in the second stage, the dependent variables are *ORECA* in (1), *EXPR* in (2), *COC* in (3), *TobinQ* in (4), and *NOM* in (5). Only coefficients of experimented variables (accessibility variables) are reported. The sample consists of 4297 (3046) firm-year observations covering the period of 2008-2010. All variables are defined in Appendix A. The t-stat is reported on the left in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Ivs validity and strength tests					
	<i>IR_ACS</i>	<i>CALL_ACS</i>	<i>EMAIL_ACS</i>	<i>FORUM_ACS</i>	
nR2	0.29	0.00	0.29	0.00	
Hausman Prob	0.0788*	0.0680*	0.0737*	0.0110**	

Panel B: Instrumented corporate accessibility and corporate performance					
	(1)	(2)	(3)	(4)	(5)
	<i>ORECA</i>	<i>EXPR</i>	<i>COC</i>	<i>TobinQ</i>	<i>NOM</i>
<i>IR_ACS</i>	-0.472*** (-5.52)	-0.018* (-1.80)	-0.139* (-1.71)	0.187*** (4.63)	1.508*** (4.14)
<i>CALL_ACS</i>	-0.739*** (-5.50)	-0.028* (-1.76)	-0.206** (-2.33)	0.290*** (4.56)	2.381*** (4.15)
<i>EMAIL_ACS</i>	-0.872*** (-5.36)	-0.030** (-2.05)	-0.175* (-1.93)	0.326*** (4.22)	2.918*** (4.20)
<i>FORUM_ACS</i>	-0.510*** (-5.61)	-0.024** (-2.27)	-0.246** (-2.38)	0.227*** (5.29)	1.470*** (3.80)

Table 16

The Signaling Effects Controlling for More Governance Variables and Regional Dummies

This table presents the regression results on the robustness of the signaling effects of corporate accessibility (measured by *IR_ACS*) after controlling for other governance variables and regional dummies. The dependent variables are *ORECA* in (1), *EXPR* in (2), *COC* in (3), *TobinQ* in (4), and *NOM* in (5). All variables are defined in Table 1. The sample consists of 4247 (3046 for *COC*) firm-year observations covering the period of 2008-2010. t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)
<i>IR_ACS</i>	-0.275*** (-3.38)	-0.024** (-2.01)	-0.541*** (-5.84)	0.137*** (4.19)	0.869*** (3.44)
<i>STATE</i>	-0.393*** (-4.28)	0.087*** (7.89)	-0.389*** (-3.71)	-0.261*** (-7.06)	-0.315 (-1.10)
<i>CO</i>	0.023 (0.42)	0.018*** (2.79)	-0.035 (-0.57)	-0.122*** (-5.66)	0.183 (1.10)
<i>IO</i>	0.476 (0.59)	-0.276*** (-2.80)	-7.060*** (-7.79)	5.141*** (14.61)	-5.590** (-2.09)
<i>INDP</i>	0.348 (1.35)	0.049 (1.57)	0.472 (1.60)	-0.128 (-1.22)	-0.931 (-1.18)
<i>SIZE</i>	-0.042 (-0.72)	-0.024*** (-3.39)	0.144** (2.20)	0.026 (0.71)	1.254*** (4.51)
<i>LEV</i>	-1.686*** (-4.47)	0.020 (0.44)	3.761*** (8.61)	-1.590*** (-10.76)	3.639*** (3.15)
<i>VOL</i>	-0.172 (-1.26)	0.017 (0.77)	1.541*** (7.48)	-0.080 (-1.48)	-0.596 (-1.39)
<i>ILLIQ</i>	-5.028 (-1.51)	-1.280** (-2.06)	-28.930*** (-4.82)	5.265*** (7.26)	-1.177 (-0.21)
<i>ROA</i>	-0.003 (-0.34)	-0.010*** (-9.90)	-0.006 (-0.65)	0.065** (2.39)	-0.059 (-0.23)
<i>lambda</i>	-0.039 (-0.24)	0.017 (0.90)	0.387** (2.10)	0.025 (0.39)	0.660 (1.34)
<i>Mgt_Hld</i>	-0.537 (-1.51)	-0.165*** (-3.93)	-1.006** (-2.57)	0.535*** (3.44)	2.581** (2.19)
<i>BOARD</i>	-0.513** (-2.50)	0.078*** (3.14)	0.180 (0.77)	-0.281*** (-3.45)	0.990 (1.57)
<i>MEETING</i>	0.710*** (7.01)	0.007 (0.58)	-0.216* (-1.90)	-0.089** (-2.11)	0.674** (2.08)
<i>BIG4</i>	0.037 (0.19)	0.238*** (9.91)	0.353* (1.65)	-0.250*** (-3.32)	-0.245 (-0.42)
<i>COVERAGE</i>	-0.258*** (-5.10)	0.032*** (5.22)	0.724*** (11.79)	-0.164*** (-8.14)	-0.167 (-1.07)
<i>RegEst</i>	-0.272** (-2.52)	0.005 (0.42)	0.334*** (2.67)	-0.150*** (-3.50)	-1.156*** (-3.49)
<i>RegMid</i>	-0.096 (-0.76)	-0.003 (-0.19)	0.213 (1.46)	-0.041 (-0.82)	-1.761*** (-4.50)
<i>RegNE</i>	0.154 (0.85)	0.028 (1.26)	0.333 (1.60)	-0.029 (-0.41)	-0.593 (-1.06)
Intercept	4.706*** (3.52)	0.558*** (3.45)	0.571 (0.38)	2.392*** (3.00)	-25.907*** (-4.19)
Industry effects	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes
Adj Rsq	14.38%	18.31%	25.00%	30.55%	31.66%

APPENDIX A

My data collection involves two major processes. First, I manually collected data from company websites. Second, I directly contacted the listed companies by using telephone and email. As the data-collection work was very time-consuming, I worked with three research assistants (RAs) to collect the data. The whole data collection process lasted from July 1 to September 30 in 2010.

1. Data collection from IR section

I first obtained company website addresses of all firms listed on China's two stock exchange firms. I and the RAs then started with a survey of the information provided via the IR section on a firm's website. The survey involves collecting data in three parts, namely, telephone and email contact information, online forum, and other characteristics of the IR section and the website. The data collection form is provided in Appendix B.

The procedures to collect data from the IR section are specified as follows: First, I and the RAs went to the main page of the listed companies by using the website address provided by the CSMAR database and checked whether there was an IR section within the website. If yes, we went to the IR section and collected the telephone and email contact information (if any). We then checked whether there was an online discussion forum. If yes, we examined whether there were postings by visitors and corresponding replies by the company. We also counted and recorded the number of postings by visitors and replies by the company. I treat the online forum as accessible if both "Posting by visitors exists?" and "Responses by the company exist?" were answered as yes or indicated by 1, and count it as non-accessible otherwise¹³.

¹³ The terms in this sentence with double quotation marks come from the IR section survey form, see Appendix B.

In addition, I also collected information in the IR section or on other pages that might be relevant for my research, such as fax contact information, financial announcements, and other news announcements, etc. This data collection from companies' website took us one month from July 1 to July 31 in 2010.

2. Contacting listed firms

After I completed the data collection from companies' websites, I and the RAs directly contacted the companies via telephone and email in the capacity of minority shareholders. In order to ensure the reliability of the collected data, I developed a set of clear protocols to govern the whole data collection process.

2.1. Contacting by telephone call

I and the RAs made telephone calls to each listed company by enquiring whether a company can arrange a company visit. Appendix C shows the telephone survey form that I prepared for us to make the calls to the listed companies. The instrument that we used to make the calls was Skype. All conversations were made in Chinese Putonghua and recorded using the Goldwave software. All calls were made during general office hours (8:00am—12:00am & 2:00pm—6:00pm) and the process lasted from August 1 2010 to September 30 in 2010 except on holidays. Diagram 1 illustrates the call process.

I scheduled two rounds in making the call (the gap between the two rounds was generally one week). In each round, I scheduled two times to make the calls—one in the morning, the other one in the afternoon. For example, in one morning, we made the first call to a company, but with no answer. We then made the second call in the afternoon, with no answer again. We then tried a second round one week later and made the third and the fourth trials in the morning and the afternoon, respectively. No more calls would be made and the company was recorded as non-accessible if we were not able to contact

the company after four trials.

