Investor Relations and Firm Investment Efficiency

ABSTRACT: We examine how the collection and dissemination of market intelligence by investor relations personnel (IRP) affects investment efficiency. We provide evidence that an increased flow of communication from investors to the board of directors, through IRP, is associated with more efficient investment decisions. Proprietary IR survey data illustrate IRP activities. We show that efficient investment decisions are positively associated with (1) the fraction of IRP time spent with existing and new institutional investors, (2) the number of one-on-one meetings between investors and IRP, and (3) IRP-board communication. Predictable associations between the type of IRP-board communication and investment efficiency corroborate our main result. In supplemental tests, we also find that a positive association between efficient investment and (1) IRP compensation and (2) IRP resources. Collectively, our evidence suggests that IRP play an important role as a conduit of market intelligence between investors and directors.

Keywords: IR, market intelligence, investment efficiency
JEL Classification: D82; D83; G11; G31
Data Availability: IR data available from Bank of New York Mellon; other data publicly available.

The Impact of Market-Intelligence Acquisition and Reporting on Firm Investment Decisions

1. Introduction

We examine how the collection and dissemination of market intelligence by investor relations personnel (IRP) affects investment efficiency. IRP play an important role in collecting and circulating market intelligence to managers and the board of directors. Evidence that IRP push information out to the market is well documented (Karolyi and Liao, 2017; Brown, Call, Clement and Sharp, 2017). Yet, whether IRP also pull market intelligence into the firm is an unanswered question. Moreover, an open question is whether any intelligence gathering is incremental to or redundant with firms' other intelligence gathering activities. In particular, e*x ante*, it is unclear if IRP activities are redundant with the board of directors own intelligence gathering activities. To address this empirical question, we examine the relationship between IRP activities and firm investment decisions. We predict and find that IRP activities improve management investment decisions. In doing so, we provide evidence on a governance role for IRP in facilitating the transmission of market feedback that influences firms' investment decisions.

Stiles and Taylor (2001) identify the board of directors as "…the link between the shareholders of the firm and the management entrusted with undertaking the day-to-day operations of the organization. A large number of studies (e.g., Jensen and Meckling 1976) have investigated how firms align the self-interest of management with the interests of outside shareholders. The board directors govern this relation (Zahra and Pearce, 1989; Bagley, 2002). Board directors have two roles: (1) the advisory function (Williamson 1975; Fama and Jensen 1983) and the monitoring function (Fama 1980; Hermalin and Weisbach 1998; Monks and Minow 2000). Shareholders must communicate their interests to the board of directors in order for directors to serve these two functions effectively. Few studies investigate the flow of communication from shareholders to the board of directors.[1] No prior study, to the best of our knowledge, has investigated whether the acquisition of

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[1] Related prior studies have examined the effect of board characteristics on firm outcomes (e.g., Brickley et al. 1994; Byrd and Hickman 1992; Subrahmanyan et al. 1997; Rosenstien and Wyatt 1990; Coles, Daniel, and Naveen 2008; Lehn, Patro, and Zhao 2009) or the flow of information from the firm to shareholders (Brown, Call, Clement and Sharp, 2017; Karolyi and Liao, 2017).

information *from investors* by IRP improves investment efficiency. As a result, Laksmana (2010) calls for future research investigating firm outcomes related to the flow of information to the board of directors.

We answer this call using proprietary archival data on the IR activities for 343 U.S. firms. Proprietary data is provided by BNY Mellon who administer the annual (bi-annual after 2013) Global Trends in Investor Relations Survey. Survey respondents are primarily the senior-most IR officer for their firm (Karolyi and Rose, 2017) and survey responses provide unprecedented insight into otherwise unobservable IR activities.

To examine the consequences of IR activities we focus on an important management function, the establishment and execution of an investment plan. We employ a Tobin's q framework, which measures the sensitivities of firm level investment to Tobin's q and cash flows from operation (e.g., Fazzari, Hubbard, and Petersen 1988; Baker, Stein, and Wurgler 2003 McLean, Zhang, and Zhao 2012), and examine how the sensitivities of corporate investment to Tobin's q and cash flows from operation vary with IR activities. Higher (lower) sensitivity of investment to Tobin's q (cash flows from operation) indicates more efficient investment decisions. We expect that if IRP's market intelligence acquisition and reporting activities help managers' investment decisions then we will observe IR activities are positively (negatively) related to the sensitivity of investment to Tobin's q (cash flows from operation).

We first examine whether the fraction of IR time spent with existing, and new institutional investors and individual investors enhances investment efficiency. We find a robust positive association between IR time spent with existing and new institutional investors and investment efficiency. We find a much smaller but still economically significant positive association between IR time spent with individual investors and investment efficiency. This evidence is consistent with improved investment efficiency when IRP have more face time with outside investors. Evidence corroborating this inference is a positive association between the number of meetings IRP have with investment professionals and investment efficiency. Overall, our evidence supports the inference that intelligence gathering activities positively correlate with investment efficiency. IRP cannot ensure decision-making incorporates market intelligence, however, unless IRP can circulate the information to decision makers. This leads to our second set of empirical analyses.

We next examine the importance of reporting by IRP to the board of directors. Thakor (2016) suggests that efficient capital allocation decisions in line with investors' needs requires strong corporate governance and oversight of management. The IR function within the firm has the potential to provide governance over market information acquisition by receiving and communicating the information from the market without the self-interest issues that may be present if management received the information directly. We posit that providing information directly to the board of directors will reduce information asymmetry if management withholds information received from IRP from the board of directors. Managers may omit, obfuscate, or advantageously reframe such information if manager and board incentives are misaligned. We expect investment efficiency to improve to the extent that investor relation personnel mitigates information asymmetry by providing information directly to the board of directors.

We investigate IRP's role as a governance mechanism by examining whether communication between IRP and the board of directors improves investment efficiency. We first find a positive correlation between the delivery of information by IRP to the board of directors and investment efficiency. In related analyses, we show that the delivery of information correlates most strongly with investment efficiency when the information pertains to peer firm information, industry trends, IR activities, stock performance and financial performance. In contrast, we find investment efficiency is unchanged when delivered information pertains to sell side analyst opinions, media coverage of the firm or largest shareholder insights.

Third, we also consider whether our results vary predictably in the cross-section. We expect that IR characteristics such as IRP resources, personnel talent and personnel experience accentuate the positive association between IR activities and investment efficiency. We first expect that resourceful IRP are more likely to obtain decision relevant information. We examine departmental budgets to test this prediction. We find strong univariate but weak multivariate evidence of a positive correlation between IR departmental budgets and investment efficiency. We next expect that more able and talented IRP are more likely to generate more accurate and timely decision-relevant information. We examine IR salary, bonus, total compensation and compensation as a fraction of the total IR budget to examine this prediction. We find that higher salaries and total compensation are uncorrelated with investment efficiency, but find a positive correlation between bonus size

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and investment efficiency, and between compensation as a fraction of the IR budget and investment efficiency. This evidence suggests that talented IRP generate larger information intermediary benefits for their employer. Lastly, we expect that more experienced IR professionals are more likely to have skill in collecting and circulating market intelligence. We employ the number of years' experience of the survey respondent to test this prediction. We find no correlation between experience and investment efficiency.

The purpose of our study is to provide a descriptive analysis capturing the associations between investor relation activities, as documented by a newly available data set, and investment efficiency. Our study is subject to many limitations. First, the investment efficiency literature is large, and populated by alternative models that predict efficient investment. To address concerns that our results are model dependent, we re-estimate all of our empirical tests using two alternative investment efficiency models. We report these results in Appendix 1–10. These results corroborate our main results.

Second, while we do not argue causality, we note a correlated omitted variable could spuriously generate the associations we observe. Plausible candidates are board characteristics, such as board size, independence, cooption, and busyness. It is plausible that these characteristics drive both the level of IR activity and investment efficiency. To address this concern we re-estimate our main tests after including proxies for each of the forgoing variables. We report these results in Appendix 10-15. These results corroborate our main results. Finally, we re-estimate our models using firm fixed effects to address further the threat of a spurious correlation between IR activities and investment efficiency. We report these results in Appendix 16–20. These results corroborate the results we report in our main tables.

We believe that our study provides two important contributions to the literature examining the determinants and consequences of IR activities. First, while previous studies have documented the consequences of information provided *from IRP on the decisions of investors* (e.g., Brown et al., 2017; Karolyi and Rose, 2017), no prior study has investigated whether the acquisition of information *from investors* and the subsequent circulation to the board of directors affects firm outcomes. The National Investor Relations Institute even defines the IR function as a strategic management responsibility to enable effective two-way communication, however, academic literature until now has largely ignored the importance of information

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inflow to the firm (NIRI, 2014). Shleifer and Vishny (1997) raise the important question concerning the acquisition of information from investors "How do managers know what's in shareholders' interest?" To fill this gap we examine the impact of IR activities on a firm outcome of tremendous consequence, investment efficiency. Our study is the first to document the integral role IR plays in transmitting shareholder interests to firm decision-makers.

Second, we identify the impact of reporting information from shareholders directly to the board of directors to reduce information asymmetry and improve the quality of investment decisions. Thakor (2016) suggests that efficient capital allocation decisions in line with investors' needs requires strong corporate governance and oversight of management. Our evidence suggests that the IR function has the potential to play a governance role by facilitating information acquisition and circulation to the board of directors.

Our paper proceeds as follows. In Section 2, we review the relevant literature and develop our hypotheses. In Section 3, we provide our research design and in Section 4 we discuss our sample development and summary statistics. Section 5 provides empirical results. Section 6 concludes.

2. Literature review and hypothesis development

2.1. IRP and the collection and reporting of market intelligence

IRP play an important informational role for corporations as they serve as the primary conduit of information between the firm and investors. Prior studies have primarily focused on IR role in pushing messages from the firm to the capital markets. Using data from the National IR Institute (NIRI), Bushee and Miller (2012) document that the use of external IR experts increases institutional ownership, analyst following and media coverage. Green et al (2014) document that the increased IR activity proxied by the number of brokers hosting a firm is correlated with increased institutional investing. Lang and Lundholm (1996) document greater analyst following and forecast accuracy and reduced likelihood of large forecast revisions are associated with increased IR activity. Karolyi and Liao (2017) use a new and proprietary data set based on the 2012 data from the Bank of New York Mellon annual/bi-annual IR survey to document a number of important market outcomes related to IR activity, including increased analyst following, analyst accuracy and lower cost of capital.

All of these studies focus on the improved quality and quantity of information communicated *to the market from the firm* by IRP and their activities. However, interviews of IR managers by Roberts et al. (2006) document that contact between IRP and institutional investors result in useful information being brought *into the firm* in addition to information being flowed out of the firm to investors. The importance of the two-way communication in IR though understudied by academics has long been understood by practitioners. Ng Lay San, vice-president of Group Corporation Relations at Sembcorp Industries states "As engagement is a two-way dialogue, an effective IR function will also be the "eyes and ears" of the company, providing valuable insights on market sentiment to the board and senior management" (Shying, 2017). Additionally, Lynette Leong, CEO of CapitaLand Commercial Trust Management states "An effective IR team not only engages its stakeholders with timely unbiased and transparent communications, but encourages questions and feedback" (Shying, 2017). Although anecdotal evidence suggests that firms see value in IR collection and circulation of market intelligence, the impact of market intelligence collection on managers' various decisions is an unexplored question. Particularly, we focus on its impact on managers' investment decisions since investments are central to future firm performance and firm value.

2.2. Information and managers' investment decision

Previous studies have investigated a number of factors that faciltate efficient capital allocation decisions (e.g., Fazzari, Hubbard, and Petersen 1988; Baker, Stein, and Wurgler 2003; Rauh 2006; Asker, Fare-Mensa, and Ljunqgvist 2015). Some studies infer that higher quality information helps management to improve the quality of their investment decisions. For example, Biddle and Hilary (2006) reason that firms with better accounting quality tend to have more efficient capital investment decision since higher quality accounting information reduces information asymmetry between managers and outside suppliers of capital. They predict and find that accounting quality is negatively associated with investment inefficiency.

Related prior studies (e.g., Biddle et al. 2009) assert that managers drive reductions in information asymmetry between firm insiders and shareholders. In contrast, we expect investors improve investment efficiency by providing feedback on investment proposals. Calls for management to better represent the interest of investors is one example of shareholder intervention that influences management decisions. Shleifer and

Vishny (1997) raise the question concerning the acquisition of information from investors "How do managers know what's in shareholders' interest?" To the best of our knowledge, no previous studies have investigated how firms acquire information from market participants and how the information collected from market participants impacts the efficiency of their investment decisions. We attempt to fill this void in the literature by examining how IRP communicate with market participants using proxies such as IRP's contact time with investors and the frequency of one-on-one meetings with investment professionals. If IRP collect high quality information from market participants and deliver such information to managers and the board of directions to mitigate information asymmetry between managers and shareholders, then we will observe a positive relation between these proxies and investment efficiency. This leads to our first hypothesis, stated in alternative form:

H_1: *Interaction between IRP and investors positively relates with investment efficiency.*

2.3. Board of directors and management oversight

There remains uncertainty that even if information from market participants is communicated to management, management may not act on it. Levit and Malenko (2011) provide evidence that even when managers know shareholders' intentions they may not act on it unless they assess there is a possibility of being disciplined by the shareholders. After reviewing research from a number of different theoretical perspectives on the balancing of management's self-interest and the interests of the shareholders, Baysinger et al. (1991) conclude that when shareholders lack the ability to verify whose interest management is serving, management tends to favor their own. To reduce management's self-serving bias and promote efficient capital allocation decisions in line with investors' needs requires strong corporate governance and oversight of management (Thakor 2016).

Laksmana (2008) highlights that the governance process is essential for effective decision making. The board of directors has a primary responsibility of oversight of a firm's long-term investment strategy (Fama and Jensen 1983). Mckinsey & Company (2016) report that highly rated boards spend more time evaluating investment selections and are more effective at regularly reviewing potential capital expenditures. Additionally, McKinsey & Company (2016) report that effective boards are twice as likely as ineffective boards to seek out

relevant information beyond what management provides to deepen their knowledge. Duchin et al. (2010) identify that board of director effectiveness is dependent on whether board of directors is successful in reducing information asymmetry between management and stakeholders. To the extent that information gathered by IRP provides insights into shareholders' interests, the information may be of interest to both management and the board of directors.

The board of directors may have great interest in market intelligence collected by IRP. Knowing shareholders preferences is a prerequisite to holding management accountable. While discussing Intel, Skroupa (2017) explains how investors' demands change over time and how the company has benefited from investor feedback. Myers and Majluf (1984) argue that the separation of management from financing agents naturally creates asymmetric information. The board of directors provides oversight of management and builds links with investors (Zahra and Pearce, 1989). However, Jensen (1993) argues that CEOs usually determine the agenda and the information received by the board. Any omission, obstruction or reframing of information hinders the ability of board members to effectively monitor and evaluate CEOs. Directors surveyed by Nowak and McCabe (2003) also provide evidence on the asymmetric flow of information flow between management and the board of directors, highlighting that CEOs have the controlling power over information.[2] Their surveyed findings also suggest that the provision of appropriate information for the board of directors is essential for directors to fulfill their role in corporate governance.

