Do Firm- and Country-level Information Environments Play a Role in Shaping the Rival Responses of Target Firms? *

Zhe An[†] Zhian Chen[‡] Donghui Li[§] Michael Murong[¶]

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[†]Monash Business School, Monash University, Australia.

[‡]UNSW Business School, The University of New South Wales, Australia.

[§]Corresponding author. Management School, Jinan University; *Tel.*: +86 (20) 8522 6051; *E-mail*: lidonghui@jnu.edu.cn; *Address*: 601 Huangpu West Road, Tianhe District, Guangzhou, China, 510632 (Postcode).

[¶]UNSW Business School, The University of New South Wales, Australia.

Abstract

This paper investigates the impact of firm- and country-level information environments on the rival responses of target firms in initial-industry acquisitions. Employing a sample of 2672 initial-industry target firms across 35 countries from 1989 to 2013, the empirical results show that financial analyst following (i.e., a proxy for more transparent firm-level information environments) is positively related to the announcement returns of rival firms, and that this positive relationship is only valid (invalid) in countries with transparent (opaque) information environments. Moreover, it has been shown that those rival firms that have a higher probability of becoming targets subsequently, or that do in fact become targets subsequently, exhibit higher abnormal returns at the time of initial-industry acquisition, compared to other rival firms. The use of two exogenous reduction shocks in the number of financial analysts as instrumental variables, combined with the application of various robustness tests (e.g., exclusion of the U.S. and the U.K. and alternative measures of macro information environments) confirms our main conclusion. Overall, the findings support the *Acquisition Probability Hypothesis*.

JEL Classifications: G30; G34; G38.

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1 Introduction

Firm mergers and acquisitions (M&As), as a significant investment vehicle, can be employed to foster growth, reallocate resources, and so on. It has been found in existing studies that the announcements of M&As have a significant impact on cumulative abnormal returns ($CARs$) of both acquirers and targets. Recently, the phenomenon of "intra-industry" effect - namely, the impact of an M&A announcement on those firms in the same industry as the acquiring or target firms - has been attracting increasing attention from academics and professionals.[1] In particular, it has been found that the rivals of target firms in M&As exhibit positive $CARs$ at the time of acquisition announcement. In an attempt to explain this empirical finding, current literature tends to support the *Acquisition Probability Hypothesis*, which conjectures that an M&A event increases the likelihood that the rivals of target firms could be acquired in future subsequent M&As.[2][3]

Previous literature associates the acquisition probability with firm- and industry-level variables, such as sale growth, firm size, Tobin's Q, leverage, and industry-specific concentration (Song and Walkling (2000)). However the quality of the information environment at either the firm- or country-level is completely ignored, which can affect

[1]Existing literature documents that the industry can influence the rival responses of target firms. For instance, Gort (1969) and Jensen (1988) notice the role of industry shocks in firm acquisitions based on the valuation differential among market participants. Mitchell and Mulherin (1996) document the acquisition clustering within an industry. Eckbo (1983), Stillman (1983), Eckbo (1985), Eckbo and Wier (1985), and Mitchell and Mulherin (1996) document that the rivals of target firms respond positively to the acquisitions within one industry. Song and Walkling (2000) argue that cost structure changes in one industry which function as external catalysts can increase the probability of acquisition attempts.

[2]See Akhigbe and Madura (1999), Akhigbe, Borde, and Whyte (2000), Song and Walkling (2000), Fee and Thomas (2004), Shahrur (2005), and Otchere and Ip (2006).

[3]To explain this positive response, two other hypotheses - namely, the *Collusion Hypothesis* and the *Efficiency (Productive and Purchasing) Hypothesis* - have also been developed. The former hypothesis, which predicts that M&As will increase the likelihood of collusion between competitors in an industry in order to affect prices, tends to be rejected by empirical studies (Eckbo (1983), Stillman (1983), Eckbo and Wier (1985), Fee and Thomas (2004), and Shahrur (2005)). The latter hypothesis, which proposes that target firms experience increased efficiencies in their operating, marketing, and/or distribution activities as a result of M&As, is difficult to test due to the existence of both positive and negative potential impacts on rivals.

investment decisions and the development of financial markets.[4] The rivals of target firms with more transparent firm- and country-level information environments (and thus more reliable, accurate and timely information) should exhibit higher $CARs$, as investors become more confident in identifying valuable rival firms with higher acquisition probabilities. This paper attempts to shed additional light on this issue by examining the impact of firm-level information environments on announcement returns of rival firms in initial-industry acquisitions across 35 countries from 1989 to 2013. In doing so, this paper carefully investigates the informational roles of financial analysts and conducts international comparisons of country information environments, thus complementing the existing literature.

To date, there is no consensus on whether or not financial analysts play an informational role in financial markets. On the one hand, some studies argue for the existence of this informational role. Once financial analysts are equipped with training, experience, and knowledge regarding a particular firm or industry, they can efficiently process, assimilate, and interpret the information that can be understood by investors. The informational roles played by financial analysts have been well documented in previous literature from the perspective of information diffusion and, thus, information asymmetry reduction.[5] In this respect, recent studies have tried to explain these informational roles from two more substantiated perspectives: (a) discovering private information, and (b) interpreting public information.[6] Earlier studies have not achieved consensus on which one is more dominant. For example, Dempsey (1989), Shores (1990), and Ayers and Freeman (2003) argue for the dominance of the information discovery role, while Francis, Schipper, and Vincent (2002) and Frankel, Kothari, and Weber (2006)

[4]See La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997), La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998), La Porta, Lopez-De-Silanes, and Shleifer (1999), La Porta, Lopez-De-Silanes, Shleifer, and Vishny (2002), and La Porta, Lopez-De-Silanes, and Shleifer (2006).

[5]See Hong, Lim, and Stein (2000), Barth and Hutton (2004), Frankel and Li (2004), Chang, Dasgupta, and Hilary (2006), Knyazeva (2007), Bowen, Chen, and Cheng (2008), and Yu (2008).

[6]For the former, financial analysts discover private information that is not readily available to investors and could include information obtained from discussions with managers of a firm. For the latter, financial analysts collate and interpret complex public information before processing it into reports and recommendations.

argue for the dominance of the information interpretation role. Later studies have tried to reconcile these two contradictory arguments. In particular, Chen, Cheng, and Lo (2010) find evidence that information discovery dominates in the week before firms' earnings announcements, while information interpretation is prominent in the week following the earnings announcement. Asquith, Mikhail, and Au (2005) discover that nearly half of the sample reports contain new information not released previously (i.e., information discovery), while the market also reacts to reports that occur contemporaneously with other releases of information (i.e., information interpretation). Jindra, Voetmann, and Walkling (2015) find that Chinese firms listed in the U.S. with fewer financial analyst following are more likely to face litigation risks via a reverse merger (versus an initial public offering, or IPO), because they have less effective bonding at the post-listing stage. On the other hand, recent studies based on intra-day data argue against this informational role. For instance, Altinkilic and Hansen (2009) investigate financial analysts' stock recommendation revisions and conclude that their recommendations are not important in assimilating information into stock prices. Altinkilic, Balashov, and Hansen (2013) show that there is little information content in the announcements of analysts' forecast revisions. Kim and Song (2015) document that price responses to financial forecast revisions disappear once management earnings forecasts are considered, and conclude that analysts' information discovery role is not as important as suggested by prior studies. As can be seen from the above analysis, different sampling practices may influence the conclusions that can be drawn about financial analysts' informational roles in financial markets. This study contributes to the discussion by investigating these roles in the rival responses of target firms, providing additional evidence by examining this particular issue from a new angle.

What informational roles can the macro information regulation environments play in shaping the rival responses of target firms? First, theoretically, information environments can shape the rival response, because they represent the regulation situation - in particular, information regulation. Gort (1969) argues that regulation shocks can cause valuation differentials among different investors, thus leading to acquisitions.

Song and Walkling (2000) argue that the regulatory changes can function as external catalysts to influence the gains of competing managerial teams, thus leading to a higher probability of acquisition attempts. More importantly, the information environments can regulate the timeliness and accuracy of information released by the firms, and any associated penalties. Given a firm involved in M&As, the firm with tighter information regulation environments will be presumably providing more accurate and timely information, otherwise it may face much tougher penalty by law. The "accurate and timely information" includes accounting, governance, media, and other information related to the firm's operations. Second, empirically, although there is no direct link between information environments and returns of target firms, we can infer this relation from previously relevant literature. For instance, (a) The importance of macro information environments in relation to various aspects of M&A activities has been well documented by previous studies, including those on volume, payment method, and hostility in takeovers (Rossi and Volpin (2004)), merger premiums (Bris and Cabolis (2008)), and vertical versus horizontal integration (Acemoglu, Johnson, and Mitton (2009)). (b) The quality of macro information environments has an impact on a broader set of financial market developments, including equity and debt markets (La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997)), stock market developments (La Porta, Lopez-De-Silanes, and Shleifer (2006)), and international portfolio investments (Gelos and Wei (2005)). (c) In a broader sense than information environments, macro corporate governance has an impact on various aspects of financial markets, including the level of ownership concentration (La Porta, Lopez-De-Silanes, and Shleifer (1999)), higher dividend payouts, especially for low growth firms (La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000)), and lower earnings management (Leuz, Nanda, and Wysocki (2003)). La Porta, Lopez-De-Silanes, Shleifer, and Vishny (2002) find that investors are willing to pay more for financial assets (leading to higher firm values) in markets with better legal protection of minority shareholders. Leuz, Lins, and Warnock (2010) discover that foreign shareholders invest less in firms located in countries with poor outsider protection and disclosure, especially when earnings are opaque.

Given the significance of macro information and/or corporate governance environments in shaping financial markets, one particular question that remains to be answered is their impact on reshaping the impact of financial analyst following on rival responses to M&A announcements. In countries with more transparent information environments, the information released would be more reliable and thus the investors would trust the financial analysts more on their judgment of the likelihood of an acquisition. Thus we expect the rival responses conditional upon financial analyst following are more distinguishable in this case.

This paper employs a sample of 2672 initial-industry target firms across 35 countries from 1989 to 2013. In general, the empirical results confirm those from previous studies in the U.S.. That is, the rivals of target firms exhibit positive responses upon announcement of the acquisitions. The higher the degree of surprise surrounding an initial-industry acquisition, the larger are the announcement returns for rival firms. More importantly, we find that financial analyst following, as yet unexamined by the existing literature, but the focus of this paper, is positively related to announcement returns of rival firms. This suggests that investors rely on more accurate and timely information. In addition, this paper identifies two channels through which financial analyst following can influence rival $CARs$ - namely, (a) by reducing earnings management, and (b) by increasing trading volume. Furthermore, empirical results show that those rivals, that have a higher probability of becoming target subsequently or that do in fact become targets subsequently, exhibit higher abnormal returns at the time of initial-industry acquisition, compared to other rival firms. In addition, the above positive relationship is only valid (invalid) in countries with transparent (opaque) information environments. Overall, the findings support the *Acquisition Probability Hypothesis*.

In conducting empirical testing, this paper carefully addresses the endogeneity issues. If financial analysts choose to follow those rivals who potentially are the targets, then we observe that the rivals with high $CARs$ are associated with more financial analysts. In other words, the reverse causality may exist. In order to rule out the

problems associated with endogeneity and reverse causality, we address these issues so that they do not cast doubts on our main conclusions. First, following the existing literature, we identify and use as two exogenous shocks - namely, brokerage closures and brokerage mergers - that create decreases in financial analyst following to solve the endogeneity problem using a two-stage least-squares approach.[7] It may be argued that financial analyst following is endogenously related to the firms they follow. For instance, financial analysts may follow larger firms (Bhushan (1989)), and their following may reflect their analysis of future firm performance (McNichols and O'Brien (1997)). If this is the case, OLS estimation will be biased.[8] In addition, some unobservable factors may influence both financial analyst following and the likelihood that a rival will later become a target. As shown in Appendix **??**, we identify 165 exogenous decreases in analyst-following events globally, including 58 brokerage closures and 107 brokerage mergers. We create a brokerage-exit dummy (*Exit*) that is equal to 1 if the brokerage firm experiences a closure or merger within one year prior to the initial-industry acquisitions, and 0 otherwise. These brokerage-exit events impact the number of analysts at the time of acquisition, but are not likely to impact the likelihood of acquisition. We use *Exit* as an instrumental variable for financial analyst following (*Analyst*) in a two-stage least-squares regression. In particular, for each country, we regress *Analyst* on its determinants and *Exit*, and then extract its fitted value as predicted analyst following (*Predicted_Analyst*). Afterwards, we examine the impact of *Predicted_Analyst* on rival firms' *CARs*. As shown in Table 6, *Predicted_Analyst* is significantly positively related to rival firms' *CARs* and the result implies that a one-unit increase in *Predicted_Analyst* leads to an increase of about 0.22% in rival firms' *CARs*. This demonstrates that after taking into account the exogenous shocks in analysts, our main conclusions remain valid and the causality is from financial analyst following to the rival returns of target firms. Second, the exclusion of the U.S. (and the

[7]See Hong and Kacperczyk (2010), Kelly and Ljungqvist (2012), Irani and Oesch (2013), He and Tian (2013), Fich, Juergens, and Officer (2014), Fong, Hong, Kacperczyk, and Kubik (2014), and Chen, Harford, and Lin (2015).

[8]We thank the referee for this helpful point.

U.K.) rival firms does not change our main conclusion. Because our full sample and the subsample exhibit the same significant causality relationship, it is harder to argue that the reverse causality is valid in the full sample, while the subsample is still valid in the original causality. Third, a comprehensive set of control variables is employed to take into account as many factors influencing rival $CARs$ as possible. In particular, as an additional control variable, dormant period based on initial-industry acquisition is included following the existing literature. This should be able to take sufficient account of the endogenous issues of $CARs$. For example, if one suspects that rival $CARs$ and financial analyst following are both high in large firms because large firms attract more attention from financial analysts, then the inclusion of the variable $Size$ should mitigate this worry. By the same token, the use of industry- and year-fixed effects should mitigate similar concerns regarding industry and time characteristics. Finally, we use one-year-lagged financial analyst following. It is harder to argue that current financial analyst following is caused by rivals' $CARs$ one-year ahead. With all the above efforts, we still acknowledge that endogeneity is a potential issue in this study. However, the fact that after we have addressed this issue carefully the results still remain valid gives us confidence that our main conclusion is not seriously discredited and denied by the endogeneity issue.