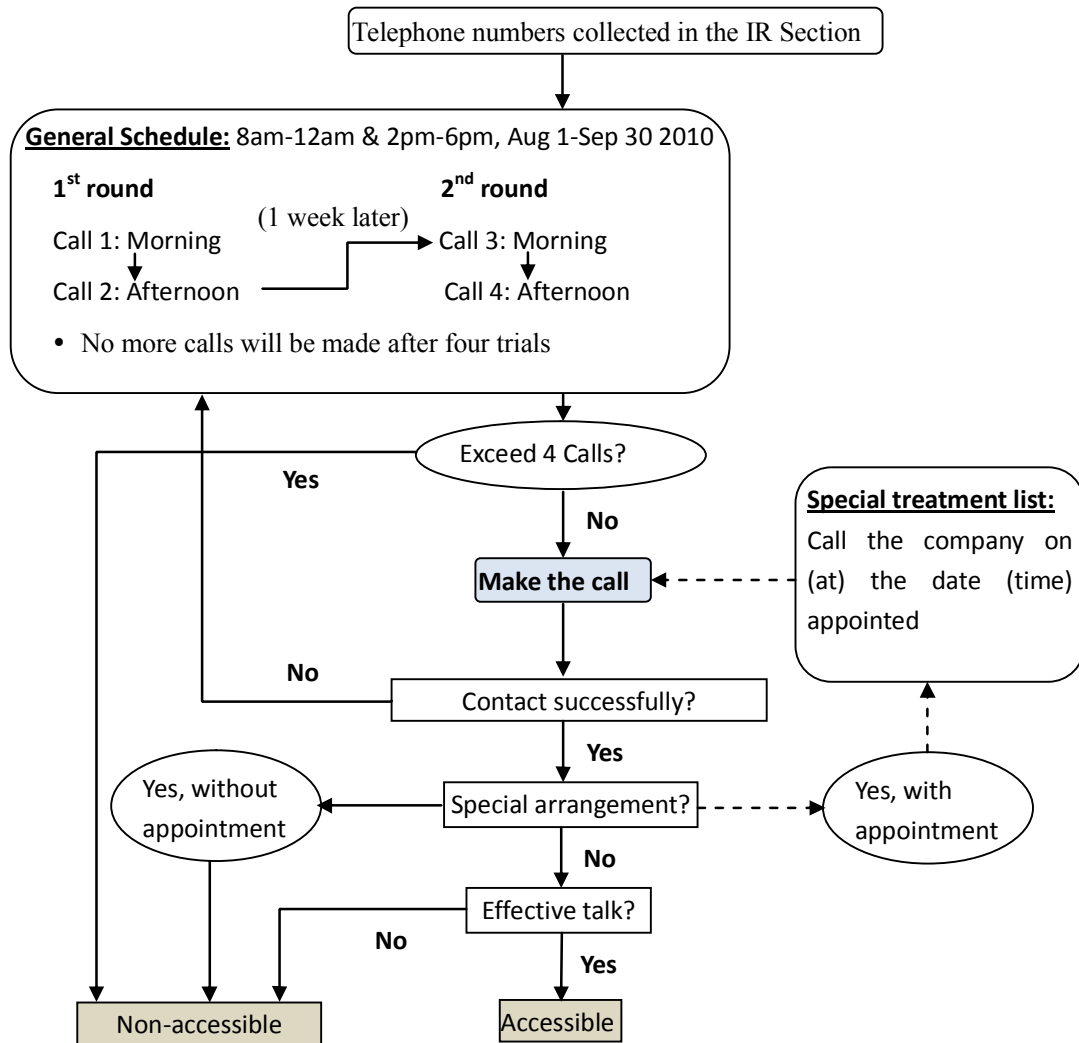


Diagram 1

Once we contacted the company successfully, we tried to find the person in charge of the company (e.g, the person in charge of the investor relations department). However, sometimes we might not find a responsible person at that moment. In some cases, the person had to seek advice from his boss or colleagues (but they were absent). In this case, we needed to find another time and call back the company (a special arrangement was needed). We would try to make a next-call appointment with the company. If such an appointment was made, we would put the company in the special treatment list, and call it back on (at) the date (time) appointed. If in the case we needed a special arrangement

but the company was unwilling to accommodate us, we were unable to go to the next step and would record the company as non-accessible.

My aim is not to actually visit the firm but to ascertain how the company effectively responds to us. I consider the communication channel in terms of telephone call as accessible if we were able to effectively discuss with the company about the issue of the company visit. An effective discussion can be either the case that the company affirmatively accepted our request or the case that it rejected our request for some acceptable reasons. One instance in the case of “rejected our request for some acceptable reasons” was that some companies replied “*we do not accept visitors these days as the company is under financial auditing in preparation for the issue of the annual report. However, we will consider your request after this period*”. In some other cases where it was difficult to judge whether the respondents “rejected our request for some acceptable reason”, I followed a conservative strategy and treated it as non-accessible (if it’s difficult to judge, the effectiveness of the talk can be a problem).