Previous studies such as Raheja (2005), Harris and Raviv (2008) and Duchin et al. (2010) also highlight the importance of reducing information asymmetry between those involved in the day-to-day management of the firm (insiders) and directors to improve board effectiveness. In order to reduce the information asymmetry, Klein (1998) suggests that "boards need specialized and expert provided information about the firm's activities to evaluate and ratify the firm's long-term strategies." Lipton and Lorsch (1992) identify that one of the impediments to effective boards is the complexity of the matters that directors must understand and discuss.

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[2] Some comments they receive are as follows: "You are absolutely at the mercy of the Chief Executive and management and you rely on them enormously to give you the information you need to base decisions on." "Chief Executives…even the good ones…tend to want to control the flow of information"

Therefore, to assess if a long-term investment is in the best interest of the shareholders, directors not only need to receive information from the market but also need to understand it.

Provision of market intelligence by the IR function directly to the board of directors should reduce the information asymmetry between management and the board concerning shareholders' interests and lead to improved investment decisions. Felton and Watson (2002) suggest that there is value in a direct line of communication between IRP and board directors. In their survey, one director reflected that, "(k)ey managers should report regularly to committees, answer the questions of their members and educate them on specific situations and area they wish to investigate." Another states, "[w]hen core board processes are reevaluated, the concerns of the very largest investors should be considered".

On the contrary, Jensen (1993, p. 850) suggests that shareholders' interests may not matter at all, as shareholder activism is grounded in the legal system and "the legal/political/regulatory system is far too blunt an instrument to handle the problems of wasteful management behavior effectively". Consistent with this conjecture, Dulewitz and Hebert (2004) find no evidence that taking account of the legitimate interests of shareholders has an impact on firm performance. Therefore, market intelligence may have little impact on management's investment decision even if it is directly reported to the board of directors. In sum, it is an empirical question whether their ability to monitor managers' investment decisions is are impacted by directly receiving market intelligence from IRP. This leads to our second set of hypotheses:

H$_2$: Direct interaction between IRP and the board of directors positively relates with investment efficiency.

2.4. IRP characteristics and investment efficiency

We also consider the following IR characteristics such as IRP resources, IRP compensation, and IR professionals' experience and examine how such characteristics help to create more effective governance of long term investment decisions by providing more useful information in reducing information asymmetry between management and stakeholders. We first argue that the board of directors with more resourceful IRP are more likely to obtain such information since resourceful IRP have better and more frequent access to market intelligence and receive stronger administrative support. Collecting market intelligence is costly and consumes company resources. If an IRP does not have enough resources for the collection of market intelligence, it is

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unlikely to provide decision-relevant information to the board of directors. Analogously, Clement (1999) predicts and finds that earnings forecasts issued by stock analysts with more resources are more accurate.

We also expect that more able and talented IRP professionals are more likely to provide more timely and relevant information for investment decision to the board of directors due to their performance in collecting market intelligence. Although we cannot directly observe IR professionals' ability and talent, we may observe it based on the assumption that an efficient labor market will pay more wages and compensations to more able and talented IR specialists. Thus, we use forms of compensation as proxies for IRP talent.

Lastly, we also hypothesize that more experienced IR professionals are more likely to have better skill in collecting more useful market intelligence for investment decision and better reporting them to the board of directors. We also argue that IR professionals' ability and talent also can improve with their experience, also resulting in better collection and delivery of the market intelligence to the boards. Analogously, Clement (1999) predicts and finds that earnings forecasts issued by stock analysts with more experience are more accurate. This leads to our third hypothesis:

H_3: IRP resources, and IRP ability and experience positively relate with investment efficiency.

3. Data and Research Design

3.1. Data

Consistent with Karolyi and Liao (2017), we rely on proprietary IR data from the Bank of New York Mellon Global Trends in Investor Relations survey. The survey was performed annually by Bank of New York Mellon from 2004 to 2013 and biannually afterwards. Our sample is comprised of respondents to the 5th through 10th editions of the survey administered between 2009 and 2015, inclusive.

Survey respondents are primarily the senior-most IR officials within their companies. The sampled firms in all surveys include both customer and non-customer firms of Bank of New York Mellon. Karolyi and Liao (2017) estimate that less than 10% of the 2012 sample are Bank of New York Mellon customers. Overall, survey respondents represent many industries. The respondents per year range from 270 in 2009 to 817 in 2012. The surveys were conducted between July and September of each year, with the exception of 2015 which was

administered between February and April of 2015, and the 2009 survey which was administered in October to November of 2008. The response rates for the survey range from approximately 7.8% in 2015 to 17.5% in 2011. These response rates are comparable to previous studies that have surveyed high-level corporate executives. For example, Graham and Harvey (2001) attained a response rate of 9% sampling CFOs and Lisowsky et al (2016) attained a response rate of 8.1% sampling senior tax executives. While we examine only U.S. firms, survey respondents hail from 63 different countries.

Each edition of the survey contains a block of core questions asked annually as well as a series of topical questions, which may vary from edition to edition. The surveys ranged from 55 questions in 2013 to 79 questions in both 2009 and 2011. During our sample period, we provided feedback and design suggestions to the Bank of New York Mellon concerning the survey. The questions are designed to gain insights into the firm's IR activities and strategies for the prior year. All but a few questions are multiple choice.

Linking public firms named in the BNY Mellon Global Trends in Investor Relations Survey data to public firms named in Compustat North America involves several steps. First, we identify the company recorded in BNY Mellon panel. Second, we use a matching algorithm to match the name of the company with a list of publicly traded company names from Compustat. Our matching algorithm strips common strings (e.g., "Inc.," "Ltd."), punctuation and spaces from firm names in both databases before comparing the two data strings. Third, the algorithm compares each company name in the BNY Mellon data panel to each company name in Compustat. Each consecutive letter of every name pair – one from the BNY Mellon Survey, the other from Compustat – is analyzed, and a similarity score ranging from zero to one is computed where the score is zero if no letters match and one if all letters match. Fourth, the algorithm generates a list of matches from highest to lowest score. Finally, we retain all matches with a score in excess of 0.3 and hand-check each match to confirm correct matches and remove erroneous matches.[3]

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[3] For example, "Advanced Energy Industries, Inc." in the FEC database is stripped of common words, abbreviations, spaces and punctuation to be read by the computer as "AdvancedEnergy." This truncated string is matched to Compustat name "Advanced Energy Inds Inc.," which is read by the computer as "AdvancedEnergyInds." The match score is imperfect at 0.764 due to the absence of character match on the final four characters in the Compustat firm name. However, because the score is above 0.3, we manually check and confirm the match for inclusion in our sample.

To test our hypothesis, we examine firm responses to the following six questions. The first two questions capture variations in the collection effort of market information by IRP from market participants. The next two questions capture variations in the extent to which IRP has a channel by which they can deliver gathered information to the board of directors. The final two questions capture variations in IRP resources and IRP ability and experience.

The first question we examine is, "(P)lease think about all the time spent with the investment community by IRP, approximately what percentage of this time is allocated to existing (new) institutional investors [individual investors]." Surveyed firms respond to this question by inputting the percentage of IRP time spent meeting i) existing institutional investors, ii) new/prospective institutional investors, iii) individual investors. Since it is answered by the percentage, the responses ranges between 0 and 1 (100%) for each category. Table 1 shows that the average (median) time spent with existing institutional investors (*Time_ExistingII*) by IRP is 34.83% (35%). We also find that the average (median) time spent with new/prospective institutional investors, *Time_NewII* is 27.67% (30%). Interestingly, the amount of time spent for individual investors is minimal. The average value of *Time_Individuals* is only 1.9%, consistent with few returns to meeting with counterparties whose holdings, on average, are small.

The second question we examine is, "(W)hat is your best estimate as to the number of one-on-one meetings IRP have with investment professionals in a typical year." Surveyed firms respond to this question by specifying actual numeric estimate. The average (median) response to this question is 72.32 (2). We expect that a greater number of meetings between IRO and investors is a source of investor insights that when passed along to the board of directors will improve investment selection.

The third question we examine is, "(d)o IRP provide the Board of Directors with market intelligence?" Surveyed firms respond to this question by specifying "Yes" or "No". We code an affirmative (negative) response as "1" ("0"). An affirmative response is reported by 37% of firms. We expect greater investment efficiency when IRP provide the board of directors with market intelligence.

The fourth question we examine is "(w)hat type(s) of market intelligence does IRP provide to the Board of Directors?" The survey provides a wide variety of responses capturing the various types of feedback

and further asks about the frequency of the reports to the board of directors. The types of market intelligence considered by the survey include stock performance, sell side analyst opinions, peer information, media mentions, investment community feedback, industry trends, financial performance, insights on largest buyer, and upcoming and past IR activities. We code a variable for each of the foregoing types of market intelligence. If IRP do not provide that type of market intelligence to the board, we code the variable as zero. If IRP provides that type of market intelligence to the board, we also measure the frequency of each type supplied to the board of directors. We code the variable as one when IR supplies market intelligence to the board only as needed. We code the variable as two, three, four, five, six, and seven when supplied annually, semi-annually, quarterly, monthly, weekly, and daily, respectively. The average of the variable across each of the nine types of market intelligence ranges from a low of 0.12 (for media mentions) to a high of 5.56 (sell side analyst opinions).

The fifth question we examine is, "(w)hat is the level of IR compensation and resources?". Survey respondents, who are generally the senior-most IRP at the firm, provide information on their base salary, bonus size, total compensation, the total IRP budget and the proportion of the annual budget allocated to salaries. The average compensation for IRP responding to the survey is $192,020. The average bonus is $71,790. The average total compensation in our sample is $300,320. The average IR departmental budget is $914,790 and the proportion of the annual budget spent on IR salaries averages 44%. These variables are log-transformed in our analysis. While our main hypothesis calls for the test of information flows between investors and IRP and between IRP and board directors, we examine IRP wages as a proxy for IRP ability and talent in their communication role. The last question we examine is, "(H)ow many years of experience does your most senior IR-dedicated professional have in the IR field?" Surveyed firms respond to this question by specifying the number of years. The average (median) experience of the most senior IR professional is 9.80 (8) years.

For each of the aforementioned variables, we autofill missing values with non-missing values from the most proximate firm-year to generate a balanced panel of observations. This research design decision affects 2014 in particular, because there was no survey distributed by BNY Mellon in 2014. BNY Mellon transitioned from an annual to a bi-annual survey after 2013.

3.2. Research Design

Our research question asks whether the flow of communication from investors to board of directors via IRP improves investment efficiency. To examine the association between IR activities and investment efficiency, we estimate the investment model (1) developed in the prior literature (e.g., Fazzari et al. (1988), Baker et al. (2003), McLean et al. (2012) and Chen et al. (2017)). This literature suggests that firm investment decisions are more efficient when the sensitivity of investment to Tobin's q is higher or the sensitivity of investment to internal cash flows is lower in the model. For example, Biddle and Hilary (2006) show that firms with higher accounting quality tend to have lower investment-cash flow sensitivity and use this as evidence for more efficient investment decision. Thus, we also interpret the significant and positive (negative) coefficient on q (cash flows from operation) as more efficient investment decision by managers. To examine whether the informational flow from investors to board of directors through IRP activities increases investment efficiency, we further interact both q and cash flows from operation with our IR variables. McLean et al. (2012) employ a similar research design to examine the effect of investor protection on investment efficiency and find that the coefficients on the interactions of investor protection measures with Tobin's q are significantly positive while the coefficients on the interaction of investor protection measures with internal cash flows are significantly negative, concluding that country level investor protection increases investment efficiency.

$$INVEST_{i,t} = \beta_0 + \beta_1 q_{i,t-1} + \beta_2 CF_{i,t-1} + \beta_3 IR_{i,t-1} + \beta_4 IR_{i,t-1}*q_{i,t-1} + \beta_5 IR_{i,t-1}*CF_{i,t-1} + \beta_{6...n}X_{it} + \varepsilon_{i,t} \tag{1}$$

where,

$INVEST =$ a measure of investment; It is measured as capital expenditure plus R&D expenditure scaled by average total assets.[4]

$q =$ The natural logarithm of Tobin's q, which is computed as the market value of equity minus the book value of equity, plus the book value of assets, all scaled by the book value of assets (e.g., Baker et al. 2003);

$CF =$ Net income plus R&D and depreciation and amortization, all scaled by the lagged total assets;

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[4] We discuss alternate measures in our robustness section.

IR =   IR variables; *IR* is equal to one of a menu of variables capturing IRP activity that we draw

from the BNY Mellon IR Survey;

X_{it} represents a vector of control variables including firm size, Altman-Z score, property plant and equipment,

book leverage, cash flows, operating cycle, a loss indicator, and the 3-year standard deviation of cash flows,

sales and investment. We define all control variables in Appendix A.

Our primary focus is on the coefficients on the interactions of IR variables with the lagged Tobin's *q*

(*q*) and cash flows from operation (CF). We expect that the coefficients on the interactions of *IR* variables with

q (CF) are significantly positive (negative) if IRP increases investment efficiency by facilitating the flow of

communication between shareholders and board directors. We include various control variables which prior

studies suggest that affect managers' investment decision in the equation (1) such as firm size, standard

deviations of cash flows from operation, sales, and investments, Altman Z-core, the amount of property, plant,

and equipment, leverage, operating cycle, and accounting loss occurrences. For example, we include the amount

of property, plant, and equipment as a proxy for tangibility since prior studies (e.g., Biddle et al. 2009) document

that more capital-intensive firms tend to make greater investments. The literature also shows that leverage is

negatively related to firm level investment. When estimating equation (1), we cluster standard errors by firm.

4. Sample development and Summary Statistics

4.1. *Sample development*

Table 2 shows the number of survey observations throughout our data screening process, starting with

data retrieval and ending with our estimation sample. We retrieve survey responses for 2,518 distinct firms over

3,334 firm-years. Survey responses span 2009 to 2015. Survey questions are retrospective so we match survey

data with firm data from the previous year. For example, Starbucks Corporation was a 2013 survey respondent.

We attribute survey responses for this firm to firm-year data from 2012.

Removing duplicate observations excludes 109 (0) firm-years (firms). Removing company names that

were not matched to Compustat excludes 480 (409) firm-year (firm) observations. Removing non-U.S.

observations excludes 2,313 (1,751) firm-year (firm) observations. Our final screen removes observations with

missing control variables. After these data screens the sample comprises 412 (343) firm-years (firms).

At the data retrieval stage it is clear that the majority of firms respond to the BNY Mellon Global Trends in Investor Relations Survey only once during the sample period. On average, a 2010 survey respondent did not respond in any other year in our sample. To create a balanced panel, we replace missing survey responses with the most temporally proximate same-firm non-missing survey response. Iterating this process over the 343 distinct survey respondents in our sample increases our sample size from 412 firm-year observations to 1,895 firm-year observations. We estimate model (1) using this expanded sample.

Panel A of Table 3 provides an industry breakdown of our sample. We report industry using the Fama-French 10 classification for both the raw survey data and for our expanded sample. Industry composition across both samples are similar. The highest represented industry is the high-tech industry with 24% of the observations and the lowest is the telecommunications industry with 2% of the observations.

Panel B of Table 3 provides a year breakdown of our sample. We report the breakdown for both the raw survey data and for our expanded sample. The raw data includes survey responses for consecutive years 2009 to 2015. In 2014, BNY Mellon transition to a bi-annual survey and so the next available survey responses were gathered in 2015. As mentioned above, we assign survey responses to the firm-year preceding survey administration. Our year breakdown shows the number of survey responses varied significantly from year-to-year. BNY Mellon gathered approximately 32% of raw data in 2011. BNY Mellon gathered the fewest observations, approximately 8% of the raw data, in 2008. Our expanded sample mechanically generates a smooth distribution of observations across sample years because any year with a missing survey response takes on the value of the most temporally proximate same-firm non-missing survey response. We describe sample characteristics and estimate our empirical models using the expanded sample throughout the rest of our study.

4.2. Summary statistics

Table 4 provides the summary statistics for the sample. *Investment,* our dependent variable, captures the level of capital and research and development expenditures incurred by the firm in each firm-year. The average (median) firm spends 9% (7%) of total assets on new capital expenditures and research and development. Other firm characteristics, including leverage, property, plant and equipment, cash flows, operating cycle and a loss indicator are generally consistent with sample characteristics of the Compustat universe of firms. The average

(median) Altman Z-score in our sample is 2.20 (2.22) while the average (median) value of the amount of property, plant, and equipment to total assets is 29% (18%). On average, our sample firm's book leverage is 25%.

5. Results

5.1 Main Results

5.1.1 IR Communication with Investors

We first examine how IRP time spent with investors affects investment efficiency. We consider three different groups of investors – existing institutional investors, new institutional investors, and individual investors and measure the amount of time spent with each group of investment community. This leads to the following three variables of our interest – *TIME_ExistingII* (time spent with existing institutional investors), *TIME_NewII* (time spent with new institutional investors), and *TIME_Individuals* (time spent with individual investors). We predict that the likelihood that IRP can obtain more relevant information for their firm's investment decision is higher when they spend more time with investment community. Thus, we expect that there is a positive relation between IRP time with investors and investment efficiency. To test this, we estimate the model (1) by interacting each of the above three time variables (*TIME_ExistingII*, *TIME_NewII*, and *TIME_Individuals*) with both Tobin's q and cash flow.

Results are presented in Table 5. We report the results with or without control variables such as firm size, leverage, Altman Z-score, and a loss indicator. Since prior studies relying on the traditional *q*-framework do not usually include control variables, we also report the results without control variables for the purpose of comparison. When we use the amount of time spent with existing institutional investors (i.e., *TIME_ExistingII*) as a measure of IRP's communication with investors, the coefficient on the interaction term between Tobin's q (cash flow) and *TIME_ExistingII* is significantly positive (negative). These results support our hypothesis that more interaction between IRP personnel and investors is positively related with investment efficiency. We find similar results when using the amount of time spent with new institutional investors (i.e., *TIME_NewII*) as a measure of IRP's communication with investors. The smaller coefficient and lower level of statistical significance may suggest that IR appears to be getting better information from incumbent rather than

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prospective investors. Intuitively, incumbent investors incur more information gathering costs and hence are more likely to have valuable feedback to provide to the firm. When we interact *TIME_Individuals* (the amount of time spent with individual investors) with both Tobin's *q* and cash flow, the coefficient on the interaction between *TIME_Individuals* and Tobin'*q* is positive and statistically significant while the coefficient on the interaction between *TIME_Individuals* and cash flow is negative and statistically significant. These coefficients suggest that even IRP's contact with individual investors helps to improve investment efficiency.

Turning to control variables, we find that Tobin's Q, cash flows, standard deviation of cash flows, the amount of property, plant, and equipment, and the operating cycle are positively related to the amount of investment while size, Altman-Z, leverage are negatively related to the amount of investment. These results are generally consistent with prior studies, such as Biddle et al. (2012).

Next, we examine the impact of one-on-one meetings with investment professions on firm investment efficiency. Based on our hypothesis, we predict that the opportunities for IRP to collect market intelligence through one-on-one meetings with investment professions will enhance investment efficiency. Consistent with our prediction, the results in Table 6 show that the coefficient on the interaction between Tobin' *q* and this IR activity variable is significantly positive, suggesting that information from meetings between IRP and investment professionals significantly increases the sensitivity of investment to Tobin's *q*. We find no association between these meetings and the relation between cash flows and investment. Overall, the evidence is consistent with H_1, which predicts that increased opportunities to collect market intelligence via contact with investors is associated with more efficient investment decisions.

5.1.2 IR Communication with the Board of Directors

H_2 suggests that in addition to being a conduit of market intelligence IRP may play a role as a governance mechanism by insuring that market intelligence collected from investors is free of self-serving bias and decision relevant to board of directors. To test this hypothesis, in our main regression, we interact Tobin's *q* and cash flow variables with a dummy variable indicating whether market intelligence is reported directly to the board of directors by IRP. If direct reporting of market intelligence to the board of directors has a positive impact on the efficiency of investment decisions, the coefficient on the interaction term between Tobin's q

(cash flow) and a dummy variable will be significantly positive (negative). Results presented in Table 7 are consistent with our prediction. The coefficient on the interaction term with Tobin's q is significantly positive, suggesting that greater access to market intelligence directly by the board of directors is associated with greater investment efficiency.

We further investigate how investment efficiency varies with specific forms of market intelligence that may be provided by the IR function directly to the board of directors. We consider the following types of market intelligence: stock performance, sell side analyst opinion, peer firm information, media mentions, investment community feedback, industry trends, financial performance, and largest buyer insights, and debriefing IR activities. Consistent with our previous analysis, we expect that such information directly reported to the board of directors significantly help them to understand firm-specific, industry-specific, and macro-economic conditions and more efficiently monitor managers' investment decisions.

Again, to test this prediction, we add each type of market intelligence and interact it with Tobin's q and cash flows. Results presented in Table 8 are generally consistent with our prediction that most types of market intelligence increase investment efficiency. We find that the interaction terms between types of market intelligence and Tobin's q (cash flows) are significantly positive (negative). Specifically, the coefficients on the interaction terms between Tobin's q and the following variables are positive and statistically significant: stock performance, sell-side analyst opinions, peer firm information, industry trends, financial performance, and IR activities debrief. These results suggest the relation between IR communication and investment efficiency is conditional on the type of information provided to the board of directors. We also find that coefficients on the interactions between cash flow and the following variables are significantly negative: stock performance, sell side analyst opinions, peer firm information, industry trends and financial performance. These results further suggest that the relation between IR communication and investment efficiency is conditional on the type of information provided to the board of directors.

5.1.3 IR resources, compensation and experience

We also examine how IRP resources and personnel compensation affect firm investment efficiency. Our measure of IRP resources is the IR budget. We measure IRP compensation in four ways such as base

salary, bonus, total compensation, salaries as percentage of IR budget. Base salary, bonus, and total compensation to IRP are measured relative to total firm assets. Salaries as percentage of IR budget is measured as the percentage of the IR departmental budget allocated to IRP. We argue that IRP is more likely to provide more timely and relevant information for investment decision to the board of directors when they can utilize more company resources and IRP is more able and talented. We use salary and compensation variables as proxies for IRP ability and talent. To test this, again, we add such resources and compensation measures and interact them with both Tobin's q and cash flows. If IRP resources and personnel compensations help IRP to acquire and report high quality market intelligence to the board of directors and thus increase managers' investment decision, the coefficients on the interaction terms with Tobin's q (cash flows) will be significantly positive (negative).

Results are presented in Table 9. Consistent with our predictions, the coefficients on *Bonus* and Tobin's q are significantly positive. We also find that the coefficients on the interaction terms between *Bonus* and cash flow are significantly negative, suggesting IR personnel ability and talents increase investment efficiency. When we use salaries as percentage of IR budget as a proxy for the extent of IRP resources, we also find that the coefficient on its interaction term with Tobin'q is significantly positive. However, the coefficient on its interaction term with cash flow is negative, but not significant. Overall, our results in Table 9 confirm the positive impact of IR resources and compensations on investment efficiency. Tests examining the total IR budget weakly support our hypothesis. We find that both coefficients on the interaction terms between total IR budget and Tobin's q (cash flows) are positive (negative), but only statistically significant in the model without control variables.

Finally, we examine how the experience of IRP affects investment efficiency. To measure IRP experience, we use the number of years of experience of the most senior IR-dedicated professional. Then we interact the variable, *IR_YEAR* with Tobin's q and cash flows. We find that the coefficient on the interaction term between *IR_YEAR* and Tobin's q (cash flows from operation) is statistically insignificant, suggesting that more experienced IR professionals are not associated with greater investment efficiency.

In sum, we show that investment decisions of the firm are more efficient when the firm has greater access to market intelligence via their IR function. Our results also suggest that firm's investment decisions are more efficient when board of directors are provided more direct access to market intelligence via IRP and when IRP provides the board of directors with specific forms of market intelligence. Finally, we also document that IR resources and IRP ability help managers and the board of directors to improve investment efficiency.

5.2 Robustness Tests

5.2.1 Results based on alternative measures of investment

Alternate measures of the level of investment are used in the prior literature. For example, Chen, El Ghoul, Guedhami and Wang (2017) measure investment as the level of research and development expenditures plus the change in property plant and equipment plus the change inventory. Alternatively, Bhandari and Javakhadze (2017) measure investment as research and development expenditures plus the change in property plant and equipment. We re-estimate our tests using these alternate measures. We tabulate results using the Chen et al. (2017) measure of investment in Tables A1-A5. We tabulate results using the Bhandari and Javakhadze (2017) measure in Tables A6-A10. Results under the alternative specifications are very similar to those reported in our main analysis.

5.2.2 Results with controls for the effect of board characteristics

In this section, we also examine whether other board characteristics affect our results. It is plausible that firms with better monitoring provided by the board of directors tend to have more IR activities in terms of collecting market intelligence. At the same time, due to better monitoring by the board of directors, such firms may have more efficient investment decisions, potentially resulting in the positive relation between IR activities and investment efficiency. To mitigate this concern, we add the following board characteristics to our model: board size, board independence, co-opted board members, and board director busyness (e.g., Coles, Daniel, and Naveen 2014) and examine whether our results are robust to the inclusion of these variables. Board data is drawn from the Institutional Shareholder Services database. Specifically, we add board size and board independence variables and interact them with Tobin's q and cash flows from operation in our main regression.

We find that our results are qualitatively similar with those controls, suggesting that our results are not driven by such board characteristics.

5.2.3 Results with firm fixed effects

In this section, we also examine whether firm fixed effects affect our results. Firm fixed effects control for time-invariant firm unobservables that may drive both IR behavior and investment efficiency. Survey responses reported by firms who respond to the BNY Mellon Global Trends in Investor Relations Survey in only one year are subsumed when we use firm fixed effects because the IR variable, like other time-invariant firm unobservables, does not vary over time. Consequently, the results we report with this test reflect variation in investment efficiency following from within-firm over-time changes in IR variables. We find that our results are qualitatively similar to those reported in prior tests, suggesting that time-invariant firm unobservables do not drive our results.

6. Conclusion

We investigate the IR function as a conduit of decision relevant and independent market intelligence into the firm. We provide evidence that increased opportunities for IRP to draw market intelligence into the firm are associated with more efficient investment decisions. We also provide evidence that market intelligence directly reported to the board of directors is associated with more efficient investment decisions, suggesting that market intelligence reported by IRP to the board of directors may improve their ability to monitor management's investment decisions. Lastly, we also provide evidence that IR resources and IRP ability and talents positively affect firm investment efficiency.

Readers should note that the data in this study are subject to some notable limitations. Firstly, significant data was collected via a survey of the clients of the Bank of New York Mellon and therefore is not a random sample and may not be representative of all firms. Secondly, as the survey required self-reporting it is subject to potential bias or error that we are not able to verify. Nonetheless, we believe that this study provides novel evidence that IR play an important role in not only pushing firm messages to capital markets, but also in collecting and then circulating market intelligence from capital markets inside the firms. Future research

providing richer detail of alternative decisions, market information and market sources would all be beneficial

to gain a fuller understanding of how market information is acquired and impounded into firm decisions.

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Appendix A: Variable Definitions

Variable Name	Definition	Source
Test Variables		
Time_ExistingII	IRP time spent with existing investors.	BNY Mellon IR Survey
Time_NewII	IRP time spent with new investors.	BNY Mellon IR Survey
Time_Individuals	IRP time spent with individual investors.	BNY Mellon IR Survey
Meetings_with_IRO	The number of meetings between the IRO and investment professionals scaled by shareholders equity.	BNY Mellon IR Survey
boardwmarketintelligence	An indicator variable capturing whether IRP provides the board with market intelligence.	BNY Mellon IR Survey
Stock Performance	An indicator variable capturing whether IRP provides stock performance information to the board.	BNY Mellon IR Survey
Sell Side Analyst Opinions	An indicator variable capturing whether IRP provides sell side analyst opinion information to the board.	BNY Mellon IR Survey
Peer Firm Information	An indicator variable capturing whether IRP provides peer firm information to the board.	BNY Mellon IR Survey
Media Mentions	An indicator variable capturing whether IRP provides media mention information to the board.	BNY Mellon IR Survey
Investment Community Feedback	An indicator variable capturing whether IRP provides investment community feedback to the board.	BNY Mellon IR Survey
Industry Trends	An indicator variable capturing whether IRP provides industry trend information to the board.	BNY Mellon IR Survey
Financial Performance	An indicator variable capturing whether IRP provides financial performance information to the board.	BNY Mellon IR Survey
Largest Buyer Insights	An indicator variable capturing whether IRP provides insights on the largest shareholder to the board.	BNY Mellon IR Survey
Debriefing IR Activities	An indicator variable capturing whether IRP provides information to the board on upcoming and past IR activities.	BNY Mellon IR Survey
Base Salary	The level of base salary for the survey respondent scaled by total firm assets.	BNY Mellon IR Survey
Bonus	The level of bonus for the survey respondent scaled by total firm assets.	BNY Mellon IR Survey
Total Compensation	The level of total compensation for the survey respondent scaled by total firm assets.	BNY Mellon IR Survey
Total IR Budget	The size of the total budget for IRP, scaled by total firm assets.	BNY Mellon IR Survey

Salaries as % of IR Budget	The percentage of the IR departmental budget allocated to IRP.	BNY Mellon IR Survey
Number of Year's Experience	Number of years experience held by senior-most IR officer.	BNY Mellon IR Survey
Control Variables		
Invest	The sum of capital expenditures and research and development expenditures divided by total assets.	
Invest (alternate #1)	The sum of research and development expenditures, the change in property plant and equipment (net) and the change in inventory.	Chen et al. (2017)
Invest (alternate #2)	The sum of research and development expenditures and the change in property, plant and equipment (net)	Bhandari and Javakhadze (2017)
Tobin's Q	[Market value of the firm (PRCC_F × CSHO) minus book value of shareholders' equity (CEQ) plus assets (AT)] divided by total assets (AT).	
Size	Logarithm of lagged assets	CRSP/Compustat
Standard Deviation of Sales (3 year)	The standard deviation of the logarithm of sales over the past three years, i.e., t, t-1, t-2. [std(log(SALE), log(lag1SALE), log(lag2sale))]	CRSP/Compustat
Standard Deviation of Cash Flows (3 year)	The standard deviation of the logarithm of cash flows over the past three years, i.e., t, t-1, t-2. Cash flows are measured as net cash flow from operating activities (OANCF) divided by lagged total assets (lag1AT).	CRSP/Compustat
Standard Deviation of Investment (3 year)	The standard deviation of the logarithm of sum of investment over the past three years. Investment is the sum of research and development (XRD), capital expenditures (CAPX), acquisitions (AQC).	CRSP/Compustat
Altman-Z Score	A variable equal to: (1.2(ACT-LCT)+1.4(RE+3.3×(OIADP+NOPI)+ SALE)) ÷ AT	CRSP/Compustat
Property, Plant and Equipment (Net)	Property plant and equipment. [PPEGT / lag1AT]	CRSP/Compustat
Book Leverage	Long-term debt plus the current portion of long-term debt divided by lagged total assets. [(DLTT + DLC) / lag1AT]	CRSP/Compustat
Operating Cycle	A variable equal to: Logarithm((1+RECT ÷ SALE × 360)+(1+INVT÷COGS)×360)	CRSP/Compustat
Loss Dummy	A dummy variable equal to one if the income before extraordinary items is	CRSP/Compustat

	negative in the firm year and zero otherwise.	

Table 1: Investor Relation Variables Summary Statistics

This table reports summary statistics for survey responses. All variables defined in Appendix A.

	Mean	5th Percentile	25th Percentile	Median	75th Percentile	95th Percentile	St. Dev.	N
Time_ExistingII	34.83	0.00	25.00	35.00	40.00	60.00	15.88	1,895
Time_NewII	27.67	0.00	20.00	30.00	35.00	50.00	13.97	1,895
Time_Individuals	1.87	0.00	0.00	0.00	0.00	10.00	4.48	1,895
Meetings_with_IRO	72.32	0.00	0.00	2.00	100.00	300.00	140.50	1,895
boardwmarketintelligence	0.37	0.00	0.00	0.00	1.00	1.00	0.48	1,895
Stock Performance	3.96	0.00	0.00	6.00	6.00	7.00	3.07	1,895
Sell Side Analyst Opinions	5.43	0.00	6.00	7.00	7.00	7.00	2.81	1,895
Peer Firm Information	1.35	0.00	0.00	1.00	1.00	7.00	2.24	1,895
Media Mentions	0.12	-1.00	0.00	0.00	0.00	0.00	1.22	1,895
Investment Community Feedback	3.30	0.00	0.00	4.00	4.00	7.00	2.55	1,895
Industry Trends	0.84	0.00	0.00	0.00	0.00	7.00	2.14	1,895
Financial Performance	0.89	0.00	0.00	0.00	0.00	7.00	2.27	1,895
Largest Buyer Insights	1.50	0.00	0.00	0.00	0.00	7.00	2.88	1,895
Debriefing IR Activities	1.62	0.00	0.00	0.00	0.00	7.00	2.95	1,895
Base Salary	192.02	50.00	138.00	187.00	238.00	325.00	97.77	1,717
Bonus	71.79	0.00	18.00	62.00	125.00	225.00	65.87	1,532
Total Compensation	300.32	0.00	162.00	262.00	375.00	775.00	220.47	1,687
Total IR Budget	914,790	200,000	375,000	500,000	1,000,000	2,700,000	1,210,444	691
Salaries as % of IR Budget	44	15	30	45	57	75	19	990
Years Experience of Senior-Most IR	9.80	1.00	4.00	8.00	15.00	21.00	6.95	1,759

Table 2: Sample Selection

The columns labeled *Firm-Years* and *Firms* count the number of observations after each of our data cuts.

	Firm-Years	Change	Distinct Firms	Change
BNY Mellon Survey Data, Retrieval Stage	3,334		2,518	
After removing duplicate obseravtion	3,225	(109)	2,518	0
After removing firms-years not hand-matched to Compustat	2,745	(480)	2,109	(409)
After removing non-US firm observations	432	(2,313)	358	(1,751)
After removing firms with missing control variables	412	(20)	343	(15)
After replacing missing IR variables with nearest same-firm non-missing observation	1,895		343	

Table 3: Survey Firm Breakdown by Industry and Year

This table reports sample characteristics of the surveyed firms.

Panel A: Fama-French 10 Industry Breakdown

Fama-French industry code (10 industries)	Survey Firm-Years			
	Raw Data		Expanded Sample	
Non-Durable	29	7%	151	8%
Consumer Durable	12	3%	66	3%
Manufacturing	56	14%	267	14%
Energy	24	6%	123	6%
High Tech	98	24%	454	24%
Telecommunications	8	2%	47	2%
Wholesale Retail	46	11%	195	10%
Health	32	8%	169	9%
Utiliites	55	13%	163	9%
Other	52	13%	260	14%
Total	**412**	**100%**	**1,895**	**100%**

Panel B: Year Breakdown

Year	Raw Data		Expanded Sample	
	Freq.	%	Freq.	%
2008	31	8%	268	14%
2009	55	13%	272	14%
2010	95	23%	275	15%
2011	133	32%	275	15%
2012	59	14%	274	14%
2013	0	0%	267	14%
2014	39	9%	264	14%
Total	**412**	**100%**	**1,895**	**100%**

Table 4: Sample Summary Statistics

This table reports summary statistics for survey firm characteristics. All variables defined in Appendix A.

Survey Firm-Years	Investment	Tobin's Q	Size	Standard Deviation of Cash Flows (3 year)	Standard Deviation of Sales (3 year)	Standard Deviation of Investment (3 year)	Altman Z Score	Property, Plant and Equipment (Net)	Book Leverage	Cash Flows	Operating Cycle	Loss Indicator
Mean	0.090	1.852	7.913	0.00010	0.09832	0.01005	2.20	0.29	0.25	0.10	6.15	0.16
5th Percentile	0.010	0.917	5.189	0.00000	0.00885	0.00002	-0.07	0.03	0.00	-0.01	5.97	0.00
25th Percentile	0.035	1.186	6.823	0.00000	0.02906	0.00017	1.24	0.08	0.09	0.07	6.06	0.00
Median	0.070	1.513	7.863	0.00001	0.06083	0.00088	2.22	0.18	0.22	0.14	6.13	0.00
75th Percentile	0.115	2.144	9.080	0.00004	0.11946	0.00443	3.09	0.43	0.36	0.24	6.21	0.00
95th Percentile	0.249	3.965	10.738	0.00039	0.32043	0.04124	5.10	0.83	0.60	0.45	6.41	1.00
St. Dev.	0.086	1.111	1.686	0.00037	0.11697	0.04094	1.88	0.28	0.23	1.02	0.14	0.37
N	1895	1895	1895	1895	1895	1895	1895	1895	1895	1895	1895	1895

Table 5: The Impact of IR Department Time with Investors on Investment Efficiency

"Please think about all the time spent with the investment community by the investor relations department, approximately what percentage of this time is allocated to existing (new) institutional investors [individual investors]."

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1)	(2)	(3)	(4)	(5)	(6)
			Dependent Variable: Investment			
Test Variable:	Time_ExistingII	Time_ExistingII	Time_NewII	Time_NewII	Time_Individuals	Time_Individuals
Tobin's Q	0.0306***	0.0208***	0.0217***	0.0240***	0.0292***	0.0289***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cash Flows	-0.00982	0.244***	0.0296	0.173***	-0.0815**	0.0472
	(0.89)	(0.00)	(0.67)	(0.01)	(0.04)	(0.12)
Test Variable	0.000181	0.000229	-0.000456	0.0000268	0.00137	-0.000839
	(0.54)	(0.37)	(0.14)	(0.92)	(0.22)	(0.40)
Test Variable × Tobin's Q	**0.0000491**	**0.000369****	**0.000366****	**0.000296****	**0.000679**	**0.000935****
	(0.41)	**(0.02)**	**(0.02)**	**(0.04)**	**(0.15)**	**(0.05)**
Test Variable × Cash Flow	**-0.00346****	**-0.00727*****	**-0.00531****	**-0.00586*****	**-0.0124****	**-0.0113****
	(0.04)	**(0.00)**	**(0.03)**	**(0.01)**	**(0.03)**	**(0.02)**
Size		-0.00482***		-0.00575***		-0.00514***
		(0.00)		(0.00)		(0.00)
Standard Deviation of Cash Flows (3 year)		12.77		5.216		5.894
		(0.16)		(0.53)		(0.58)
Standard Deviation of Sales (3 year)		0.00413		0.00286		0.00909
		(0.76)		(0.84)		(0.52)
Standard Deviation of Investment (3 year)		0.164		0.123		0.126
		(0.11)		(0.22)		(0.35)
Altman Z Score		-0.0135***		-0.0130***		-0.0138***
		(0.00)		(0.00)		(0.00)
Property, Plant and Equipment (Net)		0.113***		0.113***		0.111***
		(0.00)		(0.00)		(0.00)
Book Leverage		-0.0627***		-0.0643***		-0.0580***
		(0.00)		(0.00)		(0.00)
Operating Cycle		0.0504***		0.0498***		0.0518***
		(0.00)		(0.00)		(0.00)
Loss Indicator		0.0205***		0.0203***		0.0200***
		(0.00)		(0.00)		(0.00)
Constant	0.0381***	-0.245**	0.0560***	-0.226**	0.0420***	-0.239**
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Number of Observations	1895	1895	1895	1895	1895	1895
Adjusted R-Squared	0.172	0.437	0.183	0.437	0.185	0.435
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm

Table 6: The Impact of One-On-One Meetings with Investment Professionals on Investment Efficiency

"What is your best estimate as to the number of one-on-one meetings IR personnel have with investment professionals in a typical year?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1) Dependent Variable: Investment Meetings_with_IRO	(2) Dependent Variable: Investment Meetings_with_IRO
Test Variable:		
Tobin's Q	0.0282***	0.0265***
	(0.00)	(0.00)
Cash Flows	-0.163***	0.00411
	(0.00)	(0.91)
Test Variable	-0.00213	-0.00306
	(0.33)	(0.13)
Test Variable × Tobin's Q	**0.00194***	**0.00272****
	(0.09)	**(0.02)**
Test Variable × Cash Flow	**0.0203***	**0.00360**
	(0.08)	**(0.38)**
Size		-0.00538***
		(0.00)
Standard Deviation of Cash Flows (3 year)		8.878
		(0.41)
Standard Deviation of Sales (3 year)		-0.00237
		(0.86)
Standard Deviation of Investment (3 year)		0.130
		(0.33)
Altman Z Score		-0.0130***
		(0.00)
Property, Plant and Equipment (Net)		0.109***
		(0.00)
Book Leverage		-0.0584***
		(0.00)
Operating Cycle		0.0474***
		(0.00)
Loss Indicator		0.0202***
		(0.00)
Constant	0.0476***	-0.207**
	(0.00)	(0.03)
Number of Observations	1895	1895
Adjusted R-Squared	0.188	0.437
Standard Errors Clustered By:	Firm	Firm

Table 7: The Impact of Market Intelligence Provided by IR Department to the Board of Directors

"Does the investor relations department provide the Board of Directors with market intelligence (Yes / No)?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1) Dependent Variable: Investment boardwmarketintelligence	(2) Dependent Variable: Investment boardwmarketintelligence
Test Variable:		
Tobin's Q	0.0302***	0.0285***
	(0.00)	(0.00)
Cash Flows	-0.142***	0.0302
	(0.00)	(0.39)
Test Variable	-0.0130	-0.0135
	(0.31)	(0.22)
Test Variable × Tobin's Q	**0.00515**	**0.0108**
	(0.31)	**(0.11)**
Test Variable × Cash Flow	**0.0675**	**-0.0460**
	(0.36)	**(0.23)**
Size		-0.00500***
		(0.00)
Standard Deviation of Cash Flows (3 year)		9.247
		(0.41)
Standard Deviation of Sales (3 year)		0.00377
		(0.79)
Standard Deviation of Investment (3 year)		0.132
		(0.34)
Altman Z Score		-0.0137***
		(0.00)
Property, Plant and Equipment (Net)		0.111***
		(0.00)
Book Leverage		-0.0614***
		(0.00)
Operating Cycle		0.0479***
		(0.00)
Loss Indicator		0.0199***
		(0.00)
Constant	0.0485***	-0.214**
	(0.00)	(0.02)
Number of Observations	1895	1895
Adjusted R-Squared	0.172	0.430
Standard Errors Clustered By:	Firm	Firm

"What type(s) of market intelligence does the investor relations department provide to the Board of Directors?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Dependent Variable: Investment				
Test Variable:	Stock Performance	Sell Side Analyst Opinions	Peer Firm Information	Media Mentions	Investment Community Feedback	Industry Trends	Financial Performance	Largest Buyer Insights	Debriefing IR Activities
Tobin's Q	0.0194***	0.0256***	0.0251***	0.0303***	0.0328***	0.0266***	0.0275***	0.0310***	0.0277***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cash Flows	0.124**	0.170**	0.0679**	0.0203	0.0456	0.0550*	0.0409	-0.000584	0.0351
	(0.04)	(0.05)	(0.03)	(0.47)	(0.48)	(0.06)	(0.16)	(0.99)	(0.29)
Test Variable	-0.00272*	0.000177	-0.00483*	-0.00773	0.000101	-0.00311	-0.00168	-0.00240*	-0.00301
	(0.07)	(0.92)	(0.06)	(0.20)	(0.96)	(0.21)	(0.46)	(0.07)	(0.14)
Test Variable × Tobin's Q	**0.00295***	**0.00103**	**0.00350**	**0.00360**	**-0.000295**	**0.00351**	**0.00276**	**0.000752**	**0.00266**
	(0.00)	**(0.15)**	**(0.02)**	**(0.14)**	**(0.85)**	**(0.02)**	**(0.04)**	**(0.25)**	**(0.04)**
Test Variable × Cash Flow	**-0.0230**	**-0.0268**	**-0.0249***	**-0.0121**	**-0.00883**	**-0.0328***	**-0.0164***	**0.00764**	**-0.00820**
	(0.02)	**(0.02)**	**(0.01)**	**(0.20)**	**(0.26)**	**(0.00)**	**(0.08)**	**(0.44)**	**(0.16)**
Size	-0.00512***	-0.00496***	-0.00454***	-0.00513***	-0.00497***	-0.00496***	-0.00522***	-0.00506***	-0.00513***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Standard Deviation of Cash Flows (3 year)	6.412	8.674	10.15	7.738	7.487	14.13	9.122	7.778	9.410
	(0.49)	(0.37)	(0.37)	(0.49)	(0.50)	(0.23)	(0.42)	(0.48)	(0.40)
Standard Deviation of Sales (3 year)	0.00399	0.00336	0.00838	0.00465	0.00513	-0.000345	0.000510	0.00460	0.00297
	(0.77)	(0.81)	(0.55)	(0.74)	(0.71)	(0.98)	(0.97)	(0.74)	(0.83)
Standard Deviation of Investment (3 year)	0.158	0.151	0.161	0.130	0.105	0.141	0.154	0.107	0.145
	(0.17)	(0.20)	(0.24)	(0.36)	(0.44)	(0.30)	(0.27)	(0.44)	(0.30)
Altman Z Score	-0.0131***	-0.0133***	-0.0136***	-0.0132***	-0.0137***	-0.0132***	-0.0133***	-0.0133***	-0.0134***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Property, Plant and Equipment (Net)	0.113***	0.112***	0.111***	0.110***	0.111***	0.112***	0.109***	0.112***	0.111***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Book Leverage	-0.0663***	-0.0637***	-0.0585***	-0.0593***	-0.0622***	-0.0569***	-0.0571***	-0.0632***	-0.0603***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Operating Cycle	0.0397***	0.0461***	0.0553***	0.0453***	0.0488***	0.0533***	0.0487***	0.0456***	0.0475***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Loss Indicator	0.0197***	0.0213***	0.0190***	0.0198***	0.0209***	0.0186***	0.0177***	0.0207***	0.0190***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-0.157	-0.209**	-0.261***	-0.201**	-0.225**	-0.249***	-0.219**	-0.201**	-0.211**
	(0.10)	(0.03)	(0.00)	(0.04)	(0.02)	(0.01)	(0.02)	(0.04)	(0.02)
Number of Observations	1895	1895	1895	1895	1895	1895	1895	1895	1895
Adjusted R-Squared	0.442	0.435	0.445	0.433	0.428	0.447	0.439	0.427	0.435
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

	Table 9: The Impact of Investor Relations Resources on Investment Efficiency											

	What is the level of IR compensation and resources?											

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
						Dependent Variable: Investment						
Test Variable:	Base Salary	Base Salary	Bonus	Bonus	Total Compensation	Total Compensation	Total IR Budget	Total IR Budget	Salaries as % of IR Budget	Salaries as % of IR Budget	Number of Year's Experience	Number of Year's Experience
Tobin's Q	0.0238	0.0262**	0.0405***	0.0154**	0.0389***	0.0303***	-0.126**	-0.0515	0.0264***	0.0181***	0.0369***	0.0351***
	(0.13)	(0.04)	(0.00)	(0.01)	(0.00)	(0.00)	(0.04)	(0.42)	(0.00)	(0.00)	(0.00)	(0.00)
Cash Flows	-0.486**	-0.236	-0.119	0.337***	-0.530***	-0.125	0.909	0.610	-0.259**	0.0398	-0.140	0.00266
	(0.03)	(0.14)	(0.46)	(0.01)	(0.00)	(0.34)	(0.22)	(0.30)	(0.03)	(0.51)	(0.10)	(0.97)
Test Variable	-0.0112***	-0.00882***	0.00361	0.00195	-0.00663***	-0.00477**	-0.00626	-0.000892	-0.000365	-0.000417*	0.000536	0.000427
	(0.00)	(0.00)	(0.30)	(0.50)	(0.01)	(0.02)	(0.31)	(0.88)	(0.32)	(0.07)	(0.46)	(0.53)
Test Variable × Tobin's Q	**0.00189**	**0.00126**	**-0.00310**	**0.00255***	**-0.000945**	**0.000658**	**0.0109***	**0.00513**	**-0.0000344**	**0.000281****	**-0.000344**	**-0.000265**
	(0.27)	**(0.30)**	**(0.18)**	**(0.07)**	**(0.66)**	**(0.35)**	**(0.01)**	**(0.15)**	**(0.85)**	**(0.03)**	**(0.46)**	**(0.51)**
Test Variable × Cash Flow	**0.0680***	**0.0465**	**0.00178**	**-0.0719*****	**0.0721****	**0.0237**	**-0.0665***	**-0.0362**	**0.00329**	**-0.000737**	**0.0000517**	**-0.000181**
	(0.10)	**(0.15)**	**(0.96)**	**(0.01)**	**(0.02)**	**(0.32)**	**(0.10)**	**(0.20)**	**(0.27)**	**(0.33)**	**(0.99)**	**(0.49)**
Size		-0.00577***		-0.00365***		-0.00501***		0.00236		-0.00211		-0.00572***
		(0.00)		(0.00)		(0.00)		(0.30)		(0.22)		(0.00)
Standard Deviation of Cash Flows (3 year)		13.27		18.98		10.37		-8.632		10.01		14.01
		(0.26)		(0.35)		(0.37)		(0.82)		(0.58) 0.0		(0.32)
Standard Deviation of Sales (3 year)		0.00598		0.00285		0.00377		-0.0269		236		0.00731
		(0.68)		(0.85)		(0.80)		(0.13)		(0.21)		(0.62)
Standard Deviation of Investment (3 year)		0.220*		0.867***		0.229*		0.992**		0.399		0.222
		(0.09)		(0.00)		(0.08)		(0.03)		(0.20)		(0.10)
Altman Z Score		-0.0129***		-0.0116***		-0.0137***		-0.00826***		-0.0152***		-0.0130***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Property, Plant and Equipment (Net)		0.112***		0.114***		0.110***		0.104***		0.105***		0.111***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Book Leverage		-0.0609***		-0.0507***		-0.0604***		-0.0902***		-0.0523***		-0.0634***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Operating Cycle		0.0547***		0.0691***		0.0403**		0.120***		0.0550***		0.0529***
		(0.00)		(0.00)		(0.01)		(0.00)		(0.00)		(0.00)
Loss Indicator		0.0220***		0.0177***		0.0218***		0.0293***		0.0247***		0.0211***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.01)		(0.00)
Constant	0.101***	-0.212**	0.0350**	-0.373***	0.0787***	-0.150	0.135*	-0.701***	0.0679***	-0.268**	0.0383***	-0.250**
	(0.00)	(0.05)	(0.01)	(0.00)	(0.00)	(0.15)	(0.10)	(0.00)	(0.00)	(0.03)	(0.00)	(0.02)
Number of Observations	1717	1717	1532	1532	1687	1687	691	691	990	990	1759	1759
Adjusted R-Squared	0.195	0.459	0.155	0.471	0.204	0.462	0.133	0.439	0.172	0.492	0.188	0.456
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

	(1)	(2)	(3)	(4)	(5)	(6)
			Dependent Variable: Investment			
Test Variable:	Time_ExistingII	Time_ExistingII	Time_NewII	Time_NewII	Time_Individuals	Time_Individuals
Tobin's Q	0.0314***	0.0327***	0.0349***	0.0410***	0.0413***	0.0406***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cash Flows	-0.423	-0.472	-0.228	-0.208	-0.414**	-0.485*
	(0.17)	(0.30)	(0.27)	(0.41)	(0.01)	(0.07)
Test Variable	-0.000159	-0.0000255	0.0000696	0.000697	0.00195	-0.000578
	(0.80)	(0.97)	(0.93)	(0.37)	(0.61)	(0.86)
Test Variable × Tobin's Q	**0.000426***	**0.000427***	**0.000360**	**0.000186**	**0.000993**	**0.00170***
	(0.10)	**(0.08)**	**(0.13)**	**(0.28)**	**(0.20)**	**(0.06)**
Test Variable × Cash Flow	**-0.00286**	**-0.00349**	**-0.00974****	**-0.0135****	**-0.0306***	**-0.0298***
	(0.28)	**(0.28)**	**(0.03)**	**(0.01)**	**(0.07)**	**(0.06)**
Size		-0.0160***		-0.0178***		-0.0155***
		(0.00)		(0.00)		(0.00)
Standard Deviation of Cash Flows (3 year)		-2.344		-9.257		-9.277
		(0.91)		(0.66)		(0.67)
Standard Deviation of Sales (3 year)		-0.108		-0.111		-0.0947
		(0.32)		(0.30)		(0.35)
Standard Deviation of Investment (3 year)		0.0175		-0.00251		0.0212
		(0.92)		(0.99)		(0.92)
Altman Z Score		0.0122		0.0140		0.0115
		(0.30)		(0.25)		(0.31)
Property, Plant and Equipment (Net)		0.126***		0.129***		0.121***
		(0.00)		(0.00)		(0.00)
Book Leverage		0.0543		0.0555		0.0667
		(0.28)		(0.27)		(0.18)
Operating Cycle		0.0897**		0.0973***		0.103***
		(0.03)		(0.01)		(0.01)
Loss Indicator		-0.0262		-0.0275		-0.0274
		(0.35)		(0.33)		(0.33)
Constant	0.00825	-0.478*	-0.000139	-0.534**	-0.00176	-0.567**
	(0.81)	(0.10)	(1.00)	(0.03)	(0.90)	(0.02)
Number of Observations	1895	1895	1895	1895	1895	1895
Adjusted R-Squared	0.116	0.162	0.120	0.169	0.123	0.169
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm

Table A2: The Impact of One-On-One Meetings with Investment Professionals on Investment Efficiency

"What is your best estimate as to the number of one-on-one meetings IR personnel have with investment professionals in a typical year?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1) Dependent Variable: Investment Meetings_with_IRO	(2) Dependent Variable: Investment Meetings_with_IRO
Test Variable:		
Tobin's Q	0.0366***	0.0330***
	(0.00)	(0.00)
Cash Flows	-0.403***	-0.452*
	(0.00)	(0.05)
Test Variable	-0.000769	-0.00476
	(0.89)	(0.34)
Test Variable × Tobin's Q	**0.00423****	**0.00606*****
	(0.02)	**(0.01)**
Test Variable × Cash Flow	**-0.0504**	**-0.0548**
	(0.18)	**(0.13)**
Size		-0.0149***
		(0.00)
Standard Deviation of Cash Flows (3 year)		-0.241
		(0.99)
Standard Deviation of Sales (3 year)		-0.110
		(0.29)
Standard Deviation of Investment (3 year)		0.0802
		(0.69)
Altman Z Score		0.0114
		(0.29)
Property, Plant and Equipment (Net)		0.125***
		(0.00)
Book Leverage		0.0649
		(0.19)
Operating Cycle		0.107***
		(0.00)
Loss Indicator		-0.0297
		(0.31)
Constant	0.00463	-0.582**
	(0.75)	(0.02)
Number of Observations	1895	1895
Adjusted R-Squared	0.121	0.169
Standard Errors Clustered By:	Firm	Firm

Table A3: The Impact of Market Intelligence Provided by IR Department to the Board of Directors

"Does the investor relations department provide the Board of Directors with market intelligence (Yes / No)?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1) Dependent Variable: Investment boardwmarketintelligence	(2) Dependent Variable: Investment boardwmarketintelligence
Test Variable:		
Tobin's Q	0.0392***	0.0361***
	(0.00)	(0.00)
Cash Flows	-0.288***	-0.299***
	(0.00)	(0.01)
Test Variable	0.0350	0.0279
	(0.40)	(0.47)
Test Variable × Tobin's Q	**0.0165**	**0.0216***
	(0.11)	**(0.06)**
Test Variable × Cash Flow	**-0.659**	**-0.703***
	(0.11)	**(0.08)**
Size		-0.0148***
		(0.00)
Standard Deviation of Cash Flows (3 year)		8.447
		(0.75)
Standard Deviation of Sales (3 year)		-0.102
		(0.32)
Standard Deviation of Investment (3 year)		0.0944
		(0.65)
Altman Z Score		0.00889
		(0.32)
Property, Plant and Equipment (Net)		0.123***
		(0.00)
Book Leverage		0.0651
		(0.19)
Operating Cycle		0.113***
		(0.00)
Loss Indicator		-0.0286
		(0.30)
Constant	-0.00656	-0.637***
	(0.64)	(0.00)
Number of Observations	1895	1895
Adjusted R-Squared	0.144	0.191
Standard Errors Clustered By:	Firm	Firm

Table A4: The Impact of Management to Investor Contact on Investment Efficiency									
"What type(s) of market intelligence does the investor relations department provide to the Board of Directors?"									

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

					Panel B				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Dependent Variable: Investment				
Test Variable:	Stock Performance	Sell Side Analyst Opinions	Peer Firm Information	Media Mentions	Investment Community Feedback	Industry Trends	Financial Performance	Largest Buyer Insights	Debriefing IR Activities
Tobin's Q	0.0334***	0.0526***	0.0366***	0.0461***	0.0437***	0.0424***	0.0450***	0.0473***	0.0348***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cash Flows	-0.222*	-0.406**	-0.238***	-0.605*	-0.204	-0.576*	-0.626*	-0.646*	-0.310***
	(0.05)	(0.01)	(0.00)	(0.06)	(0.17)	(0.09)	(0.08)	(0.07)	(0.00)
Test Variable	0.00325	0.00459	0.0109	-0.0144*	0.00784	-0.00704	-0.00667	-0.00415	0.00391
	(0.53)	(0.38)	(0.34)	(0.07)	(0.32)	(0.15)	(0.21)	(0.29)	(0.61)
Test Variable × Tobin's Q	**0.00246**	**-0.00132**	**0.00112**	**0.00409***	**0.000513**	**0.00361****	**0.00205**	**0.0000276**	**0.00363****
	(0.11)	**(0.53)**	**(0.33)**	**(0.08)**	**(0.43)**	**(0.03)**	**(0.13)**	**(0.50)**	**(0.02)**
Test Variable × Cash Flow	**-0.0753***	**-0.0295**	**-0.175***	**0.0441**	**-0.100**	**0.00678**	**0.0401**	**0.0456**	**-0.109***
	(0.10)	**(0.22)**	**(0.07)**	**(0.35)**	**(0.16)**	**(0.88)**	**(0.36)**	**(0.31)**	**(0.10)**
Size	-0.0154***	-0.0155***	-0.0135***	-0.0156***	-0.0154***	-0.0153***	-0.0158***	-0.0154***	-0.0143***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Standard Deviation of Cash Flows (3 year)	-7.022	-4.044	1.226	-4.157	-5.151	-3.932	-5.418	-6.229	1.678
	(0.74)	(0.85)	(0.97)	(0.83)	(0.81)	(0.87)	(0.79)	(0.77)	(0.95)
Standard Deviation of Sales (3 year)	-0.121	-0.115	-0.0941	-0.110	-0.116	-0.111	-0.108	-0.115	-0.0984
	(0.28)	(0.29)	(0.32)	(0.31)	(0.29)	(0.30)	(0.31)	(0.30)	(0.33)
Standard Deviation of Investment (3 year)	0.0668	-0.00513	0.143	-0.0357	0.0261	0.00858	-0.0452	-0.0552	0.158
	(0.69)	(0.98)	(0.51)	(0.87)	(0.88)	(0.97)	(0.84)	(0.80)	(0.50)
Altman Z Score	0.0137	0.0125	0.0106	0.0126	0.0122	0.0124	0.0124	0.0128	0.00827
	(0.27)	(0.30)	(0.23)	(0.29)	(0.28)	(0.29)	(0.29)	(0.29)	(0.31)
Property, Plant and Equipment (Net)	0.126***	0.124***	0.125***	0.125***	0.126***	0.125***	0.125***	0.125***	0.122***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Book Leverage	0.0559	0.0569	0.0712	0.0557	0.0545	0.0592	0.0537	0.0548	0.0610
	(0.27)	(0.26)	(0.15)	(0.27)	(0.28)	(0.23)	(0.29)	(0.27)	(0.22)
Operating Cycle	0.0926**	0.0994***	0.114***	0.0874**	0.102***	0.0953**	0.0858**	0.0837**	0.116***
	(0.01)	(0.01)	(0.00)	(0.03)	(0.01)	(0.02)	(0.04)	(0.05)	(0.00)
Loss Indicator	-0.0218	-0.0238	-0.0208	-0.0259	-0.0209	-0.0273	-0.0270	-0.0238	-0.0268
	(0.38)	(0.37)	(0.36)	(0.34)	(0.38)	(0.32)	(0.32)	(0.37)	(0.30)
Constant	-0.518**	-0.566**	-0.665***	-0.464*	-0.588**	-0.512*	-0.448	-0.442	-0.651***
	(0.03)	(0.02)	(0.00)	(0.09)	(0.01)	(0.06)	(0.11)	(0.12)	(0.00)
Number of Observations									
Adjusted R-Squared									
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Firm Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Test Variable:	(1) Base Salary	(2) Base Salary	(3) Bonus	(4) Bonus	(5) Total Compensation	(6) Total Compensation	(7) Total IR Budget	(8) Total IR Budget	(9) Salaries as % of IR Budget	(10) Salaries as % of IR Budget	(11) Number of Year's Experience	(12) Number of Year's Experience
					Dependent Variable: Investment							
Tobin's Q	0.0764	0.0813	0.0573***	0.0318	0.00766	0.00297	-0.0346	0.0344	0.0272***	0.00982	0.0529***	0.0540***
	(0.19)	(0.26)	(0.00)	(0.16)	(0.77)	(0.89)	(0.68)	(0.74)	(0.00)	(0.39)	(0.00)	(0.00)
Cash Flows	-1.486	-1.572	-0.273*	0.0335	-0.0741	-0.0614	-0.897	-1.447	-0.280	-0.0134	-0.669***	-0.765**
	(0.15)	(0.21)	(0.10)	(0.84)	(0.85)	(0.81)	(0.48)	(0.27)	(0.14)	(0.94)	(0.01)	(0.04)
Test Variable	-0.0112	-0.00834	0.00706	0.00607	-0.00420	-0.00246	-0.0104	-0.00590	-0.000317	-0.000605	-0.000468	-0.000846
	(0.28)	(0.38)	(0.40)	(0.47)	(0.49)	(0.69)	(0.30)	(0.58)	(0.60)	(0.33)	(0.80)	(0.64)
Test Variable × Tobin's Q	**-0.00547**	**-0.00609**	**-0.00447**	**0.000701**	**0.00760***	**0.00849****	**0.00501**	**-0.000456**	**0.000397****	**0.000915*** **	**-0.000508**	**-0.000461**
	(0.62)	**(0.64)**	**(0.38)**	**(0.45)**	**(0.09)**	**(0.04)**	**(0.21)**	**(0.95)**	**(0.05)**	**(0.00)**	**(0.57)**	**(0.64)**
Test Variable × Cash Flow	**0.187**	**0.189**	**-0.0120**	**-0.0710***	**-0.0857**	**-0.0982**	**0.0492**	**0.0941**	**-0.00233**	**-0.00686****	**0.0133**	**0.0154**
	(0.27)	**(0.32)**	**(0.40)**	**(0.06)**	**(0.21)**	**(0.12)**	**(0.60)**	**(0.33)**	**(0.30)**	**(0.03)**	**(0.18)**	**(0.19)**
Size		-0.0177***		-0.0118***		-0.0158***		-0.00446		-0.0126***		-0.0175***
		(0.00)		(0.00)		(0.00)		(0.33)		(0.00)		(0.00)
Standard Deviation of Cash Flows (3 year)		-16.50		12.48		-7.034		21.54		15.16		-22.73
		(0.62)		(0.63)		(0.82)		(0.62)		(0.47)		(0.50)
Standard Deviation of Sales (3 year)		-0.113		-0.0133		-0.120		0.0198		0.0244		-0.104
		(0.32)		(0.89)		(0.29)		(0.89)		(0.86)		(0.34)
Standard Deviation of Investment (3 year)		0.177		0.598*		0.289*		0.568		0.288		0.232
		(0.26)		(0.09)		(0.10)		(0.35)		(0.29)		(0.14)
Altman Z Score		0.0140		0.00356		0.0131		-0.000456		-0.00497		0.0130
		(0.26)		(0.55)		(0.30)		(0.93)		(0.31)		(0.29)
Property, Plant and Equipment (Net)		0.141***		0.125***		0.136***		0.0990**		0.145**		0.138***
		(0.00)		(0.00)		(0.00)		(0.04)		(0.01)		(0.00)
Book Leverage		0.0622		0.0903		0.0680		-0.00935		0.0411		0.0548
		(0.26)		(0.11)		(0.21)		(0.82)		(0.17)		(0.31)
Operating Cycle		0.1000**		0.149***		0.0894**		0.158**		0.156***		0.0930**
		(0.03)		(0.00)		(0.05)		(0.01)		(0.01)		(0.03)
Loss Indicator		-0.0218		-0.00984		-0.0210		-0.0243		-0.0122		-0.0235
		(0.48)		(0.67)		(0.51)		(0.31)		(0.70)		(0.45)
Constant	0.0581	-0.499	-0.0327	-0.922***	0.0226	-0.478	0.139	-0.888*	0.00501	-0.904***	0.00732	-0.485*
	(0.28)	(0.10)	(0.35)	(0.00)	(0.39)	(0.10)	(0.28)	(0.06)	(0.88)	(0.01)	(0.80)	(0.09)
Number of Observations	1717	1717	1532	1532	1687	1687	691	691	990	990	1759	1759
Adjusted R-Squared	0.130	0.182	0.085	0.162	0.127	0.176	0.067	0.124	0.085	0.164	0.125	0.176
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table A6: The Impact of IR Department Time with Investors on Investment Efficiency

"Please think about all the time spent with the investment community by the investor relations department, approximately what percentage of this time is allocated to existing (new) institutional investors [individual investors]."

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Investment					
Test Variable:	Time_ExistingII	Time_ExistingII	Time_NewII	Time_NewII	Time_Individuals	Time_Individuals
Tobin's Q	0.0316***	0.0319***	0.0344***	0.0395***	0.0393***	0.0385***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cash Flows	-0.413	-0.432	-0.235	-0.205	-0.394***	-0.439*
	(0.13)	(0.29)	(0.20)	(0.37)	(0.01)	(0.06)
Test Variable	-0.000150	0.0000115	0.0000974	0.000617	0.00136	-0.000846
	(0.78)	(0.99)	(0.89)	(0.36)	(0.71)	(0.79)
Test Variable × Tobin's Q	**0.000368**	**0.000382***	**0.000318**	**0.000165**	**0.00112**	**0.00170***
	(0.12)	**(0.08)**	**(0.13)**	**(0.28)**	**(0.16)**	**(0.06)**
Test Variable × Cash Flow	**-0.00233**	**-0.00313**	**-0.00857***	**-0.0118***	**-0.0284***	**-0.0285***
	(0.30)	**(0.28)**	**(0.03)**	**(0.01)**	**(0.07)**	**(0.05)**
Size		-0.0147***		-0.0161***		-0.0142***
		(0.00)		(0.00)		(0.00)
Standard Deviation of Cash Flows (3 year)		-0.580		-6.760		-7.098
		(0.98)		(0.73)		(0.73)
Standard Deviation of Sales (3 year)		-0.0611		-0.0641		-0.0484
		(0.52)		(0.50)		(0.58)
Standard Deviation of Investment (3 year)		0.000985		-0.0170		0.00701
		(1.00)		(0.91)		(0.97)
Altman Z Score		0.00974		0.0113		0.00911
		(0.36)		(0.31)		(0.38)
Property, Plant and Equipment (Net)		0.111***		0.113***		0.107***
		(0.01)		(0.01)		(0.01)
Book Leverage		0.0450		0.0463		0.0570
		(0.36)		(0.35)		(0.24)
Operating Cycle		0.0809**		0.0875***		0.0937***
		(0.03)		(0.01)		(0.00)
Loss Indicator		-0.0175		-0.0187		-0.0187
		(0.50)		(0.47)		(0.46)
Constant	0.0102	-0.429*	0.00145	-0.478**	0.00193	-0.510**
	(0.74)	(0.10)	(0.95)	(0.03)	(0.88)	(0.02)
Number of Observations	1895	1895	1895	1895	1895	1895
Adjusted R-Squared	0.130	0.170	0.133	0.177	0.138	0.178
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm

Table A7: The Impact of One-On-One Meetings with Investment Professionals on Investment Efficiency

"What is your best estimate as to the number of one-on-one meetings IR personnel have with investment professionals in a typical year?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1) Dependent Variable: Investment	(2) Dependent Variable: Investment
Test Variable:	Meetings_with_IRO	Meetings_with_IRO
Tobin's Q	0.0344***	0.0308***
	(0.00)	(0.00)
Cash Flows	-0.392***	-0.416**
	(0.00)	(0.04)
Test Variable	-0.00224	-0.00552
	(0.65)	(0.22)
Test Variable × Tobin's Q	**0.00456***	**0.00612***
	(0.01)	**(0.00)**
Test Variable × Cash Flow	**-0.0431**	**-0.0482**
	(0.19)	**(0.13)**
Size		-0.0136***
		(0.00)
Standard Deviation of Cash Flows (3 year)		1.602
		(0.94)
Standard Deviation of Sales (3 year)		-0.0646
		(0.48)
Standard Deviation of Investment (3 year)		0.0626
		(0.74)
Altman Z Score		0.00910
		(0.36)
Property, Plant and Equipment (Net)		0.110***
		(0.01)
Book Leverage		0.0554
		(0.25)
Operating Cycle		0.0968***
		(0.00)
Loss Indicator		-0.0208
		(0.44)
Constant	0.00981	-0.523**
	(0.43)	(0.01)
Number of Observations	1895	1895
Adjusted R-Squared	0.135	0.178
Standard Errors Clustered By:	Firm	Firm

Table A8: The Impact of Market Intelligence Provided by IR Department to the Board of Directors

"Does the investor relations department provide the Board of Directors with market intelligence (Yes / No)?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

Test Variable:	(1) Dependent Variable: Investment boardwmarketintelligence	(2) Dependent Variable: Investment boardwmarketintelligence
Tobin's Q	0.0379***	0.0347***
	(0.00)	(0.00)
Cash Flows	-0.290***	-0.281***
	(0.00)	(0.01)
Test Variable	0.0280	0.0217
	(0.46)	(0.54)
Test Variable × Tobin's Q	**0.0160***	**0.0207****
	(0.09)	**(0.05)**
Test Variable × Cash Flow	**-0.574**	**-0.620***
	(0.12)	**(0.09)**
Size		-0.0135***
		(0.00)
Standard Deviation of Cash Flows (3 year)		8.966
		(0.71)
Standard Deviation of Sales (3 year)		-0.0563
		(0.54)
Standard Deviation of Investment (3 year)		0.0712
		(0.72)
Altman Z Score		0.00682
		(0.41)
Property, Plant and Equipment (Net)		0.108***
		(0.01)
Book Leverage		0.0548
		(0.26)
Operating Cycle		0.102***
		(0.00)
Loss Indicator		-0.0198
		(0.44)
Constant	-0.00240	-0.569***
	(0.86)	(0.00)
Number of Observations	1895	1895
Adjusted R-Squared	0.155	0.198
Standard Errors Clustered By:	Firm	Firm

Table A9: The Impact of Management to Investor Contact on Investment Efficiency

"What type(s) of market intelligence does the investor relations department provide to the Board of Directors?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Dependent Variable: Investment				
Test Variable:	Stock Performance	Sell Side Analyst Opinions	Peer Firm Information	Media Mentions	Investment Community Feedback	Industry Trends	Financial Performance	Largest Buyer Insights	Debriefing IR Activities
Tobin's Q	0.0320***	0.0494***	0.0347***	0.0438***	0.0416***	0.0400***	0.0422***	0.0446***	0.0334***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cash Flows	-0.202*	-0.365**	-0.214***	-0.551*	-0.181	-0.523*	-0.566*	-0.590*	-0.291***
	(0.06)	(0.01)	(0.00)	(0.06)	(0.17)	(0.09)	(0.07)	(0.07)	(0.00)
Test Variable	0.00267	0.00423	0.00912	-0.0127*	0.00703	-0.00743*	-0.00694	-0.00467	0.00251
	(0.57)	(0.38)	(0.38)	(0.07)	(0.33)	(0.10)	(0.15)	(0.19)	(0.72)
Test Variable × Tobin's Q	**0.00232**	**-0.00112**	**0.00131**	**0.00385***	**0.000490**	**0.00362****	**0.00233***	**0.000379**	**0.00361****
	(0.11)	**(0.57)**	**(0.29)**	**(0.10)**	**(0.43)**	**(0.03)**	**(0.09)**	**(0.40)**	**(0.01)**
Test Variable × Cash Flow	**-0.0688***	**-0.0278**	**-0.161***	**0.0397**	**-0.0927**	**0.00291**	**0.0326**	**0.0419**	**-0.0960***
	(0.10)	**(0.21)**	**(0.06)**	**(0.32)**	**(0.15)**	**(0.94)**	**(0.40)**	**(0.30)**	**(0.10)**
Size	-0.0140***	-0.0141***	-0.0122***	-0.0142***	-0.0140***	-0.0140***	-0.0144***	-0.0140***	-0.0131***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Standard Deviation of Cash Flows (3 year)	-4.927	-2.103	2.805	-2.361	-3.148	-1.572	-3.028	-3.925	3.051
	(0.80)	(0.92)	(0.92)	(0.90)	(0.87)	(0.94)	(0.88)	(0.85)	(0.90)
Standard Deviation of Sales (3 year)	-0.0730	-0.0674	-0.0477	-0.0631	-0.0685	-0.0634	-0.0614	-0.0669	-0.0524
	(0.46)	(0.48)	(0.56)	(0.51)	(0.48)	(0.50)	(0.51)	(0.49)	(0.56)
Standard Deviation of Investment (3 year)	0.0470	-0.0164	0.119	-0.0447	0.00989	-0.00393	-0.0478	-0.0627	0.127
	(0.76)	(0.93)	(0.56)	(0.83)	(0.95)	(0.98)	(0.82)	(0.76)	(0.57)
Altman Z Score	0.0111	0.0100	0.00822	0.0100	0.00975	0.00991	0.0100	0.0103	0.00631
	(0.33)	(0.36)	(0.31)	(0.36)	(0.34)	(0.35)	(0.35)	(0.35)	(0.40)
Property, Plant and Equipment (Net)	0.111***	0.109***	0.110***	0.110***	0.111***	0.110***	0.110***	0.110***	0.108***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Book Leverage	0.0465	0.0473	0.0606	0.0467	0.0453	0.0499	0.0452	0.0454	0.0515
	(0.35)	(0.34)	(0.21)	(0.35)	(0.36)	(0.31)	(0.36)	(0.36)	(0.29)
Operating Cycle	0.0834**	0.0895***	0.103***	0.0794**	0.0926***	0.0860**	0.0780**	0.0756**	0.104***
	(0.01)	(0.01)	(0.00)	(0.02)	(0.00)	(0.02)	(0.03)	(0.04)	(0.00)
Loss Indicator	-0.0137	-0.0153	-0.0127	-0.0175	-0.0128	-0.0188	-0.0186	-0.0154	-0.0184
	(0.55)	(0.53)	(0.54)	(0.49)	(0.56)	(0.46)	(0.46)	(0.53)	(0.44)
Contant									
Number of Observations	-0.463**	-0.508**	-0.602***	-0.419*	-0.530***	-0.458*	-0.404*	-0.396	-0.579***
Adjusted R-Squared	(0.03)	(0.02)	(0.00)	(0.08)	(0.01)	(0.05)	(0.10)	(0.11)	(0.00)
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Firm Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

							Table A10: The Impact of Investor Relations Resources on Investment Efficiency				

What is the level of IR compensation and resources?

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

Test Variable:	(1) Base Salary	(2) Base Salary	(3) Bonus	(4) Bonus	(5) Total Compensation	(6) Total Compensation	(7) Total IR Budget	(8) Total IR Budget	(9) Salaries as % of IR Budget	(10) Salaries as % of IR Budget	(11) Number of Year's Experience	(12) Number of Year's Experience
					Dependent Variable: Investment							
Tobin's Q	0.0769	0.0799	0.0583***	0.0363*	0.0148	0.00909	-0.0188	0.0513	0.0230***	0.00785	0.0530***	0.0530***
	(0.15)	(0.23)	(0.00)	(0.09)	(0.55)	(0.66)	(0.81)	(0.58)	(0.00)	(0.45)	(0.00)	(0.00)
Cash Flows	-1.451	-1.482	-0.322**	-0.0475	-0.203	-0.151	-0.801	-1.218	-0.304*	-0.0521	-0.630***	-0.691**
	(0.12)	(0.20)	(0.04)	(0.77)	(0.56)	(0.51)	(0.46)	(0.27)	(0.06)	(0.71)	(0.00)	(0.04)
Test Variable	-0.0101	-0.00721	0.00647	0.00553	-0.00448	-0.00296	-0.00751	-0.00255	-0.000492	-0.000761	0.000213	-0.000132
	(0.31)	(0.43)	(0.43)	(0.50)	(0.43)	(0.61)	(0.40)	(0.79)	(0.34)	(0.17)	(0.90)	(0.94)
Test Variable × Tobin's Q	**-0.00592**	**-0.00637**	**-0.00519**	**-0.000682**	**0.00592**	**0.00687***	**0.00368**	**-0.00185**	**0.000435****	**0.000917*****	**-0.000703**	**-0.000630**
	(0.56)	**(0.59)**	**(0.30)**	**(0.90)**	**(0.13)**	**(0.06)**	**(0.27)**	**(0.79)**	**(0.03)**	**(0.00)**	**(0.41)**	**(0.49)**
Test Variable × Cash Flow	**0.185**	**0.183**	**0.00327**	**-0.0466**	**-0.0567**	**-0.0721**	**0.0417**	**0.0776**	**-0.00170**	**-0.00587****	**0.0120**	**0.0135**
	(0.23)	**(0.29)**	**(0.94)**	**(0.15)**	**(0.28)**	**(0.17)**	**(0.60)**	**(0.34)**	**(0.33)**	**(0.02)**	**(0.18)**	**(0.20)**
Size		-0.0163***		-0.0113***		-0.0145***		-0.00162		-0.0107***		-0.0160***
		(0.00)		(0.00)		(0.00)		(0.70)		(0.01)		(0.00)
Standard Deviation of Cash Flows (3 year)		-10.10		4.818		-2.559		14.88		5.717		-15.34
		(0.74)		(0.84)		(0.93)		(0.72)		(0.76)		(0.61)
Standard Deviation of Sales (3 year)		-0.0652		0.0171		-0.0682		0.0290		0.0706		-0.0574
		(0.51)		(0.84)		(0.49)		(0.81)		(0.55)		(0.55)
Standard Deviation of Investment (3 year)		0.143		0.518		0.242		0.601		0.283		0.191
		(0.31)		(0.14)		(0.12)		(0.29)		(0.26)		(0.18)
Altman Z Score		0.0113		0.00228		0.0105		-0.00216		-0.00606		0.0104
		(0.32)		(0.70)		(0.37)		(0.62)		(0.17)		(0.35)
Property, Plant and Equipment (Net)		0.125***		0.111***		0.120***		0.0852**		0.130**		0.123***
		(0.00)		(0.01)		(0.00)		(0.04)		(0.02)		(0.00)
Book Leverage		0.0535		0.0776		0.0580		-0.0297		0.0201		0.0462
		(0.33)		(0.16)		(0.28)		(0.42)		(0.46)		(0.39)
Operating Cycle		0.0913**		0.130***		0.0799**		0.149***		0.134***		0.0840**
		(0.02)		(0.00)		(0.04)		(0.00)		(0.00)		(0.02)
Loss Indicator		-0.0139		-0.00127		-0.0139		-0.00513		0.00348		-0.0152
		(0.62)		(0.95)		(0.63)		(0.80)		(0.90)		(0.60)
Constant	0.0544	-0.455*	-0.0273	-0.798***	0.0267	-0.420	0.107	-0.883**	0.0186	-0.769***	0.00296	-0.442*
	(0.29)	(0.09)	(0.43)	(0.00)	(0.28)	(0.10)	(0.36)	(0.02)	(0.51)	(0.01)	(0.91)	(0.08)
Number of Observations	1717	1717	1532	1532	1687	1687	691	691	990	990	1759	1759
Adjusted R-Squared	0.145	0.192	0.097	0.170	0.141	0.185	0.085	0.147	0.100	0.178	0.140	0.185
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

"Please think about all the time spent with the investment community by the investor relations department, approximately what percentage of this time is allocated to existing (new) institutional investors [individual investors]."

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1)	(2)	(3)
	Dependent Variable: Investment		
Test Variable:	Time_ExistingII	Time_NewII	Time_Individuals
Tobin's Q	0.0119**	0.0250***	0.0252***
	(0.04)	(0.00)	(0.00)
Cash Flows	0.383***	0.0705	0.0494
	(0.00)	(0.34)	(0.14)
Test Variable	0.000345	-0.000235	-0.00111
	(0.19)	(0.44)	(0.28)
Test Variable × Tobin's Q	**0.000408****	**0.00000197**	**-0.000175**
	(0.02)	**(0.50)**	**(0.77)**
Test Variable × Cash Flow	**-0.00926****	**0.000158**	**0.0129**
	(0.00)	**(0.95)**	**(0.24)**
Board Size	-0.00208***	-0.00210***	-0.00228***
	(0.01)	(0.00)	(0.00)
Board Independence	-0.000244	-0.000205	-0.000275*
	(0.11)	(0.19)	(0.08)
Coopted Board Members	0.0000565	0.0000301	0.0000259
	(0.27)	(0.56)	(0.61)
Board Director Busyness	0.000160**	0.000187**	0.000189**
	(0.04)	(0.02)	(0.02)
Constant	-0.417***	-0.354***	-0.356***
	(0.00)	(0.00)	(0.00)
Number of Observations	1662	1662	1662
Adjusted R-Squared	0.416	0.403	0.405
Control Variables Included:	Yes	Yes	Yes
Standard Errors Clustered By:	Firm	Firm	Firm

Table A12: The Impact of One-On-One Meetings with Investment Professionals on Investment Efficiency

"What is your best estimate as to the number of one-on-one meetings IR personnel have with investment professionals in a typical year?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1)
	Dependent Variable: Investment
Test Variable:	Meetings_with_IRO
Tobin's Q	0.0192***
	(0.00)
Cash Flows	0.0791**
	(0.01)
Test Variable	-0.00278
	(0.13)
Test Variable × Tobin's Q	**0.00290***
	(0.01)
Test Variable × Cash Flow	**-0.00157**
	(0.46)
Board Size	-0.00245***
	(0.00)
Board Independence	-0.000256*
	(0.09)
Coopted Board Members	0.00000334
	(0.95)
Board Director Busyness	0.000193**
	(0.02)
Constant	-0.370***
	(0.00)
Number of Observations	1662
Adjusted R-Squared	0.416
Control Variables Included:	Yes
Standard Errors Clustered By:	Firm

Table A13: The Impact of Market Intelligence Provided by IR Department to the Board of Directors

"Does the investor relations department provide the Board of Directors with market intelligence (Yes / No)?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1)
	Dependent Variable: Investment
Test Variable:	boardwmarketintelligence
Tobin's Q	0.0204***
	(0.00)
Cash Flows	0.121***
	(0.00)
Test Variable	-0.0112
	(0.17)
Test Variable × Tobin's Q	**0.0148***
	(0.01)
Test Variable × Cash Flow	**-0.122**
	(0.03)
Board Size	-0.00222***
	(0.00)
Board Independence	-0.000278*
	(0.06)
Coopted Board Members	0.0000278
	(0.58)
Board Director Busyness	0.000195**
	(0.02)
Constant	-0.385***
	(0.00)
Number of Observations	1662
Adjusted R-Squared	0.411
Control Variables Included:	Yes
Standard Errors Clustered By:	Firm

Table A14: The Impact of Management to Investor Contact on Investment Efficiency

"What type(s) of market intelligence does the investor relations department provide to the Board of Directors?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	Panel B								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Dependent Variable: Investment								
Test Variable:	Stock Performance	Sell Side Analyst Opinions	Peer Firm Information	Media Mentions	Investment Community Feedback	Industry Trends	Financial Performance	Largest Buyer Insights	Debriefing IR Activities
Tobin's Q	0.0105***	0.0141**	0.0176***	0.0258***	0.0126***	0.0206***	0.0201***	0.0199***	0.0199***
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cash Flows	0.256***	0.381***	0.152***	0.0757**	0.324***	0.108***	0.115***	0.109***	0.130***
	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Test Variable	-0.00166	0.00170	-0.00321	-0.00636	0.000714	-0.00294	-0.000494	-0.00288**	-0.00191
	(0.26)	(0.36)	(0.11)	(0.24)	(0.66)	(0.18)	(0.78)	(0.04)	(0.18)
Test Variable × Tobin's Q	**0.00327***	**0.00169**	**0.00379***	**0.00566*	**0.00293***	**0.00326***	**0.00339***	**0.00319***	**0.00297***
	(0.00)	**(0.04)**	**(0.01)**	**(0.10)**	**(0.00)**	**(0.01)**	**(0.00)**	**(0.00)**	**(0.00)**
Test Variable × Cash Flow	**-0.0362***	**-0.0495***	**-0.0399***	**-0.000483**	**-0.0582***	**-0.0297**	**-0.0341***	**-0.0204**	**-0.0223***
	(0.00)	**(0.00)**	**(0.00)**	**(0.49)**	**(0.00)**	**(0.02)**	**(0.01)**	**(0.02)**	**(0.01)**
Board Size	-0.00208***	-0.00215***	-0.00196***	-0.00230***	-0.00170**	-0.00249***	-0.00242***	-0.00243***	-0.00227***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)
Board Independence	-0.000312**	-0.000216	-0.000285*	-0.000256*	-0.000307**	-0.000196	-0.000247	-0.000265*	-0.000279*
	(0.04)	(0.16)	(0.05)	(0.10)	(0.04)	(0.21)	(0.10)	(0.08)	(0.06)
Coopted Board Members	0.0000296	0.0000138	0.0000369	0.0000245	0.0000312	0.0000280	0.0000253	0.0000243	0.0000225
	(0.57)	(0.79)	(0.46)	(0.63)	(0.54)	(0.58)	(0.61)	(0.63)	(0.65)
Board Director Busyness	0.000150*	0.000166**	0.000171**	0.000193**	0.000148*	0.000174**	0.000173**	0.000200**	0.000194**
	(0.07)	(0.04)	(0.03)	(0.02)	(0.07)	(0.03)	(0.03)	(0.01)	(0.02)
Contant	-0.324***	-0.390***	-0.463***	-0.356***	-0.422***	-0.416***	-0.399***	-0.388***	-0.394***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of Observations	1662	1662	1662	1662	1662	1662	1662	1662	1662
Adjusted R-Squared	0.422	0.421	0.432	0.403	0.430	0.418	0.424	0.417	0.418
Control Variables Included:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Table A15: The Impact of Investor Relations Resources on Investment Efficiency

What is the level of IR compensation and resources?

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1)	(2)	(3)	(4)	(5)	(6)
			Dependent Variable: Investment			
Test Variable:	Base Salary	Bonus	Total Compensation	Total IR Budget	Salaries as % of IR Budget	Salaries as % of IR Budget
Tobin's Q	0.00467	0.00892*	0.00493	-0.0298	0.0158***	0.0205***
	(0.61)	(0.09)	(0.48)	(0.65)	(0.01)	(0.00)
Cash Flows	0.0952	0.468***	0.275***	0.645	0.0129	0.236***
	(0.46)	(0.00)	(0.01)	(0.23)	(0.78)	(0.00)
Test Variable	-0.00831***	0.00296	-0.00415**	0.00125	-0.000522**	0.000867
	(0.00)	(0.29)	(0.03)	(0.84)	(0.02)	(0.15)
Test Variable × Tobin's Q	**0.00429***	**0.00403***	**0.00422***	**0.00307**	**0.000218***	**0.000495***
	(0.01)	**(0.01)**	**(0.00)**	**(0.27)**	**(0.08)**	**(0.08)**
Test Variable × Cash Flow	**-0.00587**	**-0.102***	**-0.0376****	**-0.0341**	**0.00146**	**-0.0151****
	(0.42)	**(0.00)**	**(0.03)**	**(0.19)**	**(0.36)**	**(0.00)**
Board Size	-0.00186**	-0.00140*	-0.00195***	-0.00324***	-0.00314***	-0.00192**
	(0.01)	(0.07)	(0.01)	(0.01)	(0.00)	(0.01)
Board Independence	-0.000292*	-0.000422**	-0.000196	-0.000730***	-0.000122	-0.000297*
	(0.06)	(0.02)	(0.20)	(0.00)	(0.54)	(0.06)
Coopted Board Members	0.0000140	-0.00000181	0.00000683	0.000132	-0.00000596	0.0000400
	(0.79)	(0.97)	(0.90)	(0.11)	(0.92)	(0.45)
Board Director Busyness	0.000124	0.000149*	0.000147*	0.000175	0.000137	0.0000842
	(0.14)	(0.09)	(0.09)	(0.11)	(0.19)	(0.31)
Constant	-0.334***	-0.439***	-0.268***	-0.694***	-0.408***	-0.406***
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Number of Observations	1535	1422	1505	624	906	1577
Adjusted R-Squared	0.412	0.447	0.413	0.512	0.423	0.421
Control Variables Included:	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm

Table A16: The Impact of IR Department Time with Investors on Investment Efficiency

"Please think about all the time spent with the investment community by the investor relations department, approximately what percentage of this time is allocated to existing (new) institutional investors [individual investors]."

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1)	(2)	(3)	(4)	(5)	(6)
			Dependent Variable: Investment			
Test Variable:	Time_ExistingII	Time_ExistingII	Time_NewII	Time_NewII	Time_Individuals	Time_Individuals
Tobin's Q	0.0105	0.00873	0.0156	0.0151	0.0144***	0.0128**
	(0.25)	(0.27)	(0.15)	(0.14)	(0.01)	(0.01)
Cash Flows	0.0269	0.0558	-0.0153	-0.0117	0.0117	0.0188
	(0.72)	(0.41)	(0.87)	(0.90)	(0.76)	(0.56)
Test Variable	-0.000277	-0.000257	-0.000396	-0.000176	0.00399	0.00367
	(0.34)	(0.28)	(0.34)	(0.68)	(0.66)	(0.63)
Test Variable × Tobin's Q	**0.000262****	**0.000242****	**0.000102**	**0.0000371**	**0.000962**	**0.000818**
	(0.04)	**(0.03)**	**(0.36)**	**(0.44)**	**(0.20)**	**(0.22)**
Test Variable × Cash Flow	**-0.00144**	**-0.00189***	**-0.000118**	**0.000270**	**-0.00744**	**-0.00542**
	(0.17)	**(0.08)**	**(0.48)**	**(0.89)**	**(0.27)**	**(0.32)**
Size		-0.0187		-0.0192		-0.0195
		(0.12)		(0.12)		(0.11)
Standard Deviation of Cash Flows (3 year)		-8.553		-7.442		-7.431
		(0.42)		(0.48)		(0.47)
Standard Deviation of Sales (3 year)		-0.0287**		-0.0297**		-0.0305**
		(0.03)		(0.02)		(0.01)
Standard Deviation of Investment (3 year)		0.0272		0.0179		0.0165
		(0.73)		(0.83)		(0.84)
Altman Z Score		0.00296		0.00283		0.00305
		(0.63)		(0.64)		(0.61)
Property, Plant and Equipment (Net)		0.140***		0.140***		0.139***
		(0.00)		(0.00)		(0.00)
Book Leverage		0.00457		0.00449		0.00548
		(0.82)		(0.83)		(0.78)
Operating Cycle		0.0127		0.00940		-0.00202
		(0.83)		(0.88)		(0.97)
Loss Indicator		0.00348		0.00325		0.00315
		(0.55)		(0.58)		(0.59)
Number of Observations	1895	1895	1895	1895	1895	1895
Adjusted R-Squared	0.816	0.839	0.815	0.838	0.817	0.839
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm
Firm Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

Test Variable:	(1) Dependent Variable: Investment Meetings_with_IRO	(2) Dependent Variable: Investment Meetings_with_IRO
Tobin's Q	0.00965*	0.00875
	(0.08)	(0.10)
Cash Flows	0.0188	0.0277
	(0.73)	(0.54)
Test Variable	-0.00332	-0.00383
	(0.37)	(0.28)
Test Variable × Tobin's Q	**0.00413***	**0.00339***
	(0.06)	**(0.10)**
Test Variable × Cash Flow	**-0.0119**	**-0.0106**
	(0.26)	**(0.26)**
Size		-0.0172
		(0.16)
Standard Deviation of Cash Flows (3 year)		-7.655
		(0.47)
Standard Deviation of Sales (3 year)		-0.0283**
		(0.03)
Standard Deviation of Investment (3 year)		0.0272
		(0.72)
Altman Z Score		0.00335
		(0.57)
Property, Plant and Equipment (Net)		0.135***
		(0.00)
Book Leverage		0.00796
		(0.68)
Operating Cycle		0.00120
		(0.98)
Loss Indicator		0.00259
		(0.65)
Number of Observations	1895	1895
Adjusted R-Squared	0.820	0.841
Standard Errors Clustered By:	Firm	Firm
Firm Fixed Effects:	Yes	Yes
Year Fixed Effects:	Yes	Yes

Table A18: The Impact of Market Intelligence Provided by IR Department to the Board of Directors

"Does the investor relations department provide the Board of Directors with market intelligence (Yes / No)?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

Test Variable:	(1) Dependent Variable: Investment boardwmarketintelligence	(2) Dependent Variable: Investment boardwmarketintelligence
Tobin's Q	0.00921**	0.00737
	(0.04)	(0.11)
Cash Flows	0.0693	0.0853*
	(0.22)	(0.10)
Test Variable	-0.0480**	-0.0411**
	(0.01)	(0.05)
Test Variable × Tobin's Q	**0.0260****	**0.0257****
	(0.05)	**(0.05)**
Test Variable × Cash Flow	**-0.164****	**-0.162*****
	(0.02)	**(0.01)**
Size		-0.0146
		(0.14)
Standard Deviation of Cash Flows (3 year)		-7.609
		(0.42)
Standard Deviation of Sales (3 year)		-0.0313***
		(0.01)
Standard Deviation of Investment (3 year)		0.0332
		(0.62)
Altman Z Score		0.00179
		(0.73)
Property, Plant and Equipment (Net)		0.141***
		(0.00)
Book Leverage		0.00648
		(0.73)
Operating Cycle		-0.0210
		(0.65)
Loss Indicator		0.00366
		(0.52)
Number of Observations	1895	1895
Adjusted R-Squared	0.825	0.847
Standard Errors Clustered By:	Firm	Firm
Firm Fixed Effects:	Yes	Yes
Year Fixed Effects:	Yes	Yes

Table A19: The Impact of Management to Investor Contact on Investment Efficiency

"What type(s) of market intelligence does the investor relations department provide to the Board of Directors?"

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Dependent Variable: Investment				
Test Variable:	Stock Performance	Sell Side Analyst Opinions	Peer Firm Information	Media Mentions	Investment Community Feedback	Industry Trends	Financial Performance	Largest Buyer Insights	Debriefing IR Activities
Tobin's Q	0.00376	0.00133	0.00592	0.00991***	0.0213*	0.00679*	0.00751*	0.0164*	0.00757*
	(0.21)	(0.78)	(0.11)	(0.01)	(0.07)	(0.06)	(0.05)	(0.06)	(0.06)
Cash Flows	0.0970	0.198	0.0652	0.0362	-0.0187	0.0587*	0.0592	-0.00440	0.0788*
	(0.21)	(0.14)	(0.18)	(0.32)	(0.86)	(0.10)	(0.11)	(0.94)	(0.10)
Test Variable	-0.00374	-0.00114	-0.00640*	-0.0227**	0.00185	-0.00705**	-0.00360	-0.00235	-0.00479
	(0.16)	(0.61)	(0.06)	(0.02)	(0.46)	(0.02)	(0.23)	(0.46)	(0.24)
Test Variable × Tobin's Q	**0.00340****	**0.00275****	**0.00632****	**0.00784*****	**-0.00203**	**0.00766*****	**0.00532****	**-0.000424**	**0.00534****
	(0.03)	**(0.02)**	**(0.02)**	**(0.01)**	**(0.35)**	**(0.00)**	**(0.03)**	**(0.73)**	**(0.03)**
Test Variable × Cash Flow	**-0.0205***	**-0.0336****	**-0.0224****	**-0.0215*****	**0.00548**	**-0.0315*****	**-0.0302*****	**0.000232**	**-0.0226*****
	(0.08)	**(0.05)**	**(0.02)**	**(0.01)**	**(0.76)**	**(0.00)**	**(0.00)**	**(0.98)**	**(0.01)**
Size	-0.0156	-0.0183*	-0.0113	-0.0145	-0.0205	-0.0126	-0.0125	-0.0192	-0.0129
	(0.13)	(0.08)	(0.26)	(0.19)	(0.10)	(0.22)	(0.22)	(0.11)	(0.19)
Standard Deviation of Cash Flows (3 year)	-8.353	-10.01	-4.766	-4.616	-7.304	-4.552	-6.349	-7.863	-6.399
	(0.42)	(0.34)	(0.63)	(0.64)	(0.51)	(0.64)	(0.52)	(0.46)	(0.51)
Standard Deviation of Sales (3 year)	-0.0287**	-0.0278**	-0.0280**	-0.0324***	-0.0303**	-0.0317***	-0.0305**	-0.0293**	-0.0292**
	(0.04)	(0.03)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
Standard Deviation of Investment (3 year)	0.0534	0.0594	0.0519	0.0479	0.00834	0.0417	0.0471	0.0165	0.0484
	(0.47)	(0.43)	(0.46)	(0.51)	(0.92)	(0.47)	(0.51)	(0.84)	(0.50)
Altman Z Score	0.00110	0.00155	0.00247	0.00269	0.00367	0.00378	0.00326	0.00298	0.00159
	(0.86)	(0.78)	(0.66)	(0.64)	(0.54)	(0.49)	(0.55)	(0.63)	(0.76)
Property, Plant and Equipment (Net)	0.142***	0.147***	0.138***	0.145***	0.141***	0.142***	0.142***	0.140***	0.139***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Book Leverage	0.00300	0.00372	0.00994	0.00897	0.00536	0.0106	0.0106	0.00470	0.00934
	(0.88)	(0.85)	(0.59)	(0.65)	(0.79)	(0.57)	(0.57)	(0.82)	(0.61)
Operating Cycle	-0.00445	0.00140	-0.0202	-0.0345	0.00269	-0.0289	-0.0162	0.00870	-0.0270
	(0.93)	(0.98)	(0.62)	(0.34)	(0.96)	(0.43)	(0.69)	(0.89)	(0.50)
Loss Indicator	0.00224	0.00205	0.00355	0.00203	0.00334	0.00297	0.00287	0.00342	0.00317
	(0.70)	(0.72)	(0.54)	(0.72)	(0.57)	(0.60)	(0.62)	(0.56)	(0.57)
Number of Observations	1895	1895	1895	1895	1895	1895	1895	1895	1895
Adjusted R-Squared	0.844	0.844	0.852	0.854	0.839	0.858	0.851	0.838	0.850
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Firm Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A20: The Impact of Investor Relations Resources on Investment Efficiency

What is the level of IR compensation and resources?

This table reports results from regressions of investment on firm characteristics including our test variables specified at the top of each column. Other variables are defined in Appendix A. p-values are presented underneath the coefficient estimates. * indicates statistical significance at the 10% level, ** indicates statistical significance at the 5% level, and *** indicates statistical significance at the 1% level, one-tailed where we have predictions, two-tailed otherwise.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
						Dependent Variable: Investment						
Test Variable:	Base Salary	Base Salary	Bonus	Bonus	Total Compensation	Total Compensation	Total IR Budget	Total IR Budget	Salaries as % of IR Budget	Salaries as % of IR Budget	Number of Year's Experience	Number of Year's Experience
Tobin's Q	0.0104	0.00673	0.00557	-0.00169	0.00968	0.00715	0.00284	-0.0000128	-0.00783	-0.00583	0.00870	0.00247
	(0.53)	(0.64)	(0.39)	(0.79)	(0.49)	(0.58)	(0.97)	(1.00)	(0.53)	(0.60)	(0.16)	(0.72)
Cash Flows	-0.0140	-0.0322	0.305**	0.325**	-0.00941	-0.0391	-1.105	-1.177*	0.126	0.186	0.0657	0.0896
	(0.95)	(0.87)	(0.04)	(0.03)	(0.95)	(0.75)	(0.15)	(0.10)	(0.38)	(0.21)	(0.52)	(0.39)
Test Variable	-0.00365	-0.00356	0.00284	0.00194	-0.00371	-0.00317	-0.00720	-0.00789	0.000414	0.00103**	-0.00182	-0.00214
	(0.48)	(0.37)	(0.43)	(0.54)	(0.23)	(0.22)	(0.19)	(0.18)	(0.37)	(0.05)	(0.19)	(0.13)
Test Variable × Tobin's Q	**0.00202**	**0.00212**	**0.00234****	**0.00341*****	**0.00203**	**0.00192**	**0.000117**	**0.000411**	**0.000600****	**0.000520****	**0.00119****	**0.00148*****
	(0.24)	**(0.21)**	**(0.03)**	**(0.01)**	**(0.13)**	**(0.13)**	**(0.50)**	**(0.47)**	**(0.03)**	**(0.03)**	**(0.03)**	**(0.01)**
Test Variable × Cash Flow	**-0.00191**	**0.00439**	**-0.0750****	**-0.0765****	**-0.00279**	**0.00523**	**0.0837**	**0.0896**	**-0.00361**	**-0.00467***	**-0.00819**	**-0.00922**
	(0.49)	**(0.91)**	**(0.02)**	**(0.02)**	**(0.46)**	**(0.81)**	**(0.15)**	**(0.10)**	**(0.12)**	**(0.08)**	**(0.16)**	**(0.14)**
Size		-0.0186		-0.0112		-0.0182		-0.0127		0.000561		-0.0197*
		(0.14)		(0.25)		(0.16)		(0.42)		(0.96)		(0.09)
Standard Deviation of Cash Flows (3 year)		-18.95		-15.03		-19.22		18.94		-24.76		-16.47
		(0.22)		(0.49)		(0.21)		(0.23)		(0.30)		(0.31)
Standard Deviation of Sales (3 year)		-0.0296**		-0.0382**		-0.0306**		-0.0163		-0.0331*		-0.0266**
		(0.04)		(0.01)		(0.03)		(0.27)		(0.06)		(0.04)
Standard Deviation of Investment (3 year)		0.0864		0.307**		0.0868		0.199		0.205		0.0898
		(0.35)		(0.05)		(0.35)		(0.50)		(0.16)		(0.34)
Altman Z Score		0.00258		0.00224		0.00255		0.00498		-0.00423		0.00376
		(0.67)		(0.67)		(0.69)		(0.16)		(0.50)		(0.53)
Property, Plant and Equipment (Net)		0.136***		0.141***		0.137***		0.146***		0.130***		0.144***
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
Book Leverage		0.00581		0.0114		0.00609		-0.0235		-0.00836		0.00548
		(0.78)		(0.53)		(0.78)		(0.21)		(0.53)		(0.79)
Operating Cycle		0.00466		-0.0640		0.00727		-0.0726		-0.0639		0.00338
		(0.94)		(0.11)		(0.91)		(0.32)		(0.27)		(0.96)
Loss Indicator		0.00285		-0.000366		0.00298		0.0122		-0.00374		0.00318
		(0.66)		(0.96)		(0.65)		(0.16)		(0.71)		(0.61)
Number of Observations	1717	1717	1532	1532	1687	1687	691	691	990	990	1759	1759
Adjusted R-Squared	0.811	0.835	0.818	0.848	0.804	0.829	0.829	0.852	0.808	0.833	0.816	0.841
Standard Errors Clustered By:	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Firm Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects:	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes