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Investor relations, information asymmetry and market value

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Evidence to date on the market value of investor relations (IR) strategies is limited. We test the market relevance of IR activity directly employing a proprietary database measuring IR quality across all firms listed on NYSE, Amex and NASDAQ. Although, in theory, 'repackaging' and communicating existing information should have no market impact, we find that firms with higher quality IR strategies are rewarded with significantly higher valuation multiples. In addition, increase in IR quality is associated with increases in analyst following and liquidity. Overall, our findings are generally stronger for small firms which are more likely to be 'neglected'. Our evidence is consistent with effective IR successfully raising firm visibility leading to enhanced recognition and reduced information asymmetry in line with Merton (1987) and thus 'fairer' firm valuation as argued by IR professionals.

Keywords: firm valuation; market pricing; investor recognition; investment analysts; stock liquidity

JEL Classification: G14; G34

1. Introduction

Firm investor relations (IR) programmes seek to raise a company's profile and familiarity with fund managers and institutional investors and enhance the credibility of its management, as well as attracting investment analysts to follow the firm (Marston 2004, 2008). Wide visibility, large institutional holding and a significant analyst following, it is argued, should lead to an increased demand for a firm's securities and thus enhanced market value, particularly in the case of medium-sized and smaller firms (Lev 2012, p. 53). On the other hand, in perfect markets, there is no justification for expenditure that increases firm visibility without providing new information relevant to investors in valuing of the firm. Simply 'repackaging' and communicating existing disclosures should have no incremental value and, in fact, if the cost is

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significant, adversely impact market value. Hong and Huang (2005) and Doukas et al. (2005, 2008) even suggest that increasing firm liquidity and analyst coverage, main goals of IR programmes (Brennan and Tamarowski 2000), may well be detrimental to shareholder interests.

There have been relatively few studies to date that focus directly on the market relevance of IR programmes and empirical evidence of a clear link between a firm's IR activity and its market pricing is limited and conflicting. This study sets out to provide more definitive evidence on whether IR activity is value-relevant or not in practice and if so, its actual market impact. In particular, we are able to draw on a proprietary database of IR quality ratings which allows us to measure industry perceptions of IR quality directly for all firms listed on the NYSE, Amex and NASDAQ. This database consists of all nominations by fund managers and investment analysts for 'best overall IR' awards in the annual *IR Magazine* survey.

Most studies exploring the value relevance of IR activity to date employ the Association of Investment Management Research Corporate Information Committee (AIMR) firm disclosure quality ratings which are available from 1979 to 1996 and cover around 400 firms a year. Although separate quality ratings for the firm's10-K, quarterly published information and its IR programme are provided, most studies concentrate on the composite disclosure score to which its IR component only contributes 20–30%.[1]

In an early study employing the AIMR total disclosure score ratings, for example, Healy et al. (1999) find that 97 stocks 'with sustained and material increases in disclosure ratings' over a three-year period earned industry-adjusted returns of approximately 8.4% over the following year. On the other hand, using the same survey data, Botosan and Plumlee (2002) find no significant relationship between firms' overall AIMR corporate communications ratings and cost of equity capital, nor for its IR component separately.

Jiao (2011) considers the relationship between the separate AIMR rating components and different measures of corporate performance, including stock returns and Tobin's Q, proxying for market valuation. In particular, she reports that a hedge portfolio which goes long in firms with above-median AIMR rankings for their IR programmes and short in those with below-median rankings, earns a mean return of 4.3% each year from January 1982 to December 1996. However, since Jiao (2011) uses the AIMR ratings at the end of year t to form portfolios at the beginning of year t,[2] she is, in effect, measuring *prior* year returns rather than *subsequent* year returns. Jiao (2011) also reports that firms with IR rankings above the median have Tobin's Q 45% higher than those ranked below the median. In a similar way, though it is not clear when her Tobin's Q measure is calculated, if this is on the same basis as her book-to-market ratio (p. 652), then she is, in fact, showing that firms with higher Tobin's Q subsequently have higher IR rankings, not the other way around. Thus, it is difficult to use the results of Jiao (2011) to argue that firms with effective IR earn higher subsequent returns, or that their market value is greater, leaving the question of the market value of IR activity unresolved.

Chang et al. (2008) study the relationship between firms' IR activity proxied by internet-based disclosure and information asymmetry. They report that firms with better disclosure scores have higher analyst following, lower bid-offer spreads and higher market capitalization. However, the IR function is much broader than website information provision alone. Also, the authors collect their disclosure information for three-weeks in the middle of July 2005 while their proxies for information asymmetry are measured over calendar year 2005. Therefore, their study is likely to suffer from the same inference problems as those of Jiao (2011).

More pertinently, Bushee and Miller (2012), using data between 1998 and 2004, show that initiating IR programmes by hiring external IR agencies is associated with a significant increase in level of firm disclosure, media coverage and analyst following, as well as a larger, and more geographically diversified institutional ownership.[3] In addition, there is a rise in the market-to-book ratio proxying for firm valuation effects. However, their sample is restricted to 210 typically

very small firms, 50% of which are traded on the OTC Bulletin Board and Pink Sheets. Thus, it is not clear that Bushee and Miller's findings can be generalized to shed light on the value of established IR programmes of larger and more mature firms. Although in a parallel study, Vlittis and Charitou (2012) use a sample of 146 firms listed on the main US exchanges that also initiate IR programmes and report similar results to Bushee and Miller (2012), their sample firms are still limited in size (median market cap of $74m). Again, it is not possible to use their results to draw conclusions about the impact of well-developed and ongoing IR activities on firm value.

On the other hand, in an interesting recent paper in this journal, Peasnell et al. (2011) test the proposition that IR activities help shield firms from the adverse consequences of challenges to corporate credibility associated with high-profile scandals, such as Enron. The authors compare a sample of 122 firms deemed to have effective IR programmes by *IR Magazine* survey respondents with matched firms not so rated in terms of contagion effects measured by stock price falls and other variables typically associated positively with IR activity. Contrary to expectations, Peasnell et al. (2011) report that their high IR quality firms suffer larger stock price falls and more pronounced declines in press coverage, trading volume and analyst following relative to their control firms at the time of the Enron bankruptcy and as associated events unravelled during 2001–2002. The authors draw on these findings to question whether best practice IR programmes necessarily protect firms by maintaining trust and confidence in them, at least during periods of corporate scandal.

Our study seeks to test directly the value of firm IR programmes along a number of different dimensions and provide more conclusive evidence on the actual market value of IR activity across the generality of firms listed on the main US exchanges. It adds to the limited literature directly addressing this research question in terms of the source and characteristics of our IR quality rankings and our research design. In addition, given the size of our sample, we are able to address additional research questions and adopt a much richer valuation modelling approach than with the extant literature.

In particular, the IR industry argues that a company's investment in IR activity raises its profile with market participants leading to enhanced firm value. We draw on Merton's (1987) Investor Recognition Hypothesis to test this proposition directly. Specifically, we explore

(1) whether effective IR is associated with increased analyst coverage (a key IR constituency),
(2) whether effective IR, proxied by being nominated for an *IR Magazine* 'best overall IR' award, is associated with greater firm liquidity,
(3) the relationship between effective IR and firm market value, and finally
(4) whether such results are likely to be most pronounced in the case of small, less followed, firms as Merton (1987) suggests.