This paper contributes to the existing literature in five aspects. First, this paper contributes to studies on the informational role of financial analysts, which is important for investor decisions (Francis, Schipper, and Vincent (2002)). There are two questions yet to be answered: (a) Do financial analysts have an informational role in financial markets? and (b) If there exists a role, what is it? As discussed before, there is no consensus on this issue. Some studies support the existence of the informational role of financial analysts (e.g., Chen, Cheng, and Lo (2010)); while some studies based on intra-day data argue against this informational role (e.g., Altinkilic and Hansen (2009), Altinkilic, Balashov, and Hansen (2013), and Kim and Song (2015)). Our paper contributes to the discussion by finding that the rivals of target firms respond positively to acquisition announcements, and that financial analyst following increases this posi-

tive response, thus providing additional evidence of the informational role of financial analysts. Moreover, as a counterpoint to the informational role of financial analysts, this paper contributes to the existing literature on their monitoring role (Chang, Dasgupta, and Hilary (2006), Knyazeva (2007), Yu (2008) and Irani and Oesch (2013), among others). This is because information asymmetry is reduced in firms with higher financial following, thus facilitating their monitoring.

Second, by analyzing and documenting investor recognition promoted by financial analysts in M&As, this paper contributes to the literature on investor recognition in firm performance based on information settings, including public media (Barber and Odean (2008) and Kim and Meschke (2014)) and increased publicity in the share market (Kadlec and Mcconnell (1994) and Chen, Noronha, and Singal (2004)), among many other factors. Moreover, previous literature documents that target value uncertainty is a pricing factor for the announcement returns of acquirers. For example, Officer, Poulsen, and Stegemoller (2009) find that the target-valuation uncertainty positively influences the announcement returns of acquirers. Cooney, Moeller, and Stegemoller (2009) document that when targets are acquired for a value higher than their former value, the acquirers exhibit positive announcement returns. They argue that this can be explained by the target valuation uncertainty effect, which states that positive valuation revisions can increase target under-pricing, thus increasing acquirer gain. This is because risk-averse managers (for both the acquirer and target) are less diversified than market participants and prefer skewness during the acquisition negotiation. Jindra and Moeller (2015) argue that information is important for the valuation precision of target firm - in particular, when valuation uncertainty and costs incurred in learning about the target are both high. Jindra, Voetmann, and Walkling (2015) find that Chinese firms listed in the U.S. are more likely to face litigation risks when they are subject of a reverse merger (versus an IPO). They conclude that for the former, the lower monitoring (and thus scrutiny) level (e.g., the relatively low regulatory oversight) at the pre-listing stage, and the less effective bonding (e.g., fewer financial analyst following and higher monitoring costs) at the post-listing stage, can explain this difference. This

above analysis shows the importance of information uncertainty in influencing acquisition outcomes. The existing literature on target value uncertainty only investigates the acquirer or target side; the rival responses of the target are totally ignored. However, as can be seen from the above analysis, higher investor recognition induced by financial analyst following can reduce the value uncertainty of rival firms, and thus should affect rival responses. Thus, our paper complements the literature on investor recognition by documenting the positive association between financial analyst following and rival responses of the target firms.

Third, this paper contributes to the existing literature on M&As. The current literature (e.g., Song and Walkling (2000)) on rival responses of the target firms focuses on the U.S. market and confirms the *Acquisition Probability Hypothesis*. This paper extends it by analyzing intra-industry information transmission in 35 countries from 1989 to 2013, and is able to verify whether the same hypothesis or other hypotheses are valid in an international setting. In doing so, the differences among rival responses across countries are also able to be investigated. The results show that rival responses are more apparent if the firms are located in countries with better information environments. Moreover, there is an increasing number of papers examining M&As in an international context (e.g., Rossi and Volpin (2004) and Bris and Cabolis (2008)), though they do not investigate the rival responses of target firms as this paper does. Thus, this paper also fills a gap in the literature relating to international setting. Furthermore, this paper adds to the literature on the link between financial analysts and various aspects of M&As, including value-destroying (Chen, Harford, and Lin (2015)), merger waves (Duchin and Schmidt (2013)), and bank stock holdings in acquirers (Haushalter and Lowry (2011)).

Fourth, this paper contributes to the existing literature on macro corporate governance and financial markets. For example, as highlighted by Shleifer and Wolfenzon (2002), prior literature has found that macro corporate governance - in particular, shareholder protection - also impact on characteristics of M&As, such as volume, the likelihood of a hostile takeover or of an all-cash bid, occurrences of cross-border deals,

and merger premiums in cross-border deals (Rossi and Volpin (2004), Bris and Cabolis (2008), and Acemoglu, Johnson, and Mitton (2009)). However, the prior literature has overlooked the impact of macro information environments, as an important component of corporate governance, on rival responses to M&A announcements. This paper fills that gap.

Fifth, this paper contributes to the literature on intra-industry research. Previous studies document that rival share prices can respond to various firm events, such as going-private transactions (Slovin, Sushka, and Bendeck (1991) and Otchere (2007)). This paper provides a new angle on this issue - namely, M&As across the world.

The structure of this paper is as follows. Section 2 discusses the theoretical considerations and hypothesis development. Section 3 presents the empirical design, and Section 4 describes the data and sample. The empirical results and robustness tests are presented in Sections 5 and 6. Section 7 concludes the paper.

2 Theoretical Considerations and Hypothesis Development

2.1 Theoretical considerations

A theoretical acquisition probability model proposed by Song and Walkling (2000) - in particular, equation (1) of their paper - suggests that if an acquisition attempt happens, the rivals of target firms would respond. This response is a function of two factors, namely: (a) "the expected return to a rival firm's shareholders, conditional on an acquisition attempt for their firm"; and (b) "the change in the probability of an acquisition attempt for rival r associated with the initial acquisition announcement in its industry" (Song and Walkling (2000), p.146), which implies a revaluation effect on the rivals of target firms in the same industry. They argue that this may happen because some external catalysts (e.g., regulation, consumer tastes) can cause the expected gains to exceed costs for some competing managerial teams (versus the existing

ones), thus leading to the increased probability of acquisition attempts. If unexpected acquisitions do occur, this signals that the firms in this industry are worth revaluing. They further argue that the initial acquisition announcement in a particular industry signals to the market that there exist valuable industry-specific resources. Similarly, Gort (1969) and Jensen (1988) notice that valuation differentials among investors lead to acquisitions. These differentials can be caused by economic shocks in technology, industry, regulation, and so on.

Rivals respond differently to the same external shocks for various reasons, including (e.g., in the case of new technology innovation) the differences in information about a new production process, adoption costs, and attitudes to risk (Song and Walkling (2000)). This difference also arises from other aspects, including some firm characteristics, such as managerial ownership (Song and Walkling (1993)), firm size, growth, and so on. In particular, the degree of news shock is related to rival firm abnormal returns for both initial and subsequent acquisition announcements. In order for investors to react to the news, they need to digest and learn how to interpret all the existing available information. They can do this by themselves, or rely on professional services that specialize in analyzing information, such as financial analysts, accountants, actuarial analysts, and so on. In particular, financial analysts can presumably dissimilate and interpret more accurate, timely information to market investors, who in turn use this trusted information to participate in share markets, thus causing those rivals with more financial analyst following to exhibit high $CARs$.

This informational role played by financial analysts can be seen from another angle - namely, the investor recognition. According to Merton (1987)'s theoretical model of *Investor Recognition Hypothesis*, a higher takeover premium is expected for firms with less investor recognition, given that they are under-priced when they become targets. This is because their future prospects are more likely to be discovered and realized if they are highly recognizable. There are some studies supporting this argument, including Bodnaruk and Ostberg (2009). On the other hand, Merton (1987)'s theoretical model could imply opposite outcomes if we also take into account the situation of ac-

quirer. More specifically, if the competition amongst potential acquirers is tough, it is likely that the potential target with high investor recognition will experience a higher takeover premium. In addition, the acquirer can take from the target with less investor recognition some benefits that would have accrued to the target if the latter were more recognizable, resulting in a higher return for the acquirer and a lower premium for the target. This is because it is likely that only a small revaluation is incurred for the target with less investor recognition. Hou and Moskowitz (2005) and Fich, Juergens, and Officer (2014) support this argument. This paper employs financial analyst following as a proxy for investor recognition, consistent with Fich, Juergens, and Officer (2014). If financial analyst following is high, indicating high investor-recognition, the target takeover premium can be either high or low, which is an empirical issue that either side can be supported by *Investor Recognition Hypothesis*.

Firm uncertainty is associated with M&As in various ways, as shown in the existing literature. For example, Officer, Poulsen, and Stegemoller (2009) find that the target-valuation uncertainty influences the announcement returns of acquirers. Cooney, Moeller, and Stegemoller (2009) document that when targets are acquired for a value higher than their former one, acquirers exhibit positive announcement returns. They argue for target valuation uncertainty effect, which states that positive valuation revisions can increase target under-pricing, thus increasing acquirer gains. This is because risk-averse managers (for both the acquirer and the target) are less diversified and prefer skewness during the acquisition negotiation compared to market participants. Jindra and Moeller (2015) argue that information is important for target firm valuation precision - in particular, when valuation uncertainty and costs incurred in learning about this target are both high. Jindra, Voetmann, and Walkling (2015) find that Chinese firms listed in the U.S. are more likely to face litigation risks when they are involved in a reverse merger (versus an IPO), and they conclude that this difference can be explained by the lower monitoring (and thus scrutiny) level of the former (e.g., the relatively low regulatory oversight) at the pre-listing stage and less effective bonding (e.g. fewer financial analyst following, and higher monitoring costs) at the post-listing

stage. This shows the importance of firm-level information uncertainty in influencing acquisition outcomes. However, there is no literature yet on impact of the firm-level information uncertainty on the rivals of target firms. Financial analyst following, representing firm-level information environments, can possibly reduce firm-level information uncertainty and increase firm investor-recognition, thus increasing the probability of acquisition.

A related question is: how do the information environments increase the rival firm's probability of a takeover and/or the expected return from a takeover? Theoretically, the information environment can shape the rival responses, because it represents the regulation situation - in particular, information regulation. Gort (1969) argues that regulation shocks can cause valuation differentials among different investors, thus leading to acquisitions. Song and Walkling (2000) argue that the regulatory changes can function as external catalysts to influence the gains of competing managerial teams, thus leading to a higher probability of acquisition attempts. More importantly, the information environment can regulate the timeliness, accuracy, and penalty of information released by the firms. Given a firm involved in M&As, the firm with a tighter information regulation environment will be presumably providing more accurate and timely information; otherwise, it may face much tougher legal penalties. "Accurate and timely information" includes accounting, governance, media, and other information related to the firm's operations. Thus, we argue that the uncertainty associated with a firm is reduced when information is better regulated. As can be seen from the above argument, more transparent information environments, characterized by a higher regulation standard in terms of timeliness, accuracy and penalties, reduce the uncertainty of information released by individual firms. This should lead to a greater willingness of investors to trust information; in turn, investors will trade more confidently in the share market and monitor managers more effectively, leading to increases in their returns. This is because the rival firms with high financial analyst following are more recognizable if competition among potential acquirers is tough, and they are more likely to be acquired given their high investor recognition, according to both Song

and Walkling (2000)'s *Acquisition Probability Hypothesis* and Merton (1987)'s *Investor Recognition Hypothesis*.

2.2 Hypothesis development

The above theory can induce some testable empirical hypotheses.

2.2.1 The rival response of target firms is positive

The *Acquisition Probability Hypothesis* states that rivals exhibit positive $CARs$ because of the increased probability of becoming targets themselves in future M&As. This hypothesis is well supported by existing empirical studies. For example, Akhigbe and Madura (1999) attribute gains of rivals to the likelihood of acquisition. They find that firm and industry characteristics that are hypothesized to reflect the likelihood of a rival being acquired, such as the level of free cash flow and tangible assets, are associated with positive $CARs$. Song and Walkling (2000) further develop and test the *Acquisition Probability Hypothesis* and document empirical support. They discover that those rivals who become targets themselves in the subsequent year earn significantly larger $CARs$ at the original acquisition announcement compared with untargeted rivals, providing an important explanation for the documented cross-section variation in $CARs$ across rival firms in an industry. Fee and Thomas (2004) and Shahrur (2005) find evidence supporting Song and Walkling (2000). Otchere and Ip (2006) focus on the intra-industry effects of cross-border acquisitions. By using the sample of cross-border acquisitions of Australian firms, they find that $CARs$ of rivals during the acquisition announcement period are positively related to the likelihood of rivals being targeted for acquisition within one year. Based on the above discussion, we have proposed the following hypothesis regarding rival responses of the target firms.

Hypothesis 1 (H1): *The rivals of target firms respond positively to acquisition announcements.*

2.2.2 Financial analyst following has a positive impact on the rival responses of target firms

In general, previous literature tends to lend more support to the argument for the informational role of financial analysts. For example, the role of financial analysts as information intermediaries in capital markets is highlighted by Hong, Lim, and Stein (2000), who find that momentum strategies work better for stocks with a low level of financial analyst following. This finding suggests that analysts help to increase the rate of information diffusion to market participants. Barth and Hutton (2004) discover that firms with higher financial analyst following tend to incorporate accruals and cash flow information more quickly into their stock prices compared with firms followed by fewer analysts. Hong, Lim, and Stein (2000) highlight the impact of financial analyst following on reducing information asymmetry. By using the profitability and intensity of insider trades as information asymmetry proxies, Frankel and Li (2004) also find that firms with higher financial analyst following are associated with lower levels of information asymmetry. In addition, Bowen, Chen, and Cheng (2008) suggest that under-pricing in Seasoned Equity Offerings is also reduced for firms with higher financial analyst following.