Overall, the telephone channel is accessible if the answer to the “Allow a company visit?” is yes, or the answer is no but an acceptable reason can be found in the “If no, reasons”. It’s non-accessible if 4 call trials are made but the “Who answers the phone?” is empty, or the “Is a special arrangements needed” is yes but the “Appointed date or time” is empty, or the “Allow a company visit?” is no and acceptable reasons can’t be justified in “If no, reasons”. Otherwise, the variable measuring the telephone accessibility will be a missing observation¹⁴.

2.2. Contacting by email

With the email address collected from the IR section on firms’ website, I sent

¹⁴ The terms in this paragraph with double quotation marks come from the telephone survey form, see Appendix C.

emails to the listed companies by asking a general question—the major locations where the firms have their business operations. Diagram 2 illustrates the email sending process.

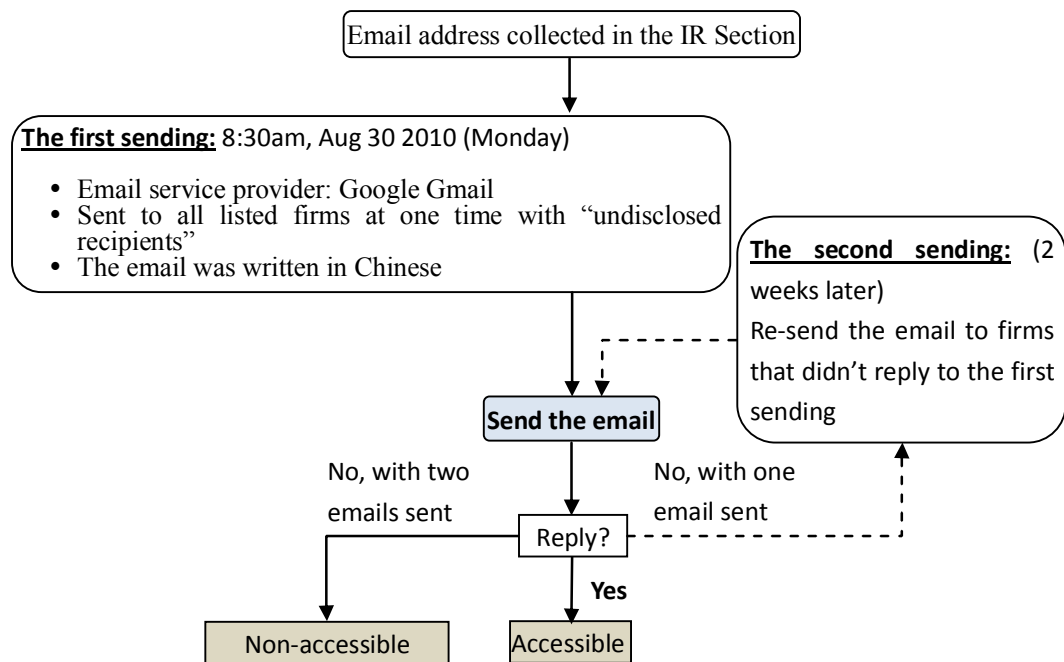


Diagram 2

The email service provider I chose was Google Gmail because it’s widely recognized and generally would not be dumped in the spam email category. The email was written in Chinese and sent during general office hours (specifically, it was 8:30pm, Aug 30 2010 (Monday)). It was sent to all listed companies at one time with “undisclosed recipients” to minimize the risk of introducing new factors that will affect companies’ responsiveness. The companies might fail to receive our email due to some technical problems or wrongly delete the email received. To minimize this risk, I re-sent the email to the companies that didn’t reply to me in the first sending two weeks later. The email translated in English can be seen as below:

“Dear Sir or Madam

I am a minority shareholder of this company. I am concerned about the operating conditions of the company. I would like to know the major locations where the company has its business operations, such as the city or province. I didn’t

find consistent answers based on my own searches. To get first-hand information, I am therefore contacting the company directly. I am looking forward to hearing your reply soon. Many thanks.

