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Media coverage and stock price synchronicity☆

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ABSTRACT

This paper investigates the relation between the extent of media coverage and stock price synchronicity and whether this relation varies across different institutional infrastructures. We document three notable findings. First, media coverage is negatively associated with stock price synchronicity, suggesting that the media facilitates the incorporation of firm-specific information into stock prices. Second, a firm's information environment and corporate governance play a moderating role in the relation between media coverage and the synchronicity of stock prices. Third, the synchronicity-reducing effect of media coverage is stronger in countries with weak institutional infrastructures. Overall, our study suggests that media coverage is an important determinant of stock price synchronicity.

1. Introduction

The role of the media in the economy has been debated for a long time. On the one hand, by uncovering new insights about firms or disseminating firm-specific news stories to a broad audience, the media helps reduce information asymmetry and thus affects security pricing (e.g., Fang & Peress, 2009; Tetlock, 2010, 2011). Furthermore, the media helps improve corporate governance by undertaking original investigation and bringing fraud to the public's attention (Miller, 2006) or by aligning managers' and shareholders' interests (Liu & McConnell, 2013). On the other hand, the media can be harmful if it delivers fake news, as once was claimed by President Trump.[1] Indeed, Ahern and Sosyura (2014) document that media news can be manipulated by firms to influence their stock prices. Taken together, it therefore remains unclear whether greater media news coverage is associated with a greater or lesser amount of firm-specific information that is incorporated into stock prices. This study attempts to fill this gap.

To measure the extent to which the price of a stock is able to incorporate firm-specific information, we follow prior studies and use stock price synchronicity, a measure of the degree to which individual stocks co-move with the market, as a summary measure. A considerable body of research establishes that the level of stock price synchronicity depends on the relative amount of firm-specific and market-level information being capitalized into stock prices (Dang, Moshirian, & Zhang, 2015; Fernandes & Ferreira, 2008; Hutton, Marcus, & Tehranian, 2009; Jin & Myers, 2006; Morck, Yeung, & Yu, 2000; among others). A higher synchronicity of stock prices indicates that the stock prices reflect more market-wide information relative to firm-specific information, or less informative stock prices.

Using media news data from RavenPack for a sample of firms from 40 countries over the period of 2000–2016, we examine whether media coverage is related to stock price synchronicity and whether this association varies across different country-level institutional structures. This international setting allows us to exploit the rich variation in media coverage and institutional infrastructures across countries to better understand the relation between media coverage and stock price synchronicity and to answer the question of whether country-level institutional characteristics matter for this relation.

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[1] https://www.cnbc.com/2018/01/17/fake-news-awards-by-donald-trump-gop-cnn-new-york-times-washington-post.html.

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The first part of our study focuses on the relation between media coverage and stock price synchronicity. On the one hand, there are at least two reasons why greater media coverage can matter for the synchronicity of stock prices. First, the media can help reduce information asymmetry by producing new information and (or) disseminating firm-specific information to a wider base of investors (e.g., Bushee, Core, Guay, & Hamm, 2010; Fang & Peress, 2009; Tetlock, 2010). Because stock price synchronicity is affected by information opacity (Jin & Myers, 2006), greater media news coverage should reduce stock price synchronicity. Second, the media can strengthen investor protection by improving corporate governance (e.g., Core, Guay, & Larcker, 2008; Dyck, Morse, & Zingales, 2010; Dyck, Volchkova, & Zingales, 2008; Dyck & Zingales, 2002; Joe, Louis, & Robinson, 2009; Kuhnen & Niessen, 2012; Miller, 2006). Stronger investor protection can encourage risk arbitrageurs to collect and trade on proprietary information, which facilitates the capitalization of firm-specific information into stock prices, thereby lowering stock price synchronicity (Morck et al., 2000). Taking these arguments together, we posit that firms that receive greater attention by news media are likely to have more reliable and high-quality information available to the public. Accordingly, their stock prices should be more informative and less synchronous with the market. Therefore, our key hypothesis predicts that firms with greater media coverage have lower stock price synchronicity.

On the other hand, an alternative view argues that greater media news coverage might be associated with higher stock price synchronicity, or even does not have any effect. If the firm-specific news events disseminated by the media do not reach a broader class of investors than is already afforded by other information intermediaries, or even worse, the media might report biased and distorted news stories when firms intentionally manipulate media news reporting (e.g., Ahern & Sosyura, 2014), then the media does not improve firms' information environments or provide effective external monitoring. Consequently, in such environments, greater media news coverage might impede the incorporation of firm-specific information into stock prices, thereby leading to higher stock price synchronicity.

Our results show that firms with greater media coverage have lower stock price synchronicity, supporting our key hypothesis. We find that this negative relationship between media news coverage and stock price synchronicity remains consistent across subsamples (i.e., the global sample, developed versus emerging markets, and U.S. versus non-U.S. markets) and whether we control for various country-level and firm-specific variables that might be correlated with stock price synchronicity. The magnitude of the results is economically significant. For example, an increase of one standard deviation in media coverage results in a decrease of approximately 9.0 percentage points in stock price synchronicity, which is roughly 5.8% of the average synchronicity of stock prices across global sample firms.

To address the concern that an endogenous relation between media coverage and stock price synchronicity can drive our results, we perform several robustness checks. First, we include firm-fixed effects in regressions to control for unobservable firm-specific heterogeneity that is time-invariant or rarely changes over time. Second, we rerun our regressions using the lagged media variable as a key independent variable to alleviate reverse causality between media coverage and stock price synchronicity. In addition, we follow Peress (2014) and employ an instrumental variable (IV) approach that exploits *nationwide* media strikes (i.e., strikes that affect a high percentage of the media sector) as an exogenous shock to media coverage. Finally, to mitigate the concern that media coverage can be manipulated by firms or that the media simply reflects the effect of firms' disclosure practices, we perform analysis using the media news sample with only press-initiated news. Our results are robust to all of these checks. Collectively, our results suggest that the media helps facilitate the incorporation of firm-specific information into stock prices, thus lowering stock price synchronicity.

In the second part of our analysis, we examine the moderating effect of firm-level information transparency and corporate governance on the relation between media coverage and stock price synchronicity. We argue that if the negative relation between media coverage and stock price synchronicity is driven by the media's role in reducing information asymmetry, then this relation should become weaker for firms with more transparent information environments. Similarly, if the media helps facilitate the incorporation of firm-specific information into stock prices by improving corporate governance and firm disclosure quality, then this relation should become attenuated in firms with stronger governance environments. Following prior studies (e.g., Behn, Choi, & Kang, 2008; Bhattacharya, Daouk, & Welker, 2003; Bushman, Piotroski, & Smith, 2004; Jin & Myers, 2006), we use Big4 auditors as a proxy for firm-level information environment,[2] and institutional block ownership to measure the strength of corporate governance at the firm level. Consistent with our prediction, we find that the negative relationship between media coverage and stock price synchronicity is more pronounced for firms not being audited by a Big4 auditor and for those with lower institutional block ownership.

Finally, we examine whether the association of media coverage and stock price synchronicity varies across different institutional infrastructures. Our results show that the negative relation between media coverage and the synchronicity of stock prices is more pronounced in countries with poor protection of investors (measured by the “good government index”), weak government effectiveness, poor regulatory quality, low accounting standards, and less strict disclosure requirements. We also find that the negative relation between media coverage and stock price synchronicity is stronger in the IFRS non-adopting countries. Collectively, these findings suggest that the media can act as a substitute for country-level institutional infrastructures to increase stock price efficiency.

Our paper makes three major