First we find, not surprisingly, the more analysts reporting on the firm, the more nominations for 'best overall IR' award the firm receives in the following year. However, more importantly, an increase in IR quality is directly associated with significantly higher analyst coverage, and this is particularly prominent in the case of small firms. Specifically, large firms that move from having no 'best overall IR' nominations to being nominated at least once in the following year are associated with an increase in analyst coverage in the following year of 13% compared with firms not so rated, with the equivalent figure for small firms 36%, although from a lower base. We also demonstrate that liquidity, as measured by relative stock turnover, increases by 33% for small firms newly nominated at least once for 'best overall IR' awards, compared with those that remain not rated.

Finally and of most interest, contrary to Hong and Huang (2005) and Doukas et al. (2005, 2008), we show that, *ceteris paribus*, firms nominated for 'best overall IR' awards in the annual *IR Magazine* survey are valued more highly by the market than those with no survey votes, and there is also a positive relation between IR rank and market valuation for those that are nominated. However, inconsistent with our expectations, we find some evidence, albeit weak, that effective IR is associated with higher market value in the case of large firms compared with small firms. Importantly, we are able to demonstrate that our results are robust to model misspecification problems resulting from potential endogeneity issues.

The proprietary database we use, provided by *IR Magazine*, covers all firms nominated by security analysts and fund managers for 'best overall IR' in the annual *IR Magazine* awards surveys for 2000–2002.[4] In contrast, most previous studies, including Jiao (2011), use the AIMR disclosure ratings which end in 1996 and only cover a relatively small number of large firms. Unfortunately, post-2002 *IR Magazine* data were not available to us; nonetheless, we believe that our results are still of considerable interest. This is not just because of the nature of our original findings, but also our 2000–2002 observation period is one of challenging market conditions following the bursting of the dot.com bubble in March 2000 and includes September 11 and thus is of interest in its own right.[5] Also, our data period largely postdates the implementation of Regulation Fair Disclosure (Reg FD) in October 2000 which prevented investment analysts having personal access to price-sensitive information from firm management, thus, potentially, strengthening the importance of IR to the firm as fund managers and analysts no longer have privileged direct access to management, a key source of information for them in their investment decisions (Fogarty and Rogers 2005, Barker et al. 2012, Tuckett and Taffler 2012). Kirk and Vincent (2014) find that post Reg FD, the benefits of professional in-house IR increase and argue that this is consistent with those firms with internal IR departments being in a better position to take advantage of the more complicated regulatory environment. Needless to say, care needs to be taken in generalizing our results outside our observation period.

In summary, we find results consistent with the arguments of Merton (1987) about the impact of greater investor recognition on firm market value. Effective IR strategies, represented by nomination for *IR Magazine* 'best overall IR' awards by market professionals, appear to be rewarded by the stock market, especially in the case of small, less followed, firms.

The rest of the paper is organized as follows: Section 2 presents our predictions, data and method, Section 3 presents our results and Section 4 summarizes our findings and concludes.

2. Predictions, data and method

This section largely draws on Merton's (1987) Investor Recognition Hypothesis model to generate our predictions about the potential impact of effective IR programmes on analyst coverage, stock liquidity and market value as well as the expectation that such relationships will be stronger for small, less well-followed firms. It then discusses our firm data and our modelling approach.

The underlying assumption of Merton's (1987) capital market equilibrium model is that when constructing their optimal portfolios, investors only use the securities they know about. Hence, a 'neglected' or less visible stock will have a higher required return to compensate investors for the 'set up' cost associated with following a new security. In parallel, a firm information release will only be picked up by an investor who already follows the stock unless the disclosure 'generates a headline'. On this basis, Merton (1987) argues: (i) better followed firms will have, *ceteris paribus*, higher valuations and (ii) the impact of investor recognition will be greater for smaller firms. A number of recent papers (e.g. Lehavy and Sloan 2008, Bodranuk and Ostberg 2009, Richardson et al. 2012) provide strong empirical support for Merton's asymmetric information-based model and show that investor recognition can help explain stock prices. A key purpose of IR activity is

increasing investor recognition of the firm. Thus, following Merton (1987), if an investment in IR activity serves to raise a firm's profile with market participants, then we predict that firm value will be greater, the key proposition this paper seeks to test. On the other hand, if firms are already well known and followed, then investment in IR may have little incremental value and in fact could even lead to reduced firm valuation if costs are significant (e.g. Hong and Huang 2005, Doukas et al. 2005, 2008).

2.1. *Predictions*

Investment analysts are a key target audience for firm IR activity (Brennan and Tamarowski 2000, Guimard 2013). Effective IR should lower the cost of analyst information gathering and raise the firm's profile with investors (Merton 1987), thereby creating higher demand for analyst coverage of firms with better IR. Our first prediction is thus:

Prediction 1: Effective IR is associated with increased analyst coverage

In parallel, if IR activity serves to reduce information asymmetry between the firm and investors, then any associated risk should be reduced, leading to increased stock liquidity. Our second prediction follows:

Prediction 2: Effective IR is associated with an increase in stock liquidity

Hong and Huang (2005) argue that the benefits of increased liquidity from IR activity flow to large shareholders disproportionately, while the costs are shared by all shareholders. As a consequence, insiders overinvest in IR, leading to a reduction in firm value. In a similar vein, Doukas et al. (2005, 2008) find that firms with excessive analyst coverage are overvalued and generate lower future returns due to analyst overoptimism. As such, IR strategies aimed at increasing analyst coverage will also be market-relevant, but in this case value-destroying. Consequently, improving stock liquidity and raising analyst coverage, both important targets of IR professionals, may not lead to increased market value, but possibly even the opposite.

The National Investor Relations Institute (NIRI) views IR, *inter alia*, as enabling '... the most effective two-way communication between a company, the financial community and other constituencies, which ultimately contributes to a company's securities achieving fair valuation' (NIRI Annual Report 2013, p. 1).[6] Hence, if IR is effective in enhancing investor communication and thus increased firm transparency to investors leading to reduced risk, then we would expect effective IR to be viewed favourably by the market. Thus, if as IR professionals argue, information asymmetry for investors is reduced by their activities, we would expect reduced cost of capital as manifested by higher market value.[7] On this basis, we establish our third prediction to be tested:

Prediction 3: Effective IR is associated with higher firm market valuation ratios

Merton's (1987) information asymmetry-based arguments lead to the conclusion that the benefits of effective IR will be greater for firms with higher information asymmetry between managers and investors and large and small stockholders (Brown and Hillgeist 2007). Such firms are likely to be smaller and less well followed by analysts, investors and the media. On this basis, we set up our final prediction:

Prediction 4: Effective IR has a greater impact on small firms than large firms

2.2. *Data*

Each year, the *IR Magazine* commissions an independent research firm to obtain nominations from investors and analysts for firms listed on the main US exchanges that have performed the 'best' in distinct categories of IR over the previous 12 months. In the case of our observation period covering the 2000, 2001 and 2002 surveys, nominations were collected from the universe of fund managers and sell- and buy-side analysts listed in the *Thomson Financial/Carson* and *WILink* databases supplemented with a number of sophisticated individual investors reached via *Barron's Online*.[8] Respondents covered a wide range of investment specializations and industry sectors and were encouraged to nominate firms outside their specialities. The nomination collection process took place during January and early February via e-mail and telephone using a formal survey questionnaire approach with two follow-ups in the case of non-response. Results were published around the end of March each year at the annual *IR Magazine* award ceremony. Questions covered a range of IR categories and other issues and respondents were asked to nominate three firms for each IR category, best and first and second runner-ups.[9] An average of 1746 investment professionals responded to each of the three surveys, representing a 12% response rate. Considering the 2001 survey, for example, 35% of respondents were fund managers, 25% buy-side analysts, 28% sell-side analysts and 12% sophisticated retail investors.