Yours sincerely

Mr. Zhao”

In all reply cases, my questions were answered directly and the reply appeared to cluster at 3-4 days after the email was sent with very few responses after 10 days. I record the communications in terms of email as accessible if I did receive a reply from the company in either of the two email sendings, and count it as non-accessible otherwise.

APPENDIX B

IR Section Survey Form									
Basic information (given)			Telephone and Email information in the IR section (yes:1, no:0)						
Website	Company	Web available?	IR section exists?	IR phone exists?	IR phone	IR email exists?	IR email		
On-line forum information in the IR section (yes:1, no:0)									
IR discussion forum exists?	Posting by visitors exists?	Responses by the company exist?	Number of postings by visitors	Number of responses by the company					
Other information in the IR in section (yes:1, no:0)					Information on general web pages (not in the IR section) (yes:1, no:0)				
IR hot-line exists?	IR hot-line	IR fax exists?	IR fax	Financial announcements exist?	Other announcements exist?	General phone exists?	General phone	Financial announcements exist?	Other announcements exist?
Instructions to RAs checking the IR section									
<p>1. Use Internet Explorer to open the company website. The website might not be opened due to some technical problems (e.g, the website is busy or out of service at the moment). In this case, mark the company in a different color and make more trials later on. Treat it as a failure after enough trials have been made (at least three times on three different days).</p> <p>2. Generally, an item named in "Investor Relations" can be found on the main menu of the website. Click it and go into the IR section where you can see various IR items. In case you can't find the IR section at the first glance, be careful to search around by jumping back and forth inside the page.</p> <p>3. In the IR section, check whether it provides telephone and email contact information. If yes, input 1 in the cell of "IR phone exists?" and "IR email exists?", respectively, and input 0 otherwise. Also copy the contact information into the cells provided. Then check whether there is an online discussion forum. If yes, see whether there are postings by visitors and corresponding replies by the company. Input 1 if yes and input 0 if no. Also count the number of postings by visitors and responses by the company and input them in the cells.</p> <p>4. Similarly, collect other information in the IR section and on pages. Input 1 in the cell when the corresponding item on the website exists, and 0 when it does not exist. Specific information on the item, if any, is recorded in the next cell.</p>									

APPENDIX C

Telephone Survey Form									
Basic information (given)			Step 1: Contact the company (mark with the date)				Step 2: Confirm with the company		
			1st Round		2nd Round		Special arrangement 1st chance		
Company	Industry	Telephone number	1st call	2nd call	3rd call	4th call	Who answers the phone?	Is a special arrangement needed? (yes:1, no:0)	Appointed date or time
Step 2: Confirm with the company (backup)			Step 3: Question and talk			Step 4: Evaluation		Minutes	
Special arrangement 2nd chance						1 to 5: 1 is the best, 5 is the worst			
Who answers the phone?	Is a special arrangement needed? (yes:1, no:0)	Appointed date or time	Allow a company visit? (yes:1, no:0)	If yes, any arrangements	If no, reasons	Attitude	Overall satisfaction		
<p>Instructions to RAs making calls to the listed companies</p> <ol style="list-style-type: none"> 1. Install Skype, log in with the account provided. Install Goldwave and make voice recordings in making the calls. The softwares together with a guideline (in Chinese) can be 2. Calls should be made during general office hours (8:00am—12:00am & 2:00pm—6:00pm) on weekdays. 3. Make the 1st call in the morning (first round). If unsuccessful, make the 2nd one in the afternoon; If unsuccessful again, mark down the date and try the second round one week later. The process in the second round is the same as in the first round. Whenever successfully connected, go to the next step. 4. In step 2, introduce yourself (You were a minority shareholder of the company. You and 4 other minority shareholders would like to have a company visit to the listed company). Before the request, try to find the person in charge of the company (e.g., person in charge of the investor relations department). Input yes in the cell of "Is special arrangement needed" in the case where the responsible person can't be found at that moment. Try to make a next-call appointment with the company. If such an appointment was made, put it in the special treatment list and mark down the date or time, and call back the company on (at) the date (time) appointed. 5. If reaching the person in charge of the company, begin the talk by asking whether it's possible to have a visit to the facilities of the company, e.g. factory. If yes, mark down any arrangements. If no, mark down any reasons. No more calls will be made to this company. 6. As the call finishes, evaluate the talk by giving a rating on the attitude of the person answering the call and on your overall satisfaction. 1: excellent; 2: good; 3: general; 4: bad; 5: very bad. 7. Minutes should be taken as precisely as possible. 									

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