Later studies try to divide the overall informational roles of financial analysts into two sub-categories: (a) discovering private information; and (b) interpreting public information. In the early empirical literature, the importance of financial analysts as discoverers of information is suggested. For example, Dempsey (1989) and Shores (1990) find that the information content of earnings announcements decreases with financial analyst following, which suggests that accurate analyst forecasts could pre-empt a future earnings announcement. Ayers and Freeman (2003) discover that firms with a higher financial analyst following tend to incorporate future earnings earlier than those firms with a lower financial analyst following, which also highlights the ability of analysts to pre-empt earnings news. However, later studies also highlight the role of analysts in the interpretation of information. Francis, Schipper, and Vin-

cent (2002) and Frankel, Kothari, and Weber (2006) study the information content of analysts but find that it is positively correlated with the information content of earnings announcements; this suggests that the two sources of information - analysts and earnings announcements - complement each other. After identifying the contrasting results, Chen, Cheng, and Lo (2010) find evidence that supports the roles of analysts as both discoverers and interpreters of information. In particular, information discovery dominates in the week before the earnings announcements of firms, while information interpretation is prominent in the week after the earnings announcement. Similarly, the role of analysts in both information discovery and interpretation is supported by Asquith, Mikhail, and Au (2005), who discover that nearly half of the sample reports contain new information not released previously (i.e., information discovery), while the market also reacts to reports that occur contemporaneously with other releases of information (i.e., information interpretation).

It is thus argued in this paper that better financial analyst following, representing better firm-level information environments, should lead to investors who become more confident in uncovering valuable rival firms with higher acquisition probabilities. In accordance with the *Acquisition Probability Hypothesis*, these firm-level information environments should therefore be positively correlated with the $CARs$ of rivals at the time of acquisition. This is because financial analysts act as information intermediaries who provide and interpret information, and the resultant better availability of information in terms of both quality and quantity will help reduce information asymmetry. The credibility of information will reduce uncertainty when valuing acquirers, targets and rivals. Also, the existence of timely information should affect the behavior of investors.

The existing literature also gives insights into the governance role of financial analysts. Analysts can act as external monitors through gathering of private information and interpretation of public information. For example, Chang, Dasgupta, and Hilary (2006) study the impacts of information asymmetry on security issuance and find that firms with lower financial analyst following have a lower probability of issuing equity

compared with debt, but issue equity in larger amounts. Yu (2008) investigates the role of analysts in reducing earnings management and discovers that firms covered by more analysts tend to undertake less earnings management, which indicates that analysts serve an external monitoring role. These findings are supported by Knyazeva (2007), who finds that firms with higher financial analyst following exhibit lower earnings management. Irani and Oesch (2013) find that firm disclosure is less informative for firms with lower financial analyst following. The monitoring role of the financial analysts also indicates that high financial analyst following should lead to better information quality, thus leading to significant and positive rival responses.[9] Based on the above analysis, we propose the following hypothesis:

Hypothesis 2 (H2): *Financial analyst following has a positive impact on the announcement returns of rivals to target firms.*

2.2.3 Macro information environments have a significant role in the impact of financial analyst following on the rival responses of target firms

Previous studies highlight the importance of macro corporate governance on financial markets, decision making and investments. For example, countries with strong shareholder protection are associated with a lower level of ownership concentration (La Porta, Lopez-De-Silanes, and Shleifer (1999)), higher dividend payouts, especially for low-growth firms (La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000)), and

[9]Note that some recent studies argue against this informational role. For instance, Altinkilic and Hansen (2009) investigate financial analysts' stock recommendation revisions and conclude that their recommendations are not important to assimilate information into stock prices. Altinkilic, Balashov, and Hansen (2013) document evidence based on intra-day returns, which shows that there is little information content in the announcements of analysts' forecast revisions. Kim and Song (2015) document evidence which shows that the price response to financial forecast revisions disappears once management earnings forecasts are considered, and conclude that analysts' information discovery role is not as important as documented by prior studies. Moreover, Merton (1987)'s theoretical model could imply either a positive or a negative impact. For the negative impact, Merton (1987)'s model implies that a higher takeover premium is expected for firms with less investor recognition given that they are under-priced when they become targets. This is because their future prospects are more likely to be discovered and realized if they are highly recognizable. Given that our data is daily international data, the daily data literature tends to be more relevant to our study.

lower earnings management (Leuz, Nanda, and Wysocki (2003)). La Porta, Lopez-De-Silanes, Shleifer, and Vishny (2002) find that investors are willing to pay more for financial assets (leading to higher firm values) in markets with better legal protection of minority shareholders. In addition, Leuz, Lins, and Warnock (2010) discover that foreign shareholders invest less in firms located in countries with poor outsider protection and disclosure, especially when earnings are opaque.

Further, the quality of macro information environments has impacts on stock market development. For example, countries with better legal environments are associated with larger and broader equity and debt markets (La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997)). La Porta, Lopez-De-Silanes, and Shleifer (2006) examine the effects of securities laws on stock market development. They find that the development of financial markets is strongly correlated with disclosure requirements and liability standards. Macro information environments can also impact on investment decisions. For example, Gelos and Wei (2005) examine the impact of country transparency - namely, government and corporate transparency - on international portfolio investment. They find that both government and corporate transparency positively impact on investment flows from international funds into a particular country.

Previous studies also highlight the importance of macro information environments on M&A activity. Rossi and Volpin (2004) find that the volume of M&A activity is greater in countries with stronger shareholder protection. Also, the higher the level of investor protection, the lower is the likelihood of an all-cash bid and the higher is the probability of a hostile takeover. Similarly, using a sample of cross-border mergers, Bris and Cabolis (2008) discover that the merger premium is higher for those M&As where shareholder protection and accounting standards in the acquirer's country are stronger. Furthermore, Acemoglu, Johnson, and Mitton (2009) find that vertical integration is more prevalent in countries with both greater financial development and greater contracting costs. Moreover, regulation shocks, including the shocks in information environments in particular, can shape the rival responses of the target firms. Gort (1969) argues that regulation shocks can cause valuation differentials among different

investors, thus leading to acquisitions. Song and Walkling (2000) argue that the regulatory changes can function as external catalysts to influence the gains of competing managerial teams, thus leading to a higher probability of acquisition attempts.

Given the significance of macro information environments, it is important to explore their impacts on rival responses to M&A announcements. Thus, this paper fills in the literature gap by exploring the importance of macro information environments in predicting rival firm announcement $CARs$. In countries with more transparent information environments, the information released would be more reliable and thus the likelihood of an acquisition would be higher due to more accurate valuations of firm characteristics.

Finally, are there any links between firm- and country-level information environments? In other words, are they complementing or substituting for each other? Prior literature has contrasting results. For example, Li, Nguyen, Pham, and Wei (2011) document that the risk reduction role of foreign institutional investors in reducing emerging market firm-level volatility is more pronounced in countries with better macro corporate governance. He, Li, Shen, and Zhang (2013) discover that the effect of large foreign ownership (LFO) on stock price informativeness is stronger in markets with better corporate governance environments, and conclude that LFO and the macro corporate governance environments are complementary. Sun (2009), meanwhile, finds that financial analyst following is more negatively correlated with earnings management in countries with weaker investor protection. This finding infers that financial analyst following and the macro corporate governance are substitutes.

This paper attempts to shed additional light on this issue by exploring the relationship between the firm- and country-level information environments in explaining the rival firm announcement $CARs$. Prior literature suggests that financial analysts are more important in countries with stronger information environments. For example, Hope (2003) finds that the predictions of analysts are more accurate in countries with better information environments, as measured through the disclosure of accounting information and enforcement of accounting standards. This is consistent with Change,

Khanna, and Palepu. (2001), who find that financial analyst following and the accuracy of analyst forecasts are higher in countries with high accounting disclosure. Along a similar line, this paper hypothesizes that in countries with good information environments, the role played by financial analysts in information discovery is more pronounced. Therefore, the announcement $CARs$ of rivals to targets in M&A events should be reshaped by the quality of macro information environments. Our hypothesis 3 is as follows.

Hypothesis 3 (H3): *The impact of financial analyst following on the announcement returns of rival firms is influenced by the quality of macro corporate-governance environments. That is, it is valid (or pronounced) in countries with more transparent information environments.*

3 Empirical Design

3.1 Empirical model

Empirical M&A research suggests that the announcement returns of acquirers and target firms are a function of various firm-, industry-, and deal-level characteristics. In this paper, we focus on the impact of financial analyst following on the $CARs$ of rival firms at the time of initial-industry acquisition. In addition, we examine whether this relation is valid in transparent (opaque) macro information environments. In particular, we regress rival firms' $CARs$ on financial analyst following and examine this relation in the transparent (opaque) macro information-environments subsample. Our empirical model is given as follows,

$$CARs_{i,t} = \alpha + \beta_1 Analyst_{i,t-1} + \boldsymbol{\beta}_2 \mathbf{X}_{i,t-1} + y + i + e_{i,t}, \tag{1}$$

where a firm is indexed by i, and time by t. We use cumulative abnormal returns over a 3-day period ($CAR(-1,+1)$) as the dependent variable. Financial analyst following (*Analyst*) is used to measure the firm-level information environments of rival firms. It is calculated as the natural logarithm of the number of analysts.[10] $\mathbf{X}_{i,t}$ is a vector of various control variables, including Sale Growth (*Growth*), Firm Size (*Size*), Tobin's Q (Q), Leverage Ratio (*Leverage*), Earnings Management (EM_P), Close Held Ownership (*Close*), Foreign Institutional Ownership (FIO), Domestic Institutional Ownership (DIO), Horizontal M&A Dummy (*Horizontal*), Herfindahl index (*Herfindahl*), Dormant Period (*Dormant*), Cross-border M&A Dummy (*Cross*), and GDP per capita ($GDPC$).[11] Following Song and Walkling (2000), control variables used in our regressions are a set of firm-, industry-level characteristics associated with the probability of acquisitions. In addition, we control for firms' earnings management,[12] cross-border M&A dummy, and GDP per capita. It is well documented in the literature that the acquisition probability during merger waves is likely to be higher (Matthew and Viswanathan (2004) and Harford (2005)). Thus one would expect that rival firms are likely to have positive $CARs$ in the years of merger waves. We include year-fixed effect t in equation (1) to control for the time impact. In addition, to capture the unobservable heterogeneity across industry, we also control for industry-fixed effect i in equation (1). Standard errors are robust to heteroskedasticity in all regressions.[13]

[10]The results are similar if we define *Analyst* as the number of analysts, without taking the natural logarithm.

[11]Variable definitions are summarized in Appendix A.

[12]Managers tend to overstate earnings in order to meet earnings targets (Burgstahler and Dichev (1997) and Leuz, Nanda, and Wysocki (2003)). Thus firms' earnings management activities reduce information quality, and impact their probability of acquisitions and announcement returns.

[13]The results are similar if standard errors are robust to clustering within industry. Observations of rival firms related to the same industry bid would appear to have a higher level of correlation than observations in the same industry related to different bids. We thank the referee for this helpful point.

3.2 Calculating the cumulative abnormal returns

Following existing literature, the $CARs$ of rival firms are calculated by using standard market model as follows,

$$R_{i,t} = \alpha + \beta R_{m,t} + e_{i,t}, \tag{2}$$

where $R_{i,t}$ is daily return of rival i at day t and $R_{m,t}$ is daily market return at day t. Datastream's return index and total market index (Datastream mnemonic: RI and $TOTMK$) are used to calculate firm and market daily returns. We screen and correct RI according to Ince and Porter (2006) and Lee (2011).[14] The parameters of market model (i.e., α and β) are estimated by using a 240-trading-day estimation window covering the period from $t-300$ to $t-61$. Day t is the announcement date of initial-industry acquisition. A minimum of 100-trading-day returns are required in order to have sufficient data to reliably implement the market model. The daily abnormal returns are calculated as the difference between expected and realized daily returns of the firms. Finally, $CAR(-1,+1)$ is calculated as the sum of daily abnormal returns over a 3-day period around the announcement date of initial-industry acquisition.

3.3 Financial analyst following

Financial analyst following is used as a proxy for firm-level information environments, given its role as an information intermediary through the provision of private information and interpretation of public information (Chen, Cheng, and Lo (2010)). *Analyst*

[14]Datastream reports the last valid RI data point after the stock is suspended or delisted (e.g., firm A is delisted on January 1, 2000, where RI=56. Datastream will continue to report firm A's RI=56 after January 1, 2000). We download the return index by using mnemonic $RI\#S$ to remove padded values. In addition, we set RI to be missing if it is less than 0.01 as Datastream rounds RI to the nearest tenth, which could exaggerate the proportion of zero-return. Further, we delete the observation if $R_{i,t}$ is above 100% and reverses within one day. In particular, if $R_{i,t}$ or $R_{i,t-1}$ is greater than 100% and $(1+R_{i,t})(1+R_{i,t-1})-1 \leq 50\%$, then $R_{i,t}$ and $R_{i,t-1}$ are set to be missing. In addition, we truncate the absolute value of $R_{i,t}$ at 0.5 for unusual large daily returns.

is calculated as the natural logarithm of number of financial analysts who issue forecasts of next fiscal year's earnings per share for a firm during current fiscal year. A firm with a greater level of financial analyst following would suggest a higher level of credibility in information released. Further, the reports of analysts would provide a greater level of information available to investors, leading to greater information diffusion and availability. Thus a higher level of financial analyst following would suggest better firm-specific information environments. As outlined in **H2**, it is predicted that the announcement returns of rival firms increase in financial analyst following.

3.4 Macro information environments

As stated in **H3**, it is predicted that the positive relationship between rival firms' $CARs$ and financial analyst following is valid in transparent information environments, but not in opaque information environments. Thus in line with **H3**, it is predicted that the coefficients of *Analyst* are positively related to rival firms's $CARs$ in the transparent information-environments subsamples. This subsection discusses the various proxies used to measure macro information environments. For all proxies, a higher score is related to more transparent information environments. The values of information-environments variables for each country are reported in Appendix B.