Clearly, our results depend on how reliable the underlying subjective survey data we use is in reflecting actual firm IR quality. However, the surveys were conducted by a well-known and highly reputable research firm with extensive experience in this area and the completeness of our data, the very acceptable response rates and large number of respondents from a wide range of backgrounds serve to provide some assurance that we are capturing the perceptions of investment professionals, the main targets of IR departments, about the quality of individual firm IR programmes.

Our sample consists of all firms with equity traded on the NYSE, Amex or NASDAQ for some or all of our observation years meeting necessary data availability requirements and eligible to be nominated for 'best overall IR' awards. Stock returns, market values and trading volumes are extracted from the Center for Research in Share Prices database. Book value of equity and net income are from COMPUSTAT and analyst coverage is obtained from the Thomson Financial I/B/E/S database. All accounting data are lagged six months from fiscal year end to avoid look-ahead bias.

2.3. *Method*

Each year from 2000 to 2002, firms nominated for 'best overall IR' in the respective *IR Magazine* survey in the 'large firms' category (market capitalization $>$\$3bn) are ranked by the number of nominations received with the firm with highest number of nominations assigned the highest rank. All other large firms with equity traded on the NYSE, Amex and NASDAQ, with no votes for 'best overall IR', are assigned a rank of 0. Similarly, firms nominated in the 'small firms' category (market capitalization $<$ \$3bn) are ranked based on the number of nominations with all firms with market cap $<$\$3bn not nominated assigned a rank of 0.

We test our prediction 1 relating to the association between effective IR and analyst coverage by using nominations for the *IR Magazine*'s 'best overall IR' award to reflect the underlying quality of firm IR programmes. Specifically, we expect firms where IR quality improves to be associated with a contemporaneous increase in analyst following. To test whether better IR (measured by change from not nominated to nominated status) is associated with greater analyst coverage in the year of nomination, we run the following pooled regression with year

and industry dummies:

$$\Delta AF_{i,t} = \alpha + \beta_{N\to N} IRD_{N\to N,i,t} + \beta_{NN\to N} IRD_{NN\to N,i,t} + \beta_{N\to NN} IRD_{N\to NN,i,t} + \beta_{\Delta MV} \ln\left(\frac{MV_{i,t}}{MV_{i,t-1}}\right) + \beta_{\Delta B/M}\left(B/M_{i,t} - B/M_{i,t-1}\right) + \beta_j YD + \sum_{k=1}^{76} \beta_k ID_k + \varepsilon_{i,t}, \quad (1)$$

where $\triangle AF_{i,t} = AF_{i,t} - AF_{i,t-1}$, $AF_{i,t}$ = number of analysts with published forecasts for firm i in the I/B/E/S database as at March 31 of the award year, $AF_{i,t-1}$ = number of analysts with published forecasts for firm i in the I/B/E/S database as at March 31 of the year before the award year, $IRD_{N\to N,i,t} = 1$ if the firm is nominated (N) at least once in both years $t-1$ and t, 0 otherwise, $IRD_{NN\to N,i,t} = 1$ if the firm is not nominated in year $t-1$ (NN) but nominated at least once in year t, 0 otherwise, $IRD_{N\to NN,i,t} = 1$ if the firm is nominated at least once in year $t-1$ but not nominated in year t, 0 otherwise, $MV_{i,t}$ = market value of equity of firm i at March 31 in the award year, $MV_{i,t-1}$ = market value of equity of firm i at March 31 of the year before the award year, $B/M_{i,t}$ = book value of common equity of firm i is from the most recent fiscal year ending September 30 or earlier of the year immediately preceding the nomination year, divided by $MV_{i,t}$, $B/M_{i,t-1}$ = book value of common equity of firm i is from the most recent fiscal year ending September 30 or earlier of two years before the nomination year, divided by $MV_{i,t-1}$, YD_j = year dummy where $j = 1$ for 2000 and $= 2$ for 2001 with 2002 as reference year, and ID_k = industry dummy based on two-digit SIC code where $k = 1-76$.

To test our prediction 2 relating to the association between effective IR and stock liquidity, we explore whether stock liquidity increases during the IR award nomination year. Specifically, we use the stock turnover ratio to measure liquidity. The monthly turnover ratio for each stock is defined as (see Korajczyk and Sadka 2008):

$$TO_{i,j} = \frac{Vol_{i,j}}{SO_{i,j}}, \quad (2)$$

where

$TO_{i,j}$ = turnover ratio of stock i during month j, $Vol_{i,j}$ = total trading volume of stock i during month j and $SO_{i,j}$ = number of shares outstanding for firm i at the end of month j.

Following Tkac (1999), we adjust individual firm stock turnover ratios for market-wide activity by

$$\frac{RTO_{i,t} = \overline{TO}_{i,t}}{\overline{TO}_{m,t}} \quad (3)$$

where t = award year, $\overline{TO}_{i,t}$ = average monthly stock turnover ratio for firm i from April 1 of year $t-1$ to March 31 of year t, and $\overline{TO}_{m,t}$ = average monthly stock turnover ratio for all firms from April 1 of year $t-1$ to March 31 of year t.

Change in relative stock turnover (ΔRTO) is calculated as follows:

$$\Delta RTO_{i,t} = RTO_{i,t} - RTO_{i,t-1}, \quad (4)$$

where

$\mathrm{RTO}_{i,t}$ = average monthly relative stock turnover for firm i from April 1 of year $t-1$ to March 31 of year t, and $\mathrm{RTO}_{i,t-1}$ = average monthly relative stock turnover for firm i from April 1 of year $t-2$ to March 31 of year $t-1$.

To test for the relationship between change in stock liquidity and change in IR status (from not nominated to nominated) controlling for firm size, book-to-market and stock returns, we estimate the following pooled regression with year and industry dummies:

$$\Delta\mathrm{RTO}_{i,t} = \alpha + \beta_{\mathrm{N}\to\mathrm{N}}\mathrm{IRD}_{\mathrm{N}\to\mathrm{N},i,t} + \beta_{\mathrm{NN}\to\mathrm{N}}\mathrm{IRD}_{\mathrm{NN}\to\mathrm{N},i,t} + \beta_{\mathrm{N}\to\mathrm{NN}}\mathrm{IRD}_{\mathrm{N}\to\mathrm{NN},i,t} + \beta_{\Delta\mathrm{MV}}\ln\left(\frac{\mathrm{MV}_{i,t}}{\mathrm{MV}_{i,t-1}}\right) + \beta_{\Delta\mathrm{B/M}}\left(\mathrm{B/M}_{i,t} - \mathrm{B/M}_{i,t-1}\right) + \beta_j\mathrm{YD} + \sum_{k=1}^{76}\beta_k\mathrm{ID}_k + \varepsilon_{i,t}, \tag{5}$$

where the explanatory variables are all defined as for Model (1).

To test our third prediction relating to the value relevance of effective IR, we employ the well-established Ohlson (1995) valuation model. This is a variant of Tobin's Q which explicitly takes into account the market value of current earnings to provide an appropriate framework to measure the incremental contribution to firm value of variables other than book value and current earnings (Barth et al. 1998). In our case, we are concerned with the association between effective IR and market value. Ohlson (1995) explicitly recognizes that some value-relevant information will appear in accounting numbers with a time lag. We believe that effective IR, as proxied by nominations for *IR Magazine* 'best overall IR' awards, will reduce information asymmetries, although this effect is more likely to be reflected in the 'other information' measure in Ohlson's model than in current accounting numbers.

Since IR reputation is built over time,[10] we follow Easton (1999) and use price level rather than returns regression as in the case of Bushee and Miller (2012). Even though Ohlson (2009) shows theoretically that dividend policy is irrelevant for this specification, we include dividends in our models since the extant empirical evidence (e.g. Rees 1997, Hand and Landsman 2005, Rees and Valentincic 2013) suggests that they do play a role in explaining market values in the Ohlson (1995) model.

Barth and Kallapur (1996) suggest that the coefficient estimates of such price level equations could be biased due to scale differences in the cross-section of firms. However, although Barth and Clinch (2009) show that available tests to identify such scale effects are ineffective, they test several specifications of the basic Ohlson (1995) equation used in the literature and find that unweighted OLS regressions produce robust inferences. Hence, we employ the following OLS regressions to capture the potential relationship between IR activity and market value conditional on levels of book value, net income and dividends, together with year and industry dummies. Equation (6) uses a dummy variable ($\mathrm{IRD}_{i,t}$) to indicate if the firm is nominated for 'best overall IR' award at least once in year t, or not and Equation (7) employs firms IR rank ($\mathrm{IR}_{i,t}$) based on the number of nominations received in year t as dependent variable.

$$\mathrm{MV}_{i,t} = \alpha + \beta_{\mathrm{BVE}}\mathrm{BVE}_{i,t} + \beta_{\mathrm{NI}}\mathrm{NI}_{i,t} + \beta_{\mathrm{DIV}}\mathrm{Div}_{i,t} + \beta_{\mathrm{IRD}}\mathrm{IRD}_{i,t} + \sum_{j=1}^{2}(\beta_j\mathrm{YD}_j) + \sum_{k=1}^{76}(\beta_k\mathrm{ID}_k) + \varepsilon_{i,t}, \tag{6}$$

$$\mathrm{MV}_{i,t} = \alpha + \beta_{\mathrm{BVE}}\mathrm{BVE}_{i,t} + \beta_{\mathrm{NI}}\mathrm{NI}_{i,t} + \beta_{\mathrm{Div}}\mathrm{Div}_{i,t} + \beta_{\mathrm{IR}}\mathrm{IR}_{i,t} + \sum_{j=1}^{2}(\beta_j \mathrm{YD}_j) + \sum_{k=1}^{76}(\beta_k \mathrm{ID}_k) + \varepsilon_{i,t}, \tag{7}$$

where

$\mathrm{MV}_{i,t}$ = market value of equity of firm i at March 31 in the year of award nomination (t), $\mathrm{BVE}_{i,t}$ = book value of common equity of firm i is from the most recent fiscal year ending September 30 or earlier of the year immediately preceding the nomination year, $\mathrm{NI}_{i,t}$ = net income before extraordinary items of firm i for year t, $\mathrm{Div}_{i,t}$ = dividends on common equity of firm i for year t, $\mathrm{IRD}_{i,t} = 1$ if the firm is nominated at least once in year t, 0 otherwise, $\mathrm{IR}_{i,t}$ = investor relations rank based on number of nominations received in year t, YD_j = year dummy where $j = 1$ for 2000 and $= 2$ for 2001 with 2002 as reference year, and ID_k = industry dummy based on two-digit SIC code where $k = 1$–76.

Finally, to test our fourth prediction that the relationship between effective IR and analyst coverage, stock liquidity and firm valuation is likely to be stronger for small firms, we run the following regressions using rated firms only:[11]

$$\Delta\mathrm{AF}_{i,t} = \alpha + \beta_{\mathrm{S}}\mathrm{SizeD}_{i,t} + \beta_{\Delta\mathrm{MV}}\ln\left(\frac{\mathrm{MV}_{i,t}}{\mathrm{MV}_{i,t-1}}\right) + \beta_{\Delta\mathrm{B/M}}\left(\mathrm{B/M}_{i,t} - \mathrm{B/M}_{i,t-1}\right) + \beta_j\mathrm{YD} + \sum_{k=1}^{76}\beta_k\mathrm{ID}_k + \varepsilon_{i,t}, \tag{8}$$

$$\Delta\mathrm{RTO}_{i,t} = \alpha + \beta_{\mathrm{S}}\mathrm{SizeD}_{i,t} + \beta_{\Delta\mathrm{MV}}\ln\left(\frac{\mathrm{MV}_{i,t}}{\mathrm{MV}_{i,t-1}}\right) + \beta_{\Delta\mathrm{B/M}}\left(\mathrm{B/M}_{i,t} - \mathrm{B/M}_{i,t-1}\right) + \beta_j\mathrm{YD} + \sum_{k=1}^{76}\beta_k\mathrm{ID}_k + \varepsilon_{i,t}, \tag{9}$$

$$\Delta\mathrm{MV}_{i,t} = \alpha + \beta_S\mathrm{SizeD}_{i,t} + \beta_{\Delta\mathrm{BVE}}(\mathrm{BVE}_{i,t} - \mathrm{BVE}_{i,t-1}) + \beta_{\Delta\mathrm{NI}}(\mathrm{NI}_{i,t} - \mathrm{NI}_{i,t-1}) + \beta_{\Delta\mathrm{Div}}(\mathrm{Div}_{i,t} - \mathrm{Div}_{i,t-1}) + \beta_j\mathrm{YD} + \sum_{k=1}^{76}\beta_k\mathrm{ID}_k + \varepsilon_{i,t}, \tag{10}$$

where $\triangle\mathrm{MV}_{i,t} = \mathrm{MV}_{i,t} - \mathrm{MV}_{i,t-1}$, $\mathrm{SizeD}_{i,t} = 1$ for firms classified by *IR Magazine* as 'large' (market value of equity as at March 31 of the year of award nomination $>$\$3bn), 0 for *IR Magazine* 'small' firms (market value $<=$ \$3bn), and all other variables are as defined previously.

Since in all our regressions there is usually more than one observation per firm, this renders the assumption of independent observations in computing regression standard errors incorrect. We therefore report *t*-statistics based on the clustered sandwich estimator (Froot 1989, Williams 2000) to take account of the fact that observations for the same firm may be correlated.

3. Results

This section describes the characteristics of our firm sample and explicitly tests our predictions established in Section 2.1 above. Potential endogeneity issues are also fully explored.

Table 1. Firm cases.

	Number of firm cases	Number of votes	
		Mean	Median
A. Large firms			
Rated	1277	5.9	3.0
Unrated	294	0.0	0.0
All firms	1571	4.9	3.0
B. Small firms			
Rated	1584	1.6	1.0
Unrated	11,831	0.0	0.0
All firms	13,415	0.2	0.0

Notes: Our sample covers all firms listed on the NYSE, Amex and NASDAQ from 2000 to 2002 meeting data availability criteria. 'Large' and 'Small' firms are those with market capitalization >$3bn and <$3bn, respectively, at the end of December of the year prior to the *IR Magazine* 'best overall IR' award nomination year. 'Rated' refers to all firms that were nominated and 'Unrated' refers to all firms not nominated in a particular year. 'Votes' refers to the number of nominations received by a firm for 'best overall IR' award.

3.1. *Summary statistics*

Table 1 shows that whereas 81% of 'large' firms (>$3bn market capitalization) are nominated for 'best overall IR' awards, only 12% of 'small' firms (<$3bn market capitalization) are so acknowledged. Panel A shows that in the case of large firms, mean (median) number of nominations for those that are nominated is 5.9 (3.0), and panel B shows that the equivalent figures are 1.6 (1.0) for small firms.

Table 2 provides descriptive statistics for our sample firms. Panel A shows that in the case of large firms, prior returns do not appear to be influential in determining IR award nominations. In fact, unrated firms earn higher excess returns (3.1% per month) than those rated (1.4% per month). On the other hand, in the following year, rated firms appear to outperform firms receiving no award nominations (−0.9% per month vs. −1.7% per month), although the difference is not significant. Panel B of Table 2 for small firms suggests some association between prior year excess returns and award nominations compared with unrated firms (1.7% per month vs. 0.9% per month), although the difference is not statistically significant and average excess returns are very similar in the following year. Furthermore, both panels A and B show that rated firms are significantly larger and have lower book-to-market ratios than those receiving no award nominations. Table 2 also shows that rated firms have higher analyst following both before and after the award year. In particular, for large rated firms, prior average analyst following is 16.6, while for small firms, it is 6.9. In contrast, average following for large unrated firms in the prior award year is 11.8 and for small unrated firms, it is only 2.2. Rated firms also have better liquidity as reflected in higher levels of trading activity in their stock as measured by relative stock turnover.

3.2. *Analyst coverage*

This sub-section tests our prediction 1 relating to the association between effective IR and higher analyst coverage. Table 3 reports the results of running regression Model (1) and shows that controlling for change in market capitalization and book-to-market, there is a strong positive contemporaneous relationship between increase in analyst following and change in IR rating, although only for small firms. For those large firms that have no nominations in year $t-1$ for *IR Magazine* 'best overall IR' award but are nominated at least once in year t, mean increase in analyst

Table 2. Descriptive statistics.

	Monthly average excess returns (%)		Market capitalization ($bn)		Book-to-market		Prior year analyst following		Nomination year analyst following		Prior year relative stock turnover		Nomination year relative stock turnover	
	Prior year	Following year	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
A. Large firms														
All rated	1.39	−0.88	18.26	8.40	0.30	0.21	16.55	16.00	16.20	16.00	1.94	1.13	2.07	1.28
Unrated	3.09	−1.70	7.12	4.99	0.43	0.35	11.76	12.00	11.28	12.00	1.73	0.96	2.05	1.05
B. Small firms														
All rated	1.72	−0.21	1.70	1.00	0.56	0.35	6.93	6.00	7.27	7.00	1.92	1.31	1.95	1.38
Unrated	0.89	−0.25	0.29	0.09	1.13	0.67	2.21	1.00	1.77	0.00	1.13	0.59	0.89	0.49

Our sample covers all firms listed on the NYSE, Amex and NASDAQ from 2000 to 2002 meeting data availability criteria. 'Large' and 'Small' firms are those with market capitalization >$3bn and <$3bn, respectively, at the end of December of the year prior to the *IR Magazine* 'best overall IR' award nomination year. Prior year monthly average excess returns refer to the monthly returns from March of the year prior to the award year to February of the award year. Similarly, following year monthly average excess returns refer to the monthly returns from April of the award year to March of the year after the award year. Market capitalization is the market value of equity as at March 31 of the award year and book-to-market is computed using the book value of equity from the most recent fiscal year ending September 30 or earlier of the year immediately preceding the nomination year divided by the market value of equity as at March 31 of the award year. Prior year and nomination year analyst following refer to the number of analysts with published forecasts in *I/B/E/S* as at the end of March of the year prior to the nomination year and as at the end of March of the year of the award nomination, respectively. Prior year relative stock turnover refers to the average monthly stock turnover adjusted for market-wide stock turnover from April of the year two years prior to the award year to March of the year prior to the award year. Similarly, nomination year relative stock turnover refers to the average monthly stock turnover adjusted for market-wide stock turnover from April of the year prior to the award year to March of the award year. 'Rated' refers to all firms that were nominated and 'Unrated' refers to all firms not nominated in a particular year.

Table 3. IR rankings and analyst following.

	α	$\beta_{N\to N}$	$\beta_{NN\to N}$	$\beta_{N\to NN}$	$\beta_{\Delta MV}$	$\beta_{\Delta B/M}$	Adj. R^2
Large	−4.32	0.10	1.45	−0.50	1.14	0.13	0.13
	(4.58)	(0.13)	(1.58)	(0.61)	(1.76)	(1.51)	
Small	−2.79	0.85	0.80	−1.50	0.76	0.05	0.10
	(47.22)	(2.76)	(4.16)	(8.01)	(13.00)	(4.26)	

Notes: Our sample covers all firms listed on the NYSE, Amex and NASDAQ from 2000 to 2002 meeting data availability criteria. 'Large' and 'Small' firms are those with market capitalization >$3bn and <$3bn, respectively, at the end of December of the year prior to the *IR Magazine* 'best overall IR' award nomination year.
The following regression with year dummies $\{YD_j\}$ and industry dummies based on two-digit SIC codes $\{ID_k\}$ is estimated:

$$\Delta AF_{i,t} = \alpha + \beta_{N\to N} IRD_{N\to N,i,t} + \beta_{NN\to N} IRD_{NN\to N,i,t} + \beta_{N\to NN} IRD_{N\to NN,i,t} + \beta_{\Delta MV} \ln\left(\frac{MV_{i,t}}{MV_{i,t-1}}\right) + \beta_{\Delta B/M}\left(B/M_{i,t} - B/M_{i,t-1}\right) + \beta_j YD + \sum_{k=1}^{76} \beta_k ID_k + \varepsilon_{i,t}, \quad (1)$$

where $\Delta AF_{i,t}$ is the difference between the number of analysts with published forecasts in the *I/B/E/S* database for firm i as at March 31 of the award year (t) and March 31 of the year immediately prior to the award year ($t-1$), $IRD_{N\to N,i,t}$ is 1 if the firm is nominated in both years $t-1$ and t, and 0 otherwise, $IRD_{NN\to N,i,t}$ is 1 if the firm is not nominated in year $t-1$ but nominated in year t, and 0 otherwise and $IRD_{N\to NN,i,t}$ is 1 if the firm is nominated in year $t-1$ but not nominated in year t, and 0 otherwise. $MV_{i,t}$ and $MV_{i,t-1}$ are the market value of equity of firm i as at March 31 of the award year and as at March 31 of the year immediately preceding the award year, respectively. $B/M_{i,t}$ is computed using the book value of equity from the most recent fiscal year ending September 30 or earlier of the year immediately preceding the nomination year divided by the market value of equity as at March 31 of the award year and $B/M_{i,t-1}$ is computed using the book value of equity from the most recent fiscal year ending September 30 or earlier of the year two years before the nomination year divided by the market value of equity as at March 31 of the year preceding the award year. Figures in brackets are the asymptotic t-statistics adjusted for clustering.

following compared with those firms not nominated in either year (1.5) is not statistically significant ($t = 1.6$). The comparable increase in analyst following for small firms on the same basis is 0.8 ($t = 4.16$).[12] Similarly, there is no increase in analyst following for large firms nominated in two consecutive years or those not nominated in year $t-1$ but no longer nominated in year t compared with those firms not nominated at all ($t = 0.13$ and $t = 0.61$, respectively). Small firms that are nominated for IR awards in consecutive years experience a mean increase of 0.9 in analyst coverage ($t = 2.76$) while those that are no longer nominated in year t after being nominated in year $t-1$ suffer a mean decrease of 1.5 analysts ($t = 8.01$). Thus, overall, evidence is consistent with our prediction 1: effective IR is associated with higher analyst following. This may reflect potential lower information cost incentives.

3.3. *Stock liquidity*

In this sub-section, we test prediction 2, that is, effective IR is associated with an increase in stock liquidity. Table 4 clearly shows that controlling for change in size and book-to-market, there is a strong positive association between liquidity and IR quality, although for small firms only. Specifically, those firms with market capitalization <$3bn that are nominated in year t experience much higher relative stock turnover irrespective of whether they were nominated in year $t-1$ ($\beta_{N\to N} = 0.48$, $t = 9.86$) or not ($\beta_{NN\to N} = 0.31$, $t = 7.52$).[13] Nonetheless, there is some weak evidence of change in relative stock turnover, but with unexpected sign, for firms nominated for 'best overall IR' awards in year $t-1$ but no longer nominated in year t ($\beta_{N\to NN} = 0.07$, $t =$

Table 4. Relative turnover regression analysis.

	α	$\beta_{N\to N}$	$\beta_{NN\to N}$	$\beta_{N\to NN}$	$\beta_{\Delta MV}$	$\beta_{\Delta B/M}$	Adj. R^2
Large	0.15	−0.02	−0.07	0.11	−0.06	−0.02	0.04
	(0.88)	(0.29)	(0.68)	(0.95)	(2.18)	(1.67)	
Small	−0.43	0.48	0.31	0.07	0.10	0.06	0.08
	(27.91)	(9.86)	(7.52)	(1.73)	(9.81)	(1.50)	

Notes: Our sample covers all firms listed on the NYSE, Amex and NASDAQ from 2000 to 2002 meeting data availability criteria. 'Large' and 'Small' firms are those with market capitalization >$3bn and <$3bn, respectively, at the end of December of the year prior to the *IR Magazine* 'best overall IR' award nomination year.
The following regression with year dummies $\{YD_j\}$ and industry dummies based on two-digit SIC codes $\{ID_k\}$ is estimated:

$$\Delta RTO_{i,t} = \alpha + \beta_{N\to N} IRD_{N\to N,i,t} + \beta_{NN\to N} IRD_{NN\to N,i,t} + \beta_{N\to NN} IRD_{N\to NN,i,t} + \beta_{\Delta MV} \ln\left(\frac{MV_{i,t}}{MV_{i,t-1}}\right) + \beta_{\Delta B/M}\left(B/M_{i,t} - B/M_{i,t-1}\right) + \beta_j YD + \sum_{k=1}^{76} \beta_k ID_k + \varepsilon_{i,t}, \quad (5)$$

Where $\Delta RTO_{i,t}$ for firm i is the difference between the average monthly stock turnover ratio adjusted for market-wide activity from April 1 of year $t-1$ to March 31 of year t (award year) and the average monthly stock turnover ratio adjusted for market-wide activity from April 1 of year $t-2$ to March 31 of year $t-1$. $IRD_{N\to N,i,t}$ is 1 if the firm is nominated in both years $t-1$ and t, and 0 otherwise, $IRD_{NN\to N,i,t}$ is 1 if the firm is not nominated in year $t-1$ but nominated in year t, and 0 otherwise and $IRD_{N\to NN,i,t}$ is 1 if the firm is nominated in year $t-1$ but not nominated in year t, and 0 otherwise. $MV_{i,t}$ and $MV_{i,t-1}$ are the market value of equity of firm i as at March 31 of the award year and as at March 31 of the year immediately preceding the award year, respectively. $B/M_{i,t}$ is computed using the book value of equity from the most recent fiscal year ending September 30 or earlier of the year immediately preceding the nomination year divided by the market value of equity as at March 31 of the award year and $B/M_{i,t-1}$ is computed using the book value of equity from the most recent fiscal year ending September 30 or earlier of the year two years before the nomination year divided by the market value of equity as at March 31 of the year preceding the award year. Figures in brackets are the asymptotic t-statistics adjusted for clustering.

1.73). However, there is no parallel association evident for large firms. Broadly speaking, these results are consistent with our prediction of increased liquidity for nominated small firms, although not in the case of large firms. Such findings could be explained by a reduction in the costs associated with information asymmetry for firms with better market communication strategies, for example, as proxied by their IR award nominations, and this is more likely to apply in the case of small firms.

3.4. *Value relevance*

In this section, we test our prediction 3: is effective IR positively associated with market value? The results of our Ohlson (1995) model-based regressions using Equations (6) and (7) to assess value relevance of IR activity are presented in Table 5. If IR is value-relevant, then firms with more effective IR should have higher valuation multiples. Model (i) in panel A shows that for large firms, those that are nominated for 'best overall IR' awards have higher valuation than those that are not nominated ($\beta_{IRD} = 3.94$, $t = 6.45$). In parallel, Model (ii) indicates that firm IR ranking is strongly correlated with market value ($\beta_{IR} = 1.19$, $t = 9.93$).[14] In the case of small firms, Model (iii) in panel B shows that nominated firms have higher market valuations ($\beta_{IRD} = 0.27$, $t = 3.13$) with Model (iv) providing parallel results for higher ranked firms ($\beta_{IR} = 0.28$, $t = 4.32$).[15]

To summarize, Table 5 reports a strong positive relationship between IR rating and market value for both large and small firms. These findings clearly demonstrate that better IR is

Table 5. Value relevance of IR activity.

Model	α	β_{BVE}	β_{NI}	β_{Div}	β_{IRD}	β_{IR}	Adj R^2
A. Large firms							
(i)	−7.73	1.77	11.00	6.95	3.94		0.68
	(10.14)	(7.91)	(7.22)	(3.21)	(6.45)		
(ii)	5.53	1.40	8.92	5.85		1.19	0.75
	(8.27)	(6.31)	(6.48)	(2.90)		(9.93)	
B. Small firms							
(iii)	−0.04	1.48	9.83	5.71	0.27		0.69
	(1.58)	(6.13)	(5.07)	(2.75)	(3.13)		
(iv)	−0.04	1.43	9.71	5.80		0.28	0.69
	(1.69)	(6.18)	(4.99)	(2.82)		(4.32)	

Notes: Our sample covers all firms listed on the NYSE, Amex and NASDAQ from 2000 to 2002 meeting data availability criteria. 'Large' and 'Small' firms are those with market capitalization >$3bn and <$3bn, respectively, at the end of December of the year prior to the *IR Magazine* 'best overall IR' award nomination year. The two following regressions with year dummies $\{YD_j\}$ and industry dummies based on two-digit SIC codes $\{ID_k\}$ are estimated:

$$MV_{i,t} = \alpha + \beta_{BVE}BVE_{i,t} + \beta_{NI}NI_{i,t} + \beta_{DIV}Div_{i,t} + \beta_{IRD}IRD_{i,t} + \sum_{j=1}^{2}(\beta_j YD_j) + \sum_{k=1}^{76}(\beta_k ID_k) + \varepsilon_{i,t}, \quad (6)$$

$$MV_{i,t} = \alpha + \beta_{BVE}BVE_{i,t} + \beta_{NI}NI_{i,t} + \beta_{Div}Div_{i,t} + \beta_{IR}IR_{i,t} + \sum_{j=1}^{2}(\beta_j YD_j) + \sum_{k=1}^{76}(\beta_k ID_k) + \varepsilon_{i,t}, \quad (7)$$

where $MV_{i,t}$ is the market value of equity of firm i as at 31 March of the award year (t), $BVE_{i,t}$, $NI_{i,t}$ and $Div_{i,t}$ are the book value of common equity, net income before extraordinary items and dividends to common equity, respectively, for firm i for the award year. Accounting data are as at the end of the most recent fiscal year ending September 30, or earlier, of the year immediately preceding the nomination year. $IRD_{i,t}$ is 1 if firm i receives at least one 'best overall IR' award nomination and 0 otherwise and $IR_{i,t}$ is the investor relations rank of firm i based on the number of nominations received. Ranks are computed each year for 'Small' and 'Large' firms separately. Figures in brackets are the t-statistics adjusted for clustering.

associated with higher market value. We therefore report evidence consistent with our prediction 3: effective IR does appear to make an incremental contribution to firm value.

3.5. *Value relevance and endogeneity*

Table 2 shows that firms that receive 'best overall IR' nominations are larger, are growth firms and have higher analyst following. This is also confirmed directly on a multivariate basis in Table 3. However, our value relevance results could potentially suffer from endogeneity problems as firms with higher market values, lower book-to-market ratios and greater analyst coverage are more likely to be nominated for 'best overall IR' awards. The standard approach to correct for this potential bias is to use instrumental variables and a two-stage least squares framework (e.g. Wooldridge 2002). However, Larcker and Rusticus (2010) note the problems of identifying strong instrumental variables in empirical research to control for endogeneity and provide an alternative route for assessing the robustness of a regression parameter estimate. This is by calculating its impact threshold for a confounding variable (ITCV) value using the procedure suggested by Frank (2000). We apply this approach to the IR OLS coefficient (β_{IRD}) in Equation (6). Specifically, we estimate the minimum level of correlation that an unobserved confounding variable needs to have with market value (MV) and IR dummy (nominated/not nominated) (IRD) for it to render the latter's coefficient (β_{IRD}) statistically insignificant were it to be included in Equation (6).

(Untabulated) ITCVs for the IR coefficients in models (i) and (iii) of Table 5 are 0.0723 and 0.0328 for large and small firms, respectively. This means that a potential confounding variable needs to have a partial correlation (square root of the ITCV measure) with both market value of equity and IR dummy of at least 0.27 for large firms and 0.18 for small firms for it to render the respective IRD coefficient no longer significant.[16] A priori, it is difficult to say whether these partial correlation threshold values for a potential confounding variable are high enough to ensure that our OLS estimates are robust. Therefore, following Larcker and Rusticus (2010), we also estimate the partial correlations between the other independent variables in models (i) and (iii) in Table 5 with market value of equity and IR. For large firms, the partial correlations of market value of equity and IR with book value of equity, net income and dividends are −0.08, −0.05 and −0.10, respectively.[17] So, a confounding variable that if included in Equation (6) would render the coefficient on IR ranking insignificant needs to have a much higher partial correlation with both market value of equity and IR ranking than book value of equity, net income and dividends and be orthogonal to all other independent variables in the model. For small firms, the equivalent partial correlations are 0.25, −0.11 and −0.13, respectively.[18] Hence, even here, any potential confounding variable needs to have a partial correlation with market value of equity and IR quality significantly higher than that of net income and dividends for it to render the IR dummy variable insignificant. The chance of any such variable existing is small. As such, our results are suggestive that any potential self-selection bias or endogeneity between IR quality and market value is unlikely to have a sufficiently serious impact on our results to change the broad tenor of our conclusions.

3.6. *Large and small firms*

To conclude this section, we review our findings in the context of prediction 4 which, following Merton (1987), is that the benefits of effective IR policies will be greater for small than large firms. Model (i) in Table 6 shows that controlling for change in market value of equity and book-to-market ratio, small rated firms experience a greater change in analyst following compared with large rated firms ($\beta_s = -0.81$; $t = 3.02$), and Model (ii) similarly shows that they experience a greater increase in relative turnover ($\beta_s = -0.31$; $t = 8.26$). However, Model (iii) shows that although the association between nomination for *IR Magazine* 'best overall IR' award and the market value of large firms appears to be stronger than for small firms ($\beta_s = 0.24$; $t = 1.77$), this statistical relationship is only weakly significant (just at the 10% level). We thus find some evidence consistent with our prediction 4. Effective IR is particularly beneficial in terms of increased analyst following as well as improved relative turnover for small firms, though not in terms of increase in market valuation. Nonetheless, it should be pointed out that our 'small' firms are not necessarily small with, as Table 2 shows, mean (median) market capitalization of $1.7bn ($1.0bn), and all are listed on the main US exchanges. This is in contrast to the typically very small and micro-cap stocks which initiate IR activity that are the focus of Bushee and Miller (2012) and Vlittis and Charitou (2012).[19]

4. Summary and conclusions

In this study, we seek to test two alternative views in the literature about the value of IR activity to firms. Traditional finance theory argues that simply 'repackaging' and communicating an existing information set will have no value as such information will already be priced by the market. In addition, Hong and Huang (2005) and Doukas et al. (2005, 2008) suggest that the costs of IR could well outweigh the benefits, leading to reduced market value. On the other hand, Merton's (1987) investor recognition theory suggests that effective IR activity will enhance the 'visibility' of a stock. This may be manifest in greater analyst coverage, improved liquidity

Table 6. Incremental impact of IR activity on small and large firms.

	α	β_S	$\beta_{\Delta MV}$	$\beta_{\Delta B/M}$	$\beta_{\Delta BVE}$	$\beta_{\Delta NI}$	$\beta_{\Delta Div}$	Adj. R^2
(i)	−0.29	−0.81	0.50	0.14				0.05
	(0.80)	(3.02)	(4.10)	(2.99)				
(ii)	0.31	−0.31	0.07	−0.03				0.06
	(5.37)	(8.26)	(2.83)	(3.42)				
(iii)	−1.14	0.24			−0.51	2.19	3.79	0.03
	(0.38)	(1.77)			(3.59)	(6.53)	(0.95)	

Notes: Our sample covers all firms listed on the NYSE, Amex and NASDAQ from 2000 to 2002 that are nominated for *IR Magazine* 'best overall IR' award and meeting data availability criteria. 'Large' and 'Small' firms are those with market capitalization >$3bn and <$3bn, respectively, at the end of December of the year prior to the *IR Magazine* 'best overall IR' award nomination year.

The following regressions with year dummies $\{YD_j\}$ and industry dummies based on two-digit SIC codes $\{ID_k\}$ are estimated:

$$\Delta AF_{i,t} = \alpha + \beta_S SizeD_{i,t} + \beta_{\Delta MV} \ln\left(\frac{MV_{i,t}}{MV_{i,t-1}}\right) + \beta_{\Delta B/M}\left(B/M_{i,t} - B/M_{i,t-1}\right) + \beta_j YD + \sum_{k=1}^{76} \beta_k ID_k + \varepsilon_{i,t}, \tag{8}$$

$$\Delta RTO_{i,t} = \alpha + \beta_S SizeD_{i,t} + \beta_{\Delta MV} \ln\left(\frac{MV_{i,t}}{MV_{i,t-1}}\right) + \beta_{\Delta B/M}\left(B/M_{i,t} - B/M_{i,t-1}\right) + \beta_j YD + \sum_{k=1}^{76} \beta_k ID_k + \varepsilon_{i,t}, \tag{9}$$

$$\Delta MV_{i,t} = \alpha + \beta_S SizeD_{i,t} + \beta_{\Delta BVE}(BVE_{i,t} - BVE_{i,t-1}) + \beta_{\Delta NI}(NI_{i,t} - NI_{i,t-1}) + \beta_{\Delta Div}(Div_{i,t} - Div_{i,t-1}) + \beta_j YD + \sum_{k=1}^{76} \beta_k ID_k + \varepsilon_{i,t}, \tag{10}$$

where $\Delta AF_{i,t}$ is the difference between the number of analysts with published forecasts in the *I/B/E/S* database for firm i as at March 31 of the award year (t) and March 31 of the year immediately prior to the award year ($t-1$). $\Delta RTO_{i,t}$ for firm i is the difference between the average monthly stock turnover ratio adjusted for market-wide activity from April 1 of year $t-1$ to March 31 of year t (the award year) and the average monthly stock turnover ratio adjusted for market-wide activity from April 1 of year $t-2$ to March 31 of year $t-1$. $\Delta MV_{i,t}$ is the difference between the market value of equity of firm i as at March 31 of the award year (t) and as at March 31 of the year immediately preceding the award year ($t-1$). $SizeD_{i,t}$ is 1 if the firm is classified by *IR Magazine* as 'large' (market capitalization as at March 31 of the award nomination year t > $3bn), 0 otherwise. $BVE_{i,t}$, $NI_{i,t}$ and $Div_{i,t}$ are the book value of common equity, net income before extraordinary items and dividends to common equity, respectively, for firm i from the most recent fiscal year ending September 30, or earlier, of the year immediately preceding the nomination year. $BVE_{i,t-1}$, $NI_{i,t-1}$ and $Div_{i,t-1}$ are the book value of common equity, the net income before extraordinary items and dividends to common equity, respectively, for firm i from the most recent fiscal year ending September 30, or earlier, of the year two years preceding the nomination year. $B/M_{i,t}$ is the ratio of $BVE_{i,t}$ and $MV_{i,t}$ and $B/M_{i,t-1}$ is the ratio of $BVE_{i,t-1}$ and $MV_{i,t-1}$. Figures in brackets are the asymptotic t-statistics adjusted for clustering.

and higher market valuation multiples. In addition, since smaller firms are more likely to be 'neglected', IR should have a greater impact in such cases. To test these conflicting views on the market value of the investment in the intangible asset IR potentially represents, we employ a new proprietary database measuring IR quality that covers all firms listed on NYSE, Amex and NASDAQ. This database, compiled by the *IR Magazine*, consists of all firms nominated by security analysts and fund managers for 'best overall IR' in its annual IR surveys.

The most important contribution of our paper is that, in line with Merton (1987) but *contra* Hong and Huang (2005) and Doukas et al. (2005, 2008), both large and small firms nominated for 'best overall IR' awards have significantly higher market valuation multiples than those that are not so nominated. This result is further emphasized when we consider firms ranked on the basis of number of 'best overall IR' nominations received, in which case an increase in ranking by one step translates to a 6.7% increase in the market capitalization for the average large ranked firm and 15.8% in the case of the average small ranked firm. Using the ITCV method of Larcker and Rusticus (2010), we also show that these results are robust to issues of potential model endogeneity. In addition, controlling for a range of risk factors, we show that firms receiving 'best overall IR' award nominations experience increased analyst following, as well as improved liquidity in the case of small firms, in the nomination year. Finally, consistent with the predictions of Merton (1987), the majority of our results are much stronger for small firms. This is probably due to their lower visibility and hence likelihood of suffering more from issues of asymmetric information and lower management credibility.

We thus conclude that effective IR has clear market impact; this has important implications for firms' communication and other information dissemination strategies with the financial markets and market participants. In particular, we complement the findings of Bushee and Miller (2012) and Vlittis and Charitou (2012) who work with very small and micro-cap stocks which initiate IR activity, and Kirk and Vincent (2014) who look at the benefits of an in-house IR department post Reg FD, and extend these significantly. Our results demonstrate that the benefits of effective IR equally apply across a large cross-section of main exchange-listed firms with established IR programmes, not just for very small firms. Effective IR policies appear to be value-relevant and may be viewed as akin to investments in other firm intangible assets such as management quality (Agarwal et al. 2011) and company brands (e.g. Wyatt 2008) that produce long-term benefits leading to higher market valuations

Our results, however, are subject to some limitations. First, broadly speaking, they pertain to the generality of firms engaged in IR activity. This is in contrast with Peasnell et al. (2011) who focus on a different research question relating to the extent to which IR prize-winning firms are shielded from the adverse impact of corporate misdeeds on their credibility with investors. Second, there may be issues associated with the use of analyst and institutional investor subjective IR ratings as measures of firm overall IR quality and the problems inherent with all such survey-based data. However, we would argue that whether or not *IR Magazine* survey respondents' 'best overall IR' award nominations proxy for true IR quality, since such market specialists are the main targets of firms' IR strategies, it is their subjective perceptions of IR quality that are key whether valid or not.

Finally, our data are restricted to a relatively short time span ending in 2002 and were not available to us for subsequent years. Nonetheless, the data cover the first two years of the implementation of Regulation Financial Disclosure, the collapse of the dot.com bubble and September 11, and thus our results are of intrinsic interest in their own right. In addition, it should be noted that most other directly relevant studies use data from the AIMR database of large firms which ends in 1996. However, clearly, caution must be taken in generalizing from what we find out of sample.

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Notes

1. All four AIMR measures are highly correlated which would also be consistent with a 'halo' effect operating in the different AIMR industry committees' rating judgements (Brown and Hillgeist 2007, Haggard et al. 2008, Jiao 2011).
2. See her p. 652 and p. 658 as well as footnote 16.
3. Solomon (2012) also shows that firms that employ specialist IR firms generate more positive news stories and associated event-day returns. However, there is no evidence that such firms suppress unfavourable stories. In the case of earnings announcements, 'spin' has no impact.
4. In contrast with Peasnell et al. (2011), who work exclusively with the subset of named award-winning and honorary mention firms which meet their data requirements from the same data source we use, we are able to work with all firms nominated for 'best overall IR', whether award winners or not.
5. Peasnell et al. (2011), broadly speaking, cover a similar time period in their study.
6. Lev (2012, pp. 57–60) provides 'operating instructions' for an effective IR communications strategy.
7. Information asymmetry does not lead to lower valuations in every case. Some firms might, in fact, be overvalued (Jensen 2005). Hence, achieving fair value does not mean that firm market value will be greater in all cases. However, on average, firms suffering from information asymmetry are likely to be undervalued.
8. Data for other survey years were unfortunately not available to us.
9. We treat all nominations equally in our analysis.
10. Though respondents are asked to nominate firms based on their IR performance over the previous 12 months, these firms would have been building their IR departments and policies over time.
11. In contrast to earlier analyses, these regressions are run with rated firms only as our specific interest here is the difference between small and large rated firms. In addition, interacting the two dummies (SizeD and IRD) would lead to collinearity problems.
12. For a large (small) firm not nominated in year $t-1$ but nominated at least once in year t with average analyst following of 11.8 (2.2), this represents a 13% (36%) increase in analyst coverage.
13. For the average nominated small firm with market-relative stock turnover ratio of 0.93, this translates into a 52% increase in relative turnover for those nominated in both year $t-1$ and year t and 33% for those nominated in year t for the first time.
14. A large firm nominated for 'best overall IR' award with average book value of $3.73bn, average net income of $0.55bn, average dividend of $0.23bn and average IR rank of 5.31, experiences a 6.7% increase in market value for a unit increase in ranking.

15. A small firm nominated for 'best overall IR' award with average book value of $547.6m, average net income of $51.9m, average dividend of $6.2m and average IR rank of 1.6, experiences a 15.8% increase in market value for a unit increase in ranking.
16. The equivalent ITCVs in models (ii) and (iv) using Equation (7) are 0.2284 and 0.0709, respectively, corresponding to minimum partial correlations of 0.48 and 0.27.
17. A negative value for the impact score of a variable shows that its inclusion would make the coefficient on quality of investor relations more positive.
18. The equivalent partial correlations in model (ii) are −0.09, −0.08 and −0.12, respectively, and in model (iv) are 0.24, −0.11 and 0.15.
19. Table 2 in Kirk and Vincent (2014) suggests that the generality of their firms with internal IR functions is relatively small as well.

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