We obtain Accounting Standards Index (*AccStd*), Auditing Standard Index (*Audit*), and Media Development Index (*Media*) from Bushman, Piotroski, and Smith (2004). *AccStd* is created by examining 1995 annual reports of firms in the country, on the basis of inclusion or omission of 90 financial statement items. It is a reasonable measure for information availability, as the greater the number of items that are disclosed in annual reports, the greater the amount of information available to market participants. *Audit* is based on the percentage of firms in the country audited by big-five accounting firms, which is used as an indication of superior audit quality. Thus countries with higher values of *Audit* are inferred as having better credibility of financial accounting disclosures. *Media* is used to gauge the quality of information diffusion of a country.

It is defined as the average rank of the country's number of newspapers and televisions per capita between 1993 and 1995 as reported by World Development Indicators. It is a rational measure for information dissemination, as countries with more developed media networks should have increased rates of information diffusion. Therefore, higher values of *Media* indicate superior information transmission in a country.

Economic and Institutional Transparency Index (*ITindex*), Political Transparency Index (*PTindex*), and Overall Transparency Index (OTindex) are sourced from Kaufmann and Bellver (2005). *ITindex* measures the availability and usefulness of information from public institutions, *PTindex* measures the degree of political transparency, and *OTindex* is the average score of *ITindex* and *PTindex*.

Private TV Ownership (*PTV (C)* and *PTV (S)*) are obtained from Djankov, McLiesh, Nenova, and Shleifer (2003). *PTV (C)* (*PTV (S)*) measures the percentage (market share) of private television stations out of the (total market share of) five largest television stations, according to viewership. Houston, Lin, and Ma (2011) find that media state ownership is correlated with increased levels of corruption in bank lending. Djankov, McLiesh, Nenova, and Shleifer (2003) suggest that state media ownership is associated with less free press, inferior governance, and less developed capital markets. Thus a higher state media ownership (lower private media ownership) is associated with a lower level of information credibility. That is, countries with a higher level of private TV ownership should have more accurate information than those with a higher level of state TV ownership.

Liability Standard Index (*LiaSta*) is sourced from La Porta, Lopez-De-Silanes, and Shleifer (2006) and measures the procedural difficulty in recovering losses from the issuer, distributors, and accountants. A higher value indicates stricter regulation enforcement. It is used as a proxy for information credibility, as stricter regulation enforcement is likely to discourage information fraud and thus lead to more reliable information.

4 Data and Sample

We collect analyst data from I/B/E/S, stock return and trading volume from Datastream, firm-level accounting data from Worldscope, and institutional ownership data from Factset. GDP per capita of each country is obtained from World Development Indicators.[15] Macro information-environments variables are extracted from Djankov, McLiesh, Nenova, and Shleifer (2003), Bushman, Piotroski, and Smith (2004), Kaufmann and Bellver (2005), and La Porta, Lopez-De-Silanes, and Shleifer (2006).

We collect the acquisition information of each firm from Securities Data Corporation (SDC) Platinum Mergers and Acquisitions database. Our initial sample includes the deals if, (1) the deal value is more than 0.5 million U.S. dollar; (2) the transfer of ownership is more than 10% of the target firm; (3) neither the acquirer nor the target firm is a financial or utility firm (i.e., Standard Industrial Classification (SIC) codes 6000-6999 and 4800-4999); and (4) the announcement date is between January 1, 1989 and December 31, 2013.[16]

Song and Walkling (2000) define *dormant period* as the number of months since a previous acquisition announcement in the same industry, which indicates the degree of surprise about acquisition in the industry. *Initial-industry target* (IIT) is defined as the first firm to have M&A activity in an industry after at least a 12-month dormant period without M&A activity. *Rivals* are the firms in the same two-digit SIC code to IIT.

We use two-digit SIC code to identify rival firms for each IIT, since SDC Platinum provides good international SIC code coverage.[17] It allows us to obtain a comprehen-

[15] GDP per capita of Taiwan is collected from the official websites of National Statistic of Taiwan.

[16] The sample starts from 1989, since accounting data is not available prior to 1989 in Worldscope.

[17] According to the Worldscope manual:"SIC codes were developed by the U.S. government to provide a standard industry classification that covers all the economic activities of the United States. They are derived from the 1987 edition of the Standard Industrial Classification Manual compiled by the Executive Office of the President of the United States, Office of Management and Budget. These SIC codes are assigned to both the U.S. and non-U.S. companies according to the type of business in which they are engaged. A company may have up to eight SIC codes assigned to it or as little as one depending on the number of business segments that make up the company's revenue. If a sales breakdown for segments is available SIC Code 1 would represent the business segment which provided the most revenue. SIC Code 8 would represent the segment that provided the least revenue. If a sales

sive international sample with more firms from countries other than the U.S. and the U.K.. International M&A studies tend to use SIC code to obtain the largest possible sample.[18] As a robustness check, we also employ the Industry Classification Benchmark (ICB) industry classification obtained from Datastream. The results are qualitatively unchanged.

Following Song and Walkling (2000), we identify a sample of IIT, and extract the rival firms for each IIT. In addition, observations with missing information for baseline regression are excluded from the sample. Firm-level accounting variables are winsorized at the top and bottom 1% levels to remove the potential data errors and outliers. Finally, we identify 2672 IITs in the sample which correspond to 12,238 rival-year observations across 35 countries.

Table 1 presents the sample distribution of IITs by year. Columns 1 and 2 report the number of IITs for each year and their weights in percentage out of the full sample. We identify 2672 IITs between 1989 and 2013. In general, fewer IITs are identified in earlier years (i.e., 1989 - 1995) due to poorer data availability, compared to later years (i.e., 1996 - 2013). The distribution of IITs is fairly uniform after 1998.

[Insert Table 1]

Table 2 presents the sample distribution by country. Column 1 shows that there are more IITs identified in developed countries compared to those in developing countries. For example, the U.S. and the U.K. contribute 201 and 261 IITs to the sample, respectively. As shown in Column 2, the weight of IITs ranges from 0.49% in the Philippines to 9.77% in the U.K.. Columns 4 and 5 presents the total value of IITs for each country and their weights in percentage out of the full sample. In particular, the total deal value (weight) is smallest in the Philippines ($1443.04 million (0.12%)) and largest in the U.S. ($189,517.56 million (15.48%)). The dormant period is at least 12 months by design. As shown in Column 6, the mean of country average dormant

breakdown is not available the SIC Code is assigned according to the best judgment of Worldscope."

[18]See Rossi and Volpin (2004), Chan and Hameed (2006), and Ahern, Daminelli, and Fracassi (2012), amongst others.

period is 37.35 months. Columns 9 - 11 report the statistics of the number of rival firms for each country. The average number of rival firms ranges from 1.24 in New Zealand to 10.65 in Japan.

[Insert Table 2]

Panel A of Table 3 reports the descriptive statistics of firm-, industry-, deal-, and country-level variables for the 12,238 rival-year observations. The mean of rival firms' $CAR(-1,+1)$ is 0.03%, indicating that the rival firms of IITs earn positive returns around the initial-industry acquisition. This confirms **H1** - namely, the rivals of target firms respond positively to acquisition announcements. The mean of *Analyst* (i.e., natural logarithm of the number of analysts) is 1.52, which corresponds to 4.57 analysts. The descriptive statistics of other variables in Panel A resemble those used in the literature. The ownership variables ($Close, FIO$, and DIO) are not well covered in our sample.[19] Thus we first examine our regressions without controlling for ownership variables; we then repeat the regressions by including the ownership variables in a smaller sample. Panel B of Table 3 describes the statistics of macro information-environments and corporate-governance variables. Our macro variables are available in most of the sample countries.

[Insert Table 3]

5 Empirical Results

This section discusses the empirical results in examining how announcement returns of rival firms are affected by financial analyst following at the time of initial-industry acquisition in an international context, and how this relationship differs in countries with transparent and opaque information environments.

[19] In particular, FIO and DIO are available from 2000 in Factset.

5.1 The impact of financial analyst following on the announcement returns of rival firms

This subsection discusses the role of firm-level information environments in determining rival firms' 3-day cumulative abnormal returns, $CAR(-1,+1)$. *Analyst* is used as a proxy for firm-level information environments. In particular, we regress rival firms' *CARs* on *Analyst* and various firm-, industry-, deal-, and country-level variables associated with the probability of acquisition. Column 1 of Table 4 shows that *Analyst* is significantly positively related to rival firms' *CARs* by taking into account year-fixed effect. Specifically, the coefficient estimate (t-statistic) of *Analyst* is 0.0013 (2.2384). The result is not only statistically, but also economically significant. In particular, one standard deviation increase in *Analyst* leads to an increase of about 0.14% ($= 1.04 \times 0.0013$) in rival firms' *CARs*, where 1.04 is the sample standard deviation of *Analyst*. The results are unchanged by controlling for industry-fixed effect (Column 2) and both year- and industry-fixed effects (Column 3). As shown in Columns 4 - 6, the sample size drops from 12,238 to 6,923 observations by controlling for additional ownership variables. Regardless of the drop in sample size, *Analyst* is still significantly positively related to rival firms' *CARs*. These results are in support of **H2**, which proposes that rival firms with stronger firm-level information environments experience higher *CARs* at the time of initial-industry acquisition. Rival firms with better firm-level information environments have more accurate information, which increases the confidence of investors when assessing the acquisition likelihood of rival firms.

[Insert Table 4]

Table 4 also shows that *Size* is negatively correlated to rival firms' *CARs*. The results support prior literature (Mikkelson and Partch (1989), Palepu (1986), and Song and Walkling (1993)), which find larger firms have lower probabilities of acquisition due to size-related acquisition costs (i.e., from the absorption of the target firm into the acquirer and resistance from the target firm). Suggested by *Acquisition Probability*

Hypothesis, the lower acquisition probabilities of large firms in turn reduce their announcement returns. The results are also analogous to those of Akhigbe and Madura (1999), which discover a negative correlation but use industry rival portfolios rather than individual rival firms in their regressions. Consistent with Song and Walkling (2000), we find *Dormant* is significantly positively related to rival firms' $CARs$. It indicates that the higher the degree of surprise of initial-industry acquisition, the larger the announcement returns for rival firms. In addition, *Herfindahl* is significantly positively related to rival firms' $CARs$ in Columns 1 - 3, which suggests that higher announcement returns are earned in more concentrated industries.

According to the *Acquisition Probability Hypothesis*, as a proxy for firm-level information environments, financial analyst following increases the likelihood of acquisition, thus firms' announcement returns. We further examine the possible driving factors of the above relationship. Given the monitoring role of financial analysts, we expect that a higher financial analyst following reduces firms' earnings management activities. Thus it improves firm-level information environments. We regress earnings management (P_EM) on *Analyst* to see whether the results are consistent with our expectation. In particular, Columns 1 - 3 of Table 5 show that *Analyst* significantly reduces firms' earnings management activities. In addition, we expect that a higher financial analyst following increases the financial market trading activities, thus impacting on their announcement returns. We construct a trading volume variable ($Volume$) that is equal to the natural logarithm of average monthly trading volume of the year, and regress $Volume$ on *Analyst* and various control variables. Columns 4 - 6 of Table 5 show that *Analyst* is significantly positively related to $Volume$. In sum, the results show that financial analyst following impacts on announcement returns through its deterring impact on earnings management and increasing impact on trading volume.

5.2 Endogeniety

The endogeneity concern in our model may arise since it is unclear whether the causality is from financial analyst following to rival firms' $CARs$ or the other way around. To address the endogeneity and reverse causality problems, we employ a two-stage least-squares approach by using the exogenous decrease in financial analyst following (i.e., brokerage closures and merges) as an instrumental variable. Following the existing literature, we identify two exogenous shocks that trigger the decreases in financial analyst following.[20] The first exogenous shock is brokerage closures (Kelly and Ljungqvist (2012)). It is an ideal source of exogenous decreases in financial analyst following, as brokerage closure is based on its business strategy considerations and is not impacted by the characteristics of covering firms. The second exogenous decrease in financial analyst following is brokerage mergers (Hong and Kacperczyk (2010)). If both the acquirer and target brokerage firms cover the same firm before merger, the combined brokerage firm typically fires the redundant analyst (i.e., usually the analyst from the target firm) (Wu and Zang (2009)). Thus brokerage mergers also provide exogenous decreases in financial analyst following. As shown in Appendix **??**, we identify 165 exogenous decrease in financial analyst following events globally, including 58 brokerage closures and 107 brokerage mergers.[21] After merging with financial data, we create a brokerage-exit dummy ($Exit$) that is equal to 1 if the brokerage firm experiences a closure or merger within one year prior to initial-industry acquisitions, and 0 otherwise. Then, we regress $Analyst$ on $Exit$ and various control variables for each country, and extract its fitted value as predicted analyst following ($Predicted\_Analyst$).[22] Next, we

[20]By using the exogenous shock(s) in analyst, Hong and Kacperczyk (2010) investigate reporting bias, Kelly and Ljungqvist (2012) test the asymmetric-information asset pricing models, Irani and Oesch (2013) investigate financial reporting quality, He and Tian (2013) examine innovation, Fich, Juergens, and Officer (2014) investigate acquisition returns, Fong, Hong, Kacperczyk, and Kubik (2014) examines credit ratings, and Chen, Harford, and Lin (2015) confirm the governance role of financial analysts.

[21]Since the brokerage information is limited in I/B/E/S before 2000, especially for the non-U.S. brokerage firms, we identify the brokerage closures and merges from 2000 (Kelly and Ljungqvist (2012) and Chen, Harford, and Lin (2015)).

[22]Our approach is similar to Fich, Juergens, and Officer (2014).

examine the impact of *Predicted_Analyst* on rival firms' *CARs*.

Table 6 shows that *Predicted_Analyst* is significantly positively related to rival firms' *CARs*. Specifically, the coefficient estimate (t-statistic) of *Predicted_Analyst* is 0.0022 (2.0293) in Column 3. That is, a one-unit increase in *Predicted_Analyst* leads to an increase of about 0.22% (= 1 × 0.0022) in rival firms' *CARs*. The results confirm our previous finding in supporting **H2**. That is, by employing the exogenous decrease to financial analyst following as an instrumental variable, our results show that a higher financial analyst following increases the announcement returns of rival firms.

[Insert Table 6]

Second, as shown in Section 6.1, the exclusion of the U.S. (and the U.K.) acquisitions does not change our main conclusion. Because the full sample and subsample exhibit the same significant causality relationship, it is harder to argue that the reverse causality is valid in the full sample, while the subsample is still valid in the original causality. Third, a comprehensive set of control variables is employed to take into account as many factors influencing rival firms' *CARs* as possible. In particular, the dormant period based on initial-industry acquisition is included as an additional control variable. This should be able to take into account sufficiently the endogenous issues of *CARs*. For example, if one suspects the rival firms' *CARs* and financial analyst following are both high in large firms because large firms attract more attention from financial analysts, the inclusion of the variable *Size* should mitigate this worry. By the same token, the employment of year- and industry-fixed effects should mitigate similar concerns regarding time and industry characteristics. Finally, we use the one-year lag of the analyst-following variable in our regressions. It is harder to argue that the current *CAR* causes the past financial analyst following. Despite all our above efforts, we still acknowledge that endogeneity is a potential issue in this study. However, the fact that after we have addressed this issue carefully the results still remain valid gives us confidence that our main conclusion is not seriously discredited and/or denied by the

endogeneity issue.

5.3 Rival firms subsequently become targets

At the time of initial-industry acquisition, there are no M&A activities for at least 12 months for all firms in the industry, including IIT and its rival firms. After the initial-industry acquisition, some rival firms subsequently become targets. This subsection examines whether these firms earn higher announcement returns at the time of initial-industry acquisition. We construct a dummy variable, RBT ($RBT1yr$) that is equal to 1 if the rival firm subsequently becomes a target (within one year), and 0 otherwise. Then, we regress rival firms' $CARs$ on RBT ($RBT1yr$) and various control variables. Column 1 of Table 7 shows that RBT is significantly positively related to rival firms' $CARs$. Specifically, the coefficient estimate (t-statistic) of RBT is 0.0017 (1.6494). It indicates that, at the time of initial-industry acquisition, the rival firms subsequently that become targets earn 0.17% higher returns than those rival firms that do not. In addition, Column 4 of Table 7 shows that $RBT1yr$ is positively significant at the 10% level. It indicates that rival firms which subsequently become targets within one year earn 0.72% higher returns compared to other rival firms.

[Insert Table 7]

Next, we examine the impact of predicted probability that rival firms subsequently become targets ($Predicted\_RBT$) on rival firms' $CARs$. To obtain $Predicted\_RBT$, we regress RBT (in logistic regressions) on its determinants for each country, and extract its fitted value as $Predicted\_RBT$. Columns 1 - 2 of Table 8 show that $Predicted\_RBT$ is significantly positively related to rival firms' $CARs$ at the 5% level. Specifically, the coefficient estimates (t-statistics) of $Predicted\_RBT$ are 0.0017 (2.4516) and 0.0014 (2.0062) in Columns 1 and 2, respectively. The results show that $Predicted\_RBT$ is not significant in Columns 4-6 once we control for $Analyst$. It implies that financial analyst following is so influential that it can absorb the information contents of the predictability of whether the rival firms subsequently become targets. In sum, the

results indicate that the higher probability that rival firms subsequently become targets, the higher the announcement returns for rival firms at the time of initial-industry acquisition.

[Insert Table 8]

5.4 Transparent and opaque information environments

H3 implies that the positive impact of financial analyst following on rival firms' $CARs$ may depend upon macro information environments. We split our sample into the subsamples according to whether a particular information-environments variable discussed in Section 3.4 is above or below its median value. Then, we examine the effect of financial analyst following on rival firms' $CARs$ in the transparent and opaque information-environments subsamples, respectively.

Panel A of Table 9 shows that *Analyst* is significantly positively related to rival firms' $CARs$ in the transparent information-environments subsample. This positive relationship disappears in Panel B, which includes all rival firms in the opaque information-environments subsample. For instance, the coefficient estimates (t-statistics) of *Analyst* are 0.0020 (1.7579) and 0.0005 (0.3611) in Column 1 of Panels A and B, respectively. It indicates that, for the rival firms that are located in countries with above-median *AccStd*, one standard deviation increase in *Analyst* leads to an increase of about 0.20% ($= 1.04 \times 0.0020$) in rival firms' $CARs$. However, this relationship is not valid for the rival firms that are located in countries with below-median *AccStd*. The results are similar in Columns 2 - 9, which employ alternative information-environment variables. In sum, the positive relation between *Analyst* and rival firms' $CARs$ is (not) valid in the transparent (opaque) information-environments subsample.

[Insert Table 9]

6 Robustness Tests

6.1 Exclude the U.S. (and the U.K.) firms

As highlighted in Table 2, there are more IITs identified in developed countries than developing countries. Similar to other international studies, the U.S. contributes a large portion of observations (i.e., 201 (7.52%)) to the sample. It is possible that the results are driven by these U.S. IITs. Thus we re-estimate the regressions in Tables 4 and 9 with a subsample that excludes the U.S. IITs. The results are presented in Tables 10 and 11. In particular, the coefficient estimates of *Analyst* remain positive and significant in Table 10, which supports the main results. The results highlight the importance of financial analyst following as a measure of firm-level information environments in explaining rival firms' $CARs$. In addition, as shown in Table 11, *Analyst* is significantly positively related to rival firms' $CARs$ in the transparent information-environments subsample, but insignificant in the opaque information-environments subsample.

In addition, the U.K. also contributes a large portion of observations (i.e., 261 (9.77%)) IITs to the sample. In the untabulated results, we estimate the regressions with a subsample that excludes the rivals from both the U.S. and the U.K.. The results are qualitatively unchanged.

[Insert Table 10]

[Insert Table 11]

6.2 Alternative macro variables

As an extension, this paper also considers the use of alternative macro variables. Measures of various macro corporate-governance variables ($LegCom$, $AntiSelf$, $Market$, and $FERC$) are considered to ascertain if the results continue to hold. $LegCom$ is a dummy variable that is equal to 1 if a country adopts a common law legal system, and 0 otherwise. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) suggest that

common law countries provide the strongest legal protections of investors. $AntiSelf$ is obtained from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008), and measures the legal protection of minority shareholders against self-dealing, or expropriation by corporate insiders. $Market$ and $FERC$ are measures of market efficiency sourced from Watanabe, Xu, Yao, and Yu (2013). $Market$ is calculated as the sum of cross country rankings on the following variables: ratio of stock market capitalization to the Gross Domestic Product, the number of publicly-listed companies divided by the population, and the number of initial public offerings which is also scaled by the population. $FERC$ is calculated as the mean of the future earnings response coefficient across all firms in a country. For both measures, a higher score signifies a more efficient market.

We split our samples into the good and bad corporate governance subsamples according to whether a particular macro variable is above or below its median value. In Panel A of Table 12, Columns 2 and 4 show that *Analyst* is significantly positively related to the rival firms' $CARs$ in the subsample with good corporate-governance environments. It indicates that the positive relationship between *Analyst* and rival firms' $CARs$ is held for firms located in the countries with a higher degree of anti self-dealing and market efficiency. Consistent with Section 5.4, *Analyst* is insignificant in Panel B, which includes all firms in the bad corporate-governance subsample.

[Insert Table 12]

7 Conclusion

This paper sheds light on the announcement returns of rival firms by employing an international sample of 2672 IITs (corresponding to 12,238 rival-year observations) across 35 countries from 1989 to 2013. In general, the empirical results confirm those from previous studies in the U.S.. More importantly, we find that financial analyst following, which the existing literature has not examined but which is the focus of this paper, is positively related to the announcement returns of rival firms. This finding suggests that investors rely on more accurate and timely information. In addition,

this paper has identified two channels through which financial analyst following can influence rival firms' $CARs$ - namely, (a) reduced earnings management, and (b) increased trading volume. Furthermore, empirical results show that those rival firms with a higher probability of becoming a target subsequently, or which in fact have become a target subsequently, exhibit higher abnormal returns at the time of initial-industry acquisition, compared to the other rival firms. In addition, the above positive relationship is only valid (invalid) in countries with transparent (opaque) information environments. Overall, the findings support the *Acquisition Probability Hypothesis*.

In conducting empirical testing, this paper carefully addresses the endogeneity issues in the following ways. First, following the existing literature, two exogenous shocks - namely, brokerage closures and brokerage mergers - that lead to a decrease in financial analyst following are identified and used as instrumental variables to try to solve the endogeneity problem using a two-stage least-squares approach. Second, we exclude the U.S. (and the U.K.) rival firms. Third, a comprehensive set of control variables is employed to take into account as many factors that influence rival $CARs$ as possible. Fourth, we use lagged financial analyst following. All the empirical results from the above four approaches confirm our main conclusions. Despite all our efforts in this regard, we still acknowledge that endogeneity is a potential issue in this study. However, the fact that, after we have addressed this issue carefully, the results still remain valid gives us confidence that our main conclusion is not seriously discredited and/or denied by the endogeneity issue.

There are policy implications. For example, the information produced by financial analysts is useful in identifying the most likely target in the future; therefore, financial analyst following should be encouraged for the whole market. Some further studies will be needed in the future. For instance, if data is available, it is interesting to know whether the rivals $CARs$ are related to managers' turnover.

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Table 1: **The sample (by year)**: This table reports the number of initial-industry target (IIT) firms for each year between 1989 and 2013. An IIT is defined as the first firm to have M&A activity in an industry after at least 12-month dormant period without M&A activity.

Year	N.O. of IITs [1]	Percentage [2]
1989	22	0.82%
1990	25	0.94%
1991	45	1.68%
1992	51	1.91%
1993	60	2.25%
1994	71	2.66%
1995	65	2.43%
1996	94	3.52%
1997	93	3.48%
1998	74	2.77%
1999	117	4.38%
2000	100	3.74%
2001	114	4.27%
2002	125	4.68%
2003	134	5.01%
2004	125	4.68%
2005	148	5.54%
2006	161	6.03%
2007	139	5.20%
2008	141	5.28%
2009	158	5.91%
2010	150	5.61%
2011	153	5.73%
2012	151	5.65%
2013	156	5.84%
Mean	106.88	4.00%
Median	117	4.38%
Std. Dev.	44.21	0.02
Min.	22	0.82%
Max.	161	6.03%
Total	2,672	100.00%

Table 2: **The sample (by country)**: This table reports the number of initial-industry target (IIT) firms, the average and total deal value, and the average, minimal, and maximal of dormant period and number of rival firms for each country.

Market	N.O. of IITs	Percentage	Deal value (million U.S. dollar)			Dormant period (month)			N.O. of rival firms		
			Mean	Total	Percentage	Mean	Min.	Max.	Mean	Min.	Max.
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Australia	146	5.46%	351.13	51,265.38	4.19%	31.45	12.07	177.60	2.63	1	22
Belgium	29	1.09%	325.08	9,427.41	0.77%	48.06	12.66	154.13	3.58	1	9
Brazil	22	0.82%	529.21	11,642.72	0.95%	33.02	12.33	104.65	1.52	1	4
Canada	154	5.76%	362.33	55,798.93	4.56%	28.31	12.03	129.96	3.68	1	14
China	59	2.21%	242.07	14,282.21	1.17%	29.04	12.20	116.45	6.64	1	35
Denmark	38	1.42%	452.57	17,197.72	1.40%	40.59	12.07	134.83	3.00	1	19
Ireland	28	1.05%	161.56	4,523.77	0.37%	54.30	12.85	246.71	1.74	1	4
Finland	47	1.76%	324.12	15,233.51	1.24%	42.94	12.16	152.12	3.79	1	12
France	180	6.74%	855.50	153,989.27	12.58%	31.70	12.10	183.35	4.89	1	20
Germany	130	4.87%	496.89	64,595.5	5.28%	36.66	12.07	186.64	5.50	1	26
Greece	25	0.94%	149.70	3,742.51	0.31%	42.97	12.89	125.39	2.36	1	4
Hong Kong	112	4.19%	101.90	11,412.66	0.93%	28.59	12.03	92.25	3.76	1	19
Indonesia	38	1.42%	298.66	11,349.23	0.93%	44.18	12.16	157.18	2.45	1	9
India	63	2.36%	67.58	4,257.78	0.35%	28.93	12.26	76.96	5.11	1	31
Israel	23	0.86%	176.85	4,067.5	0.33%	37.95	12.72	170.10	2.61	1	7
Italy	91	3.41%	311.67	28,361.91	2.32%	37.20	12.10	268.96	4.86	1	18
Japan	118	4.42%	220.85	26,060.83	2.13%	27.88	12.13	123.55	10.65	1	61
South Korea	65	2.43%	223.29	14,513.71	1.19%	31.98	12.10	128.25	4.05	1	18
Malaysia	113	4.23%	198.52	22,432.39	1.83%	34.63	12.26	167.74	3.52	1	13
Netherlands	92	3.44%	971.88	89,412.56	7.30%	42.75	12.10	165.93	3.77	1	15
Norway	57	2.13%	210.73	12,011.69	0.98%	34.09	12.16	102.90	2.53	1	8
New Zealand	27	1.01%	56.24	1,518.42	0.12%	42.82	12.89	147.98	1.24	1	2
Poland	37	1.38%	60.06	2,222.2	0.18%	46.37	12.07	156.76	2.63	1	8
Philippines	13	0.49%	111.00	1,443.04	0.12%	36.67	17.75	128.22	1.85	1	4
Russian	14	0.52%	846.35	11,848.91	0.97%	36.42	12.76	117.90	2.21	1	8
South Africa	81	3.03%	294.42	23,848.36	1.95%	41.51	12.03	176.28	2.66	1	15
Singapore	83	3.11%	103.03	8,551.15	0.70%	28.37	12.13	196.41	3.08	1	8
Spain	52	1.95%	743.98	38,687.11	3.16%	36.93	12.46	176.84	3.49	1	13
Sweden	101	3.78%	537.04	54,241.35	4.43%	34.17	12.10	209.29	3.78	1	11
Switzerland	54	2.02%	1464.27	79,070.38	6.46%	46.82	12.13	165.44	7.28	1	26
Thailand	60	2.25%	54.58	3,274.93	0.27%	33.42	12.66	119.21	2.68	1	11
Turkey	31	1.16%	353.49	10,958.16	0.90%	58.50	13.25	196.41	3.48	1	12
Taiwan	27	1.01%	147.98	3,995.47	0.33%	46.62	12.49	133.78	7.35	1	28
United Kingdom	261	9.77%	649.09	169,412.17	13.84%	27.67	12.03	177.70	7.75	1	39
United States	201	7.52%	942.87	189,517.56	15.48%	23.80	12.13	111.81	9.60	1	39
Mean	76.34	2.86%	382.76	34,976.24	2.86%	37.35	12.47	153.71	4.05	1	16.91
Median	59	2.21%	298.66	14,282.21	1.17%	36.66	12.16	154.13	3.52	1	13
Std. Dev.	58.20	0.02	322.99	48,104.53	0.04	8.06	0.97	41.38	2.23	0	12.57
Min.	13	0.49%	54.58	1,443.04	0.12%	23.80			1.24		
Max.	261	9.77%	1,464.27	189,517.56	15.48%	58.50			10.65		
Total	2,672	100.00%	13,396.51	1,224,168.40	100.00%	1,307.29			141.72		

Table 3: **Descriptive Statistics**: This table presents the descriptive statistics of firm-, industry-, deal-, and country-level variables (Panel A) and macro information-environments and corporate-governance variables (Panel B). All the variables are defined in Appendix A.

Panel A: Firm-, industry-, deal-, and country-level variables

	N [1]	Mean [2]	Median [3]	Std. Dev. [4]	Min. [5]	Max. [6]
$CAR(-1,+1)$	12,238	0.0003	-0.0013	0.04	-0.7630	0.5007
$Analyst$	12,238	1.52	1.61	1.04	0.00	4.03
$Growth$	12,238	0.14	0.08	0.48	-0.57	7.87
$Size$	12,238	13.06	13.00	1.77	6.74	16.82
Q	12,238	1.31	1.04	1.09	-0.43	18.70
$Leverage$	12,238	0.24	0.22	0.17	0.00	0.99
P_EM	12,238	0.04	0.37	1.18	-7.30	1.86
$Close$	10,721	37.36	36.29	24.36	0.00	105.75
FIO	7,938	0.07	0.03	0.10	0.00	1.00
DIO	7,938	0.16	0.05	0.25	0.00	1.00
$Volume$	11,726	8.18	8.30	2.47	0.01	15.64
$Horizontal$	12,238	0.24	0.00	0.43	0.00	1.00
$Herfindahl$	12,238	0.25	0.20	0.19	0.01	1.00
$Dormant$	12,238	27.76	19.69	22.36	12.03	268.96
$Cross$	12,238	0.34	0.00	0.47	0.00	1.00
$GDPC$	651	9.79	10.24	1.10	6.21	11.12

Panel B: Macro information-environments and corporate-governance variables

$AccStd$	31	72.42	74.00	8.16	56.00	85.00
$Audit$	31	3.26	4.00	1.06	1.00	4.00
$Media$	30	79.64	85.91	17.41	29.51	96.72
$ITindex$	35	1.32	1.41	0.65	0.09	2.78
$PTindex$	35	0.69	0.96	0.78	-1.57	1.45
$OTindex$	35	1.01	1.05	0.64	-0.62	2.03
$PTV(C)$	34	0.50	0.55	0.25	0.00	1.00
$PTV(S)$	34	0.47	0.46	0.29	0.00	1.00
$LiaSta$	32	0.56	0.66	0.24	0.00	1.00
$LegCom$	32	0.41	0	0.50	0	1
$AntiSelf$	35	0.56	0.50	0.24	0.20	1.00
MKT	33	69.50	72.33	21.37	32.73	115.6
$FERC$	33	0.84	0.79	0.48	0.08	1.83

Table 4: **The impact of financial analyst following on announcement return of rival firms**: This table presents the coefficient estimates of announcement return of rival firms on financial analyst following. Dependent variable ($CAR(-1,+1)$) is the cumulative abnormal returns for rival firms over (-1,+1) announcement period for the initial-industry target. Adjusted R^2 and number of observations are reported. Standard errors are robust to heteroskedasticity. T-statistics are given in parentheses. Variable definitions are given in Appendix A. ***, ** or * next to coefficients indicate that coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	[1]	[2]	[3]	[4]	[5]	[6]
Analyst	0.0013**	0.0011**	0.0013**	0.0016**	0.0018**	0.0015*
	(2.2384)	(1.9958)	(2.2406)	(2.0357)	(2.2414)	(1.8929)
Growth	0.0002	0.0004	0.0003	-0.0004	-0.0000	-0.0001
	(0.1671)	(0.2820)	(0.2772)	(-0.2392)	(-0.0108)	(-0.0342)
Size	-0.0009**	-0.0008**	-0.0009**	-0.0009*	-0.0010*	-0.0009*
	(-2.4064)	(-2.1544)	(-2.3836)	(-1.8369)	(-1.7401)	(-1.6544)
Q	0.0001	0.0000	0.0000	-0.0002	-0.0004	-0.0003
	(0.1686)	(0.0494)	(0.0294)	(-0.2843)	(-0.6943)	(-0.5332)
Leverage	-0.0050	-0.0046	-0.0048	-0.0002	-0.0004	-0.0004
	(-1.6174)	(-1.4413)	(-1.5202)	(-0.0530)	(-0.0963)	(-0.0898)
P_EM	0.0001	-0.0000	0.0001	0.0002	0.0001	0.0001
	(0.3871)	(-0.0516)	(0.1417)	(0.5322)	(0.2179)	(0.2227)
Horizontal	0.0006	0.0005	0.0004	0.0001	-0.0005	-0.0009
	(0.6591)	(0.4701)	(0.4091)	(0.0505)	(-0.3615)	(-0.6023)
Herfindahl	0.0041*	0.0052**	0.0045*	0.0023	0.0009	0.0012
	(1.8375)	(2.2526)	(1.8885)	(0.7343)	(0.2582)	(0.3537)
Dormant	0.0001***	0.0001***	0.0001***	0.0001**	0.0001***	0.0001***
	(2.7560)	(2.9068)	(2.8865)	(2.4135)	(2.6480)	(2.6227)
Cross	0.0009	0.0008	0.0010	0.0001	-0.0003	0.0001
	(0.9825)	(0.9210)	(1.1434)	(0.0711)	(-0.2221)	(0.0485)
GDPC	-0.0000	-0.0003	-0.0002	0.0007	0.0004	0.0004
	(-0.0906)	(-0.6780)	(-0.3470)	(1.1233)	(0.5447)	(0.6585)
FIO				-0.0023	-0.0009	-0.0007
				(-0.3780)	(-0.1416)	(-0.1074)
DIO				-0.0046*	-0.0051	-0.0053*
				(-1.6641)	(-1.6351)	(-1.6541)
Close				0.0000	0.0000	0.0000
				(0.4411)	(0.6576)	(0.5980)
Intercept	0.0066	0.0102	0.0086	0.0061	-0.0094	-0.0057
	(0.9567)	(1.2874)	(1.0057)	(0.6833)	(-0.8034)	(-0.4754)
Year-fixed effect	Yes	No	Yes	Yes	No	Yes
Industry-fixed effect	No	Yes	Yes	No	Yes	Yes
Adj. R^2	0.0024	0.0030	0.0041	0.0021	0.0067	0.0075
N	12,238	12,238	12,238	6,923	6,923	6,923

Table 5: **Earnings management, trading volume, and financial analyst following**: This table presents the coefficient estimates of earnings management on financial analyst following in Columns 1 - 3 and the coefficient estimates of trading volume on financial analyst following in Columns 4 - 6. Adjusted R^2 and number of observations are reported. Standard errors are robust to heteroskedasticity. T-statistics are given in parentheses. Variable definitions are given in Appendix A. ***, ** or * next to coefficients indicate that coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	P_EM [1]	*P_EM* [2]	*P_EM* [3]	*Volume* [4]	*Volume* [5]	*Volume* [6]
Analyst	-0.0447***	-0.0223	-0.0500***	0.3050***	0.2047***	0.3116***
	(-3.1193)	(-1.6111)	(-3.4840)	(11.1579)	(7.5987)	(11.2548)
Growth	0.0292	0.0369	0.0448*	0.3486***	0.3394***	0.3272***
	(1.1311)	(1.4190)	(1.7180)	(7.3404)	(6.7866)	(6.8395)
Size	0.0157*	0.0155*	0.0275***	0.6416***	0.6417***	0.6154***
	(1.8139)	(1.7964)	(3.1229)	(39.6377)	(39.1159)	(37.1076)
Q	-0.1217***	-0.1258***	-0.1254***	-0.1015***	-0.0771***	-0.0771***
	(-9.8939)	(-10.2550)	(-10.1007)	(-5.2575)	(-3.8996)	(-3.9242)
Leverage	0.2270***	0.2587***	0.2526***	1.0892***	1.0423***	1.0673***
	(3.3484)	(3.7370)	(3.6544)	(9.6456)	(8.7556)	(9.1893)
P_EM				-0.0842***	-0.1001***	-0.0704***
				(-5.5271)	(-6.3729)	(-4.5626)
Horizontal	-0.0356	0.0069	-0.0037	-0.0749*	-0.1916***	-0.1414***
	(-1.3920)	(0.2673)	(-0.1411)	(-1.7907)	(-4.3734)	(-3.2307)
Herfindahl	0.0938	0.0423	0.1121*	-1.1360***	-1.2254***	-1.4610***
	(1.6450)	(0.7150)	(1.8757)	(-10.4477)	(-10.8585)	(-12.8104)
Dormant	0.0012**	0.0010**	0.0006	-0.0017**	-0.0026***	-0.0019**
	(2.5626)	(2.2444)	(1.4150)	(-2.0037)	(-3.0226)	(-2.1894)
Cross	0.0158	0.0178	0.0096	-0.2848***	-0.1672***	-0.1450***
	(0.7113)	(0.7891)	(0.4260)	(-7.0762)	(-3.9739)	(-3.4914)
GDPC	-0.0891***	-0.0862***	-0.1009***	-0.6417***	-0.6952***	-0.6569***
	(-7.3840)	(-7.2905)	(-8.3067)	(-29.5233)	(-31.3175)	(-29.3142)
Intercept	0.7655***	0.1599	0.2100	5.6134***	6.8880***	6.4109***
	(3.5212)	(0.8503)	(0.8913)	(16.3098)	(18.0115)	(15.8991)
Year-fixed effect	Yes	No	Yes	Yes	No	Yes
Industry-fixed effect	No	Yes	Yes	No	Yes	Yes
Adj. R^2	0.0316	0.0655	0.0748	0.3853	0.3817	0.4091
N	11,587	11,587	11,587	11,726	11,726	11,726

Table 6: **The impact of financial analyst following on announcement return of rival firms: instrumental-variable approach**: This table presents the coefficient estimates of two-stage least-squares regressions of announcement return of rival firms on predicted analyst following (*Predicted_Analyst*). We regress *Analyst* on its determinants and *Exit* (is equal to 1 if the brokerage firm experiences a closure or merger within one year prior to initial-industry acquisitions, and 0 otherwise) for each country, and extract its fitted value as *Predicted_Analyst*. Dependent variable ($CAR(-1,+1)$) is the cumulative abnormal returns for rival firms over (-1,+1) announcement period for the initial-industry target. Adjusted R^2 and number of observations are reported. Standard errors are robust to heteroskedasticity. T-statistics are given in parentheses. Variable definitions are given in Appendix A. ***, ** or * next to coefficients indicate that coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	[1]	[2]	[3]
Predicted_Analyst	0.0017*	0.0016	0.0022**
	(1.7969)	(1.6430)	(2.0293)
Growth	-0.0013	-0.0013	-0.0008
	(-0.9198)	(-0.9326)	(-0.4366)
Size	-0.0010*	-0.0009	-0.0013**
	(-1.7795)	(-1.6269)	(-1.9940)
Q	-0.0005	-0.0005	-0.0005
	(-0.9563)	(-0.9034)	(-0.8013)
Leverage	-0.0030	-0.0028	0.0029
	(-0.8502)	(-0.7962)	(0.7311)
P_EM	-0.0000	-0.0001	-0.0001
	(-0.0922)	(-0.1497)	(-0.2998)
Horizontal		-0.0002	-0.0007
		(-0.1419)	(-0.5180)
Herfindahl		0.0031	0.0028
		(1.1307)	(0.8655)
Dormant		0.0001***	0.0001**
		(2.8168)	(2.1663)
Cross		0.0012	0.0005
		(1.0932)	(0.4277)
GDPC		-0.0001	0.0001
		(-0.2563)	(0.2019)
FIO			-0.0004
			(-0.0705)
DIO			-0.0062**
			(-2.0296)
Close			0.0000
			(0.9091)
Intercept	0.0052	0.0025	0.0034
	(0.5732)	(0.2399)	(0.2813)
Year-fixed effect	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes
Adj. R^2	0.0079	0.0089	0.0123
N	7,977	7,977	6,352

Table 7: **Rival firms subsequently become targets**: This table presents the coefficient estimates of announcement return of rival firms on dummies that indicating whether the rival firms subsequently become targets. RBT ($RBT1yr$) is equal to 1 if the rival firm subsequently become target (within one year), and 0 otherwise. Dependent variable ($CAR(-1,+1)$) is the cumulative abnormal returns for rival firms over (-1,+1) announcement period for the initial-industry target. Adjusted R^2 and number of observations are reported. Standard errors are robust to heteroskedasticity. T-statistics are given in parentheses. Variable definitions are given in Appendix A. ***, ** or * next to coefficients indicate that coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	[1]	[2]	[3]	[4]
RBT	0.0017*	0.0002		
	(1.6494)	(0.1322)		
$RBT1yr$			0.0026	0.0072*
			(0.9865)	(1.7005)
$Analyst$	0.0012**	0.0015*	0.0013**	0.0015*
	(2.1378)	(1.8896)	(2.2189)	(1.8493)
$Growth$	0.0004	-0.0001	0.0004	-0.0000
	(0.2876)	(-0.0346)	(0.2848)	(-0.0299)
$Size$	-0.0008**	-0.0009	-0.0009**	-0.0009
	(-2.1936)	(-1.6448)	(-2.3425)	(-1.6024)
Q	0.0000	-0.0003	0.0000	-0.0003
	(0.0109)	(-0.5331)	(0.0407)	(-0.4938)
$Leverage$	-0.0048	-0.0004	-0.0048	-0.0002
	(-1.5012)	(-0.0901)	(-1.4991)	(-0.0480)
P_EM	0.0001	0.0001	0.0001	0.0001
	(0.1667)	(0.2276)	(0.1582)	(0.2803)
$Horizontal$	0.0004	-0.0009	0.0004	-0.0008
	(0.3826)	(-0.6035)	(0.4335)	(-0.5558)
$Herfindahl$	0.0044*	0.0012	0.0044*	0.0011
	(1.8397)	(0.3523)	(1.8672)	(0.3382)
$Dormant$	0.0001***	0.0001***	0.0001***	0.0001***
	(2.9171)	(2.6235)	(2.9005)	(2.6132)
$Cross$	0.0010	0.0001	0.0010	0.0000
	(1.1375)	(0.0473)	(1.1269)	(0.0078)
$GDPC$	-0.0002	0.0004	-0.0002	0.0004
	(-0.3837)	(0.6551)	(-0.3624)	(0.6184)
FIO		-0.0007		-0.0006
		(-0.1109)		(-0.0934)
DIO		-0.0053*		-0.0052
		(-1.6583)		(-1.6366)
$Close$		0.0000		0.0000
		(0.5940)		(0.5826)
$Intercept$	0.0070	-0.0058	0.0084	-0.0058
	(0.8117)	(-0.4815)	(0.9853)	(-0.4785)
Year-fixed effect	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes
Adj. R^2	0.0043	0.0073	0.0041	0.0080
N	12,238	6,923	12,238	6,923

Table 8: **Predicted probability that rival firms subsequently become targets**: This table presents the coefficient estimates of announcement return of rival firms on the predicted probability that rival firms subsequently become targets. Dependent variable ($CAR(-1,+1)$) is the cumulative abnormal returns for rival firms over (-1,+1) announcement period for the initial-industry target. Adjusted R^2 and number of observations are reported. Standard errors are robust to heteroskedasticity. T-statistics are given in parentheses. Variable definitions are given in Appendix A. ***, ** or * next to coefficients indicate that coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	[1]	[2]	[3]	[4]	[5]	[6]
Predicted_RBT	0.0017**	0.0014**	0.0016	-0.0016	-0.0020	-0.0014
	(2.4516)	(2.0062)	(1.6348)	(-0.8711)	(-1.1001)	(-0.5978)
Analyst				0.0029*	0.0030**	0.0026
				(1.9414)	(2.0029)	(1.3785)
Growth	-0.0004	-0.0005	-0.0008	-0.0003	-0.0004	-0.0007
	(-0.3246)	(-0.3707)	(-0.4568)	(-0.2418)	(-0.2857)	(-0.3951)
Size	-0.0010**	-0.0009**	-0.0010*	-0.0008*	-0.0006	-0.0008
	(-2.4437)	(-2.0722)	(-1.7150)	(-1.9009)	(-1.5116)	(-1.3511)
Q	-0.0003	-0.0003	-0.0005	-0.0002	-0.0002	-0.0004
	(-0.6328)	(-0.5133)	(-0.7634)	(-0.4586)	(-0.3342)	(-0.6581)
Leverage	-0.0039	-0.0036	0.0032	-0.0036	-0.0034	0.0033
	(-1.2489)	(-1.1750)	(0.7945)	(-1.1717)	(-1.0938)	(0.8343)
P_EM	0.0000	-0.0000	-0.0001	0.0001	0.0000	-0.0001
	(0.1305)	(-0.0072)	(-0.3005)	(0.1731)	(0.0360)	(-0.2690)
Horizontal		0.0003	-0.0008		0.0003	-0.0007
		(0.3277)	(-0.5362)		(0.3395)	(-0.5193)
Herfindahl		0.0064***	0.0028		0.0065***	0.0028
		(2.7238)	(0.8821)		(2.7584)	(0.8888)
Dormant		0.0000**	0.0001**		0.0000**	0.0001**
		(2.5350)	(2.1531)		(2.5291)	(2.1731)
Cross		0.0017*	0.0005		0.0017*	0.0005
		(1.9324)	(0.4160)		(1.9508)	(0.4482)
GDPC		-0.0003	0.0001		-0.0003	0.0001
		(-0.6159)	(0.2084)		(-0.6173)	(0.1925)
FIO			-0.0000			-0.0002
			(-0.0080)			(-0.0370)
DIO			-0.0061**			-0.0060**
			(-2.0238)			(-1.9792)
Close			0.0000			0.0000
			(0.8685)			(0.8932)
Intercept	0.0111	0.0097	0.0010	0.0094	0.0078	-0.0014
	(1.4932)	(1.1167)	(0.0850)	(1.2464)	(0.8936)	(-0.1147)
Year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.0040	0.0056	0.0121	0.0043	0.0059	0.0122
N	11,274	11,274	6,352	11,274	11,274	6,352

Table 9: **The impact of financial analyst following on announcement return of rival firms: transparent and opaque information-environments subsamples**: This table presents the coefficient estimates of announcement return of rival firms on financial analyst following for transparent and opaque information-environments subsamples. The transparent (opaque) information-environments subsample includes firms located in the countries where a particular information-environments variable is above (below) its median value. Dependent variable ($CAR(-1,+1)$) is the cumulative abnormal returns for rival firms over (-1,+1) announcement period for the initial-industry target. Adjusted R^2 and number of observations are reported. Standard errors are robust to heteroskedasticity. T-statistics are given in parentheses. Variable definitions are given in Appendix A. ***, ** or * next to coefficients indicate that coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

Panel A: Transparent information-environments subsample

	AccStd [1]	*Audit* [2]	*Media* [3]	*ITindex* [4]	*PTindex* [5]	*OTindex* [6]	*PTV (C)* [7]	*PTV (S)* [8]	*LiaSta* [9]
Analyst	0.0020*	0.0019*	0.0022**	0.0029***	0.0032***	0.0030***	0.0024**	0.0025**	0.0011
	(1.7579)	(1.8433)	(2.1704)	(2.6181)	(2.8249)	(2.7155)	(2.1521)	(2.1116)	(1.1982)
Intercept	-0.0067	-0.0276	-0.0225	-0.1085	-0.0984	-0.0465	-0.0155	-0.0184	-0.0128
	(-0.4065)	(-1.5791)	(-1.2528)	(-1.3356)	(-1.5315)	(-0.7504)	(-0.9671)	(-1.0225)	(-0.9750)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.0143	0.0131	0.0114	0.0139	0.0114	0.0110	0.0179	0.0157	0.0189
N	4,415	5,071	5,368	4,543	4,730	4,697	4,055	3,845	5,037

Panel B: Opaque information-environments subsample

Analyst	0.0005	-0.0005	-0.0008	-0.0002	-0.0003	-0.0001	0.0006	0.0005	0.0021
	(0.3611)	(-0.3748)	(-0.5568)	(-0.1513)	(-0.2250)	(-0.0788)	(0.4711)	(0.3884)	(1.1628)
Intercept	-0.0047	0.0150	0.0114	-0.0078	-0.0104	-0.0074	0.0089	-0.0024	0.0916***
	(-0.2069)	(0.9663)	(0.6866)	(-0.3011)	(-0.3943)	(-0.2782)	(0.4400)	(-0.1576)	(2.8529)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.0125	-0.0093	-0.0029	0.0215	0.0252	0.0262	0.0001	0.0002	0.0106
N	2,508	1,852	1,555	2,380	2,193	2,226	2,868	3,078	1,886

Table 10: **The impact of financial analyst following on announcement return of rival firms (excludes the U.S. rival firms)**: This table presents the coefficient estimates of announcement return of rival firms on financial analyst following. Dependent variable ($CAR(-1,+1)$) is the cumulative abnormal returns for rival firms over (-1,+1) announcement period for the initial-industry target. Adjusted R^2 and number of observations are reported. Standard errors are robust to heteroskedasticity. T-statistics are given in parentheses. Variable definitions are given in Appendix A. ***, ** or * next to coefficients indicate that coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

	[1]	[2]	[3]	[4]	[5]	[6]
Analyst	0.0016***	0.0014**	0.0017***	0.0015*	0.0018**	0.0014
	(2.6532)	(2.4528)	(2.8144)	(1.7279)	(2.0953)	(1.6271)
Growth	0.0003	0.0004	0.0003	-0.0007	-0.0001	-0.0003
	(0.2063)	(0.3054)	(0.2082)	(-0.3955)	(-0.0421)	(-0.1860)
Size	-0.0010***	-0.0010***	-0.0011***	-0.0012**	-0.0014**	-0.0012**
	(-2.7408)	(-2.5918)	(-2.7971)	(-2.1358)	(-2.2844)	(-2.0093)
Q	0.0003	0.0003	0.0004	-0.0002	-0.0004	-0.0002
	(0.5345)	(0.5056)	(0.6366)	(-0.3472)	(-0.6027)	(-0.3389)
Leverage	-0.0036	-0.0034	-0.0036	0.0007	-0.0002	-0.0003
	(-1.0745)	(-1.0165)	(-1.0680)	(0.1642)	(-0.0479)	(-0.0623)
P_EM	-0.0001	-0.0002	-0.0001	0.0000	0.0000	-0.0000
	(-0.2186)	(-0.4080)	(-0.2059)	(0.0224)	(0.0298)	(-0.0444)
Horizontal	0.0013	0.0011	0.0012	0.0012	0.0013	0.0009
	(1.2144)	(1.0032)	(1.0879)	(0.7450)	(0.7638)	(0.5166)
Herfindahl	0.0018	0.0026	0.0015	-0.0011	-0.0034	-0.0030
	(0.7983)	(1.0661)	(0.5903)	(-0.3499)	(-0.9647)	(-0.8271)
Dormant	0.0000**	0.0000**	0.0001***	0.0001**	0.0001***	0.0001***
	(2.4973)	(2.5069)	(2.5814)	(2.1502)	(2.6128)	(2.6258)
Cross	0.0002	-0.0000	0.0003	-0.0010	-0.0020	-0.0015
	(0.2043)	(-0.0460)	(0.3214)	(-0.7571)	(-1.5087)	(-1.1642)
GDPC	0.0003	0.0001	0.0003	0.0009	0.0009	0.0009
	(0.5055)	(0.2681)	(0.5579)	(1.3148)	(1.3702)	(1.2403)
FIO				-0.0004	-0.0007	0.0003
				(-0.0667)	(-0.1148)	(0.0421)
DIO				0.0079	0.0042	0.0068
				(1.1226)	(0.6134)	(0.9663)
Close				0.0000	0.0000	0.0000
				(0.9142)	(0.5590)	(0.6877)
Intercept	0.0201	0.0149*	0.0335	0.0090	-0.0042	-0.0012
	(0.8408)	(1.7626)	(1.3467)	(0.9888)	(-0.3169)	(-0.0908)
Year-fixed effect	Yes	No	Yes	Yes	No	Yes
Industry-fixed effect	No	Yes	Yes	No	Yes	Yes
Adj. R^2	0.0024	0.0013	0.0030	0.0019	0.0043	0.0046
N	10,450	10,450	10,450	5,821	5,821	5,821

Table 11: **The impact of financial analyst following on announcement return of rival firms: transparent and opaque information-environments subsamples (excludes the U.S. rival firms)**: This table presents the coefficient estimates of announcement return of rival firms on financial analyst following for transparent and opaque information-environments subsamples. The transparent (opaque) information-environments subsample includes firms located in the countries where a particular information-environments variable is above (below) its median value. Dependent variable ($CAR(-1,+1)$) is the cumulative abnormal returns for rival firms over (-1,+1) announcement period for the initial-industry target. Adjusted R^2 and number of observations are reported. Standard errors are robust to heteroskedasticity. T-statistics are given in parentheses. Variable definitions are given in Appendix A. ***, ** or * next to coefficients indicate that coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

Panel A: Transparent information-environments subsample

	AccStd [1]	*Audit* [2]	*Media* [3]	*ITindex* [4]	*PTindex* [5]	*OTindex* [6]	*PTV (C)* [7]	*PTV (S)* [8]	*LiaSta* [9]
Analyst	0.0020	0.0021*	0.0022**	0.0035***	0.0033***	0.0030**	0.0023*	0.0021	0.0011
	(1.5148)	(1.7658)	(1.9891)	(2.8785)	(2.6335)	(2.5216)	(1.9004)	(1.5813)	(1.0564)
Intercept	-0.0002	-0.0243	-0.0200	-0.0190	-0.0671	-0.0238	0.0004	-0.0051	-0.0088
	(-0.0098)	(-1.2370)	(-1.0053)	(-0.5884)	(-1.4877)	(-0.6461)	(0.0154)	(-0.2059)	(-0.5985)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.0061	0.0098	0.0074	0.0153	0.0161	0.0138	0.0170	0.0156	0.0142
N	3,313	3,969	4,283	3,714	3,704	3,753	2,953	2,743	3,935

Panel B: Opaque information-environments subsample

Analyst	0.0005	-0.0005	-0.0009	-0.0005	-0.0001	-0.0001	0.0006	0.0005	0.0021
	(0.3611)	(-0.3748)	(-0.5978)	(-0.4391)	(-0.0879)	(-0.1138)	(0.4711)	(0.3884)	(1.1628)
Intercept	-0.0047	0.0150	0.0120	-0.0064	-0.0102	-0.0062	0.0089	-0.0024	0.0916***
	(-0.2069)	(0.9663)	(0.7118)	(-0.2157)	(-0.3877)	(-0.2310)	(0.4400)	(-0.1576)	(2.8529)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.0125	-0.0093	-0.0021	0.0264	0.0262	0.0278	-0.0106	-0.0077	0.0106
N	2,508	1,852	1,538	2,107	2,117	2,068	1,981	2,191	1,886

Table 12: **The impact of financial analyst following on announcement return of rival firms: good and bad corporate-governance subsamples**: This table presents the coefficient estimates of announcement return of rival firms on financial analyst following for good and bad corporate-governance subsamples. The good (bad) corporate-governance subsample includes firms located in the countries where a particular corporate-governance variable is above (below) its median value. Dependent variable ($CAR(-1,+1)$) is the cumulative abnormal returns for rival firms over (-1,+1) announcement period for the initial-industry target. Adjusted R^2 and number of observations are reported. Standard errors are robust to heteroskedasticity. T-statistics are given in parentheses. Variable definitions are given in Appendix A. ***, ** or * next to coefficients indicate that coefficients are significantly different from zero at the 1%, 5%, or 10% levels, respectively.

Panel A: Good corporate-governance subsample

	LegCom	*AntiSelf*	*Market*	*FERC*
Analyst	0.0017	0.0021**	0.0010	0.0017*
	(1.4217)	(2.1201)	(0.9985)	(1.6479)
Intercept	-0.0019	-0.0030	-0.0127	-0.0009
	(-0.1257)	(-0.1765)	(-0.9267)	(-0.0655)
Control variables	Yes	Yes	Yes	Yes
Year-fixed effect	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes
Adj. R^2	0.0225	0.0119	0.0117	0.0196
N	3,707	4,902	5,155	4,658

Panel B: Bad corporate-governance subsample

Analyst	0.0008	0.0004	0.0019	0.0007
	(0.7211)	(0.2697)	(1.2105)	(0.5373)
Intercept	0.0071	0.0050	-0.0051	-0.0051
	(0.2832)	(0.3198)	(-0.1748)	(-0.1858)
Control variables	Yes	Yes	Yes	Yes
Year-fixed effect	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes
Adj. R^2	0.0171	0.0053	0.0219	0.0167
N	2,994	2,021	1,768	2,816

A Appendix: Variable definitions

A.1 Firm-level variables

- Financial analyst following (*Analyst*): Natural logarithm of the number of one-year ahead financial analyst forecasts of earnings per share in year t-1. (*Source*: I/B/E/S)

- Sale growth (*Growth*): Average growth rate of annual sales for years t-2 and t-1. (*Source*: Worldscope)

- Firm size (*Size*): Natural logarithm of market value of equity in year t-1 deflated by 2005 U.S. dollars. (*Source*: Worldscope)

- Tobin's Q (Q): The sum of market value of equity, liquidating value of preferred stock, book value of long-term debt, and net working capital, scaled by book value of assets in year t-1. (*Source*: Worldscope)

- Leverage ratio (*Leverage*): Ratio of book value of debt to book value of assets in year t-1. (*Source*: Worldscope)

- Earnings management (P_EM): The first principal component of $Accr$, $Smth$, and $Corr$ in year t-1. (*Source*: Worldscope)

- Earnings discretion − magnitude of accruals ($Accr$): $Accr_{j,i,t} = 1/5 \sum_{t-4}^{t} |Accruals_{j,i,t} / CF_{j,i,t}|$, $Accruals = (\Delta Assets - \Delta Cash\ and\ equivalent) - (\Delta Current\ liability - \Delta Short\ term\ debt - \Delta Income\ taxes\ payable) - Depreciation\ and\ amortization\ expense$, Cash flow from operations (CF) = $Operating\ income - Accruals$. For a firm, if the changes of short-term debt and taxes payable are not available, these variables are set as 0. All accounting variables are scaled by one-year lag of total assets. (A minimum of three years is required.) (*Source*: Worldscope)

- Earnings smoothing − standard deviation ($Smth$): $Smth$ = - σ ($Operating$

income) / σ (CF) over the last five years. (A minimum of three years is required.) (*Source*: Worldscope)

- Earnings smoothing − correlation (*Corr*): $Corr$ = - ρ ($\Delta Accr$, ΔCF) over the last five years. (A minimum of three years is required.) (*Source*: Worldscope)
- Closely held ownership (*Close*): Percentage of Shares closely held by insiders in year t-1. (*Source*: Worldscope)
- Foreign institutional ownership (*FIO*): Foreign institutional ownership as a fraction of market capitalization in year t-1. (*Source*: Factset)
- Domestic institutional ownership (*DIO*): Domestic institutional ownership as a fraction of market capitalization in year t-1. (*Source*: Factset)
- Trading volume (*Volume*): Natural logarithm of average monthly trading volume of the year. (*Source*: Datastream)

A.2 Industry-, deal-, and country-level variables

- Horizontal M&A (*Horizontal*): Dummy equals 1 if the target and acquirer are in the same industry, and 0 otherwise. (*Source*: SDC Platinum)
- Herfindahl index (*Herfindahl*): Sales-based herfindahl index calculated as the summation of the squares of the market shares of all firms within an industry in a country in year t-1. (*Source*: Worldscope)
- Dormant period (*Dormant*): Number of months since a previous acquisition announcement in the same industry. (*Source*: SDC Platinum)
- Cross-border M&A (*Cross*): Dummy equals 1 if the target and acquirer are in different countries, and 0 otherwise. (*Source*: SDC Platinum)
- GDP per capita (*GDPC*): Natural logarithm of GDP per capita measured in U.S. dollars in year t-1. (*Source*: World Development Indicator)

A.3 Information-environments variables

- Accounting standards (*AccStd*): Average inclusion or omission of the 90 accounting and non-accounting items by examining 1995 annual reports of the companies. A higher value indicates a more transparency information environments of the country. (*Source*: Bushman, Piotroski, and Smith (2004))

- Auditing standards (*Audit*): The percentage of firms in the country audited by the big-five accounting firms. It is equal to 1, 2, 3 or 4 if the percentage ranges between [0, 25%], (25%, 50%], (50%, 75%] and (75%, 100%]. (*Source*: Bushman, Piotroski, and Smith (2004))

- Media development (*Media*): Measures the intensity of information dissemination in a country. It is computed as the average rank of the countries' media development (print and television) between 1993 and 1995. (*Source*: Bushman, Piotroski, and Smith (2004))

- Economic and institutional transparency Index (*ITindex*): Assesses the degree of accessibility and usefulness of information provided by public institutions. It includes elements such as economic transparency, e-government, access to information laws, transparency in the budget process, transparency of policy, and the public sector. (*Source*: Kaufmann and Bellver (2005))

- Political transparency Index (*PTindex*): Measures the degree of political transparency. It includes elements such as transparency of political funding, openness of the political system, and freedom of the press to monitor government's performance and express the people's voice. (*Source*: Kaufmann and Bellver (2005))

- Overall transparency index (*OTindex*): The average of *ITindex* and *PTindex*. (*Source*: Kaufmann and Bellver (2005))

- Private TV ownership by count (*PTV (C)*): Calculated as the percentage of private (non-state-owned) television stations out of the five largest television stations

(by viewership). (*Source*: Djankov, McLiesh, Nenova, and Shleifer (2003))

- Private TV ownership by market share (*PTV (S)*): Calculated as the market share of private (non-state-owned) television stations out of the aggregate market share of the five largest television stations (by viewership). (*Source*: Djankov, McLiesh, Nenova, and Shleifer (2003))

- Liability standard index (*LiaSta*): The index of liability standards is equal to the arithmetic mean of (1) Liability standard for the issuer and its directors; (2) Liability standard for the distributor; and (3) Liability standard for the accountant. (*Source*: La Porta, Lopez-De-Silanes, and Shleifer (2006))

A.4 Corporate-governance variables

- English common law (*LegCom*): Dummy variable equals 1 if a country adopts common law system, 0 otherwise, (*Source*: La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998))

- Anti-self-dealing index (*AntiSelf*): Measures the quality of shareholder right enforcement. It is computed as the average of ex-ante and ex-post private control of self-dealing. A higher value indicates a better quality of shareholder right enforcement of the country. (*Source*: Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008))

- Importance of stock market (*MKT*): Calculated as the sum of cross-country rankings of the following variables: the ratio of total stock market capitalization to Gross Domestic Product (GDP), the number of publicly-listed companies scaled by population, and the number of initial public offerings scaled by the population. (*Source*: Watanabe, Xu, Yao, and Yu (2013))

- Future earnings response coefficient (*FERC*): Captures the extent that stock price reflects information about future earnings. It calculated as the mean of

firm-level $FERC$ in a country. Firm's annual stock returns are regressed on its current year earnings change and three leads of earnings change and annual stock returns. The firm-level $FERC$ is calculated as the sum of three coefficients on future earnings changes. (*Source*: Watanabe, Xu, Yao, and Yu (2013))

B Appendix: Macro information-environments and corporate-governance variables

Appendix B: Macro information-environments and corporate-governance variables: This table reports the macro information-environments and corporate-governance variables for each country. All variables are defined in Appendix A.

Market	*AccStd* [1]	*Audit* [2]	*Media* [3]	*ITindex* [4]	*PTindex* [5]	*OTindex* [6]	*PTV (C)* [7]	*PTV (S)* [8]	*LiaSta* [9]	*LegCom* [10]	*AntiSelf* [11]	*MKT* [12]	*FERC* [13]
Australia	80	4	89.25	2.20	1.24	1.72	0.60	0.83	0.66	1	0.76	97.55	0.83
Belgium	68	3	86.73	1.02	1.39	1.20	0.60	0.59	0.44	0	0.54	62.65	0.45
Brazil	56	3	56.14	1.00	0.47	0.73	0.80	0.89	0.33	0	0.27	38.31	0.08
Canada	75	4	93.37	2.40	1.22	1.81	0.60	0.66	1.00	1	0.64	93.90	0.79
China				0.34	-1.57	-0.62	0.00	0.00			0.76	43.67	0.51
Denmark	75	4	95.52	1.89	1.45	1.67	0.40	0.20	0.55	0	0.46	72.33	1.68
Ireland	81	4	83.34	1.67	1.04	1.35	0.40	0.32	0.44	1	0.79	60.17	0.23
Finland	83	4	94.82	1.70	1.40	1.55	0.50	0.52	0.66	0	0.46	75.16	0.34
France	78	3	86.14	1.77	1.07	1.42	0.60	0.57	0.22	0	0.38	60.70	0.84
Germany	67	4	90.99	1.47	1.14	1.30	0.40	0.39	0.00	0	0.28	49.45	0.76
Greece	61	1	72.07	0.21	0.74	0.47	0.80	0.92	0.50	0	0.22	68.28	0.47
Hong Kong	73	4	87.44	1.00	0.72	0.86			0.66	1	0.96	115.60	0.75
Indonesia				0.35	-0.28	0.03	0.80	0.77	0.66	0	0.65	32.73	0.44
India	61	1	29.51	0.72	0.23	0.48	0.60	0.12	0.66	1	0.58	50.07	1.23
Israel	74	2	82.47	1.47	0.72	1.09	0.75	0.64	0.66	1	0.73	85.86	
Italy	66	4	78.98	1.31	0.65	0.98	0.40	0.39	0.22	0	0.42	43.55	1.15
Japan	71	4	91.79	1.48	1.08	1.28	0.80	0.61	0.66	0	0.50	79.75	1.80
South Korea	68	3	83.50	1.36	0.59	0.98	0.20	0.23	0.66	0	0.47	76.58	1.21
Malaysia	79	3	63.83	0.63	-0.88	-0.13	0.60	0.53	0.66	1	0.95	100.32	0.66
Netherlands	74	4	92.00	1.75	1.34	1.55	0.40	0.43	0.89	0	0.20	67.14	0.99
Norway	75	4	95.31	1.44	1.42	1.43	0.60	0.53	0.39	0	0.42	74.73	0.37
New Zealand	80	4	85.67	1.88	1.37	1.63	0.50	0.29	0.44	1	0.95	61.13	1.23
Poland				1.09	0.96	1.03	0.60	0.43			0.29	46.36	0.72
Philippines	64	1	44.26	1.41	0.48	0.95	0.40	0.83	1.00	0	0.22	45.00	0.20
Russian				0.09	-0.82	-0.36	0.20	0.04			0.44		
South Africa	79	4	59.56	0.38	0.85	0.61	0.00	0.00	0.66	1	0.81	74.20	1.23
Singapore	79	4	83.72	1.85	-0.88	0.49	0.00	0.00	0.66	1	1.00	108.05	1.07
Spain	72	4	75.31	1.05	1.02	1.04	0.60	0.57	0.66	0	0.37	76.95	1.17
Sweden	83	4	95.47	1.91	1.44	1.67	0.60	0.49	0.28	0	0.33	80.63	0.85
Switzerland	80	3	93.78	1.41	1.38	1.40	0.40	0.11	0.44	0	0.27	90.48	1.83
Thailand	66	3	52.26	0.72	0.24	0.48	0.20	0.40	0.22	1	0.81	55.63	0.11
Turkey	58	1	58.55	0.86	-0.32	0.27	1.00	1.00	0.22	0	0.43	38.15	0.48
Taiwan	58	2		1.23	0.87	1.05	0.40	0.37	0.66	0	0.56		0.47
United Kingdom	85	4	90.81	2.36	1.12	1.74	0.40	0.40	0.66	1	0.95	89.50	1.11
United States	76	4	96.72	2.78	1.28	2.03	1.00	1.00	1.00	1	0.65	78.95	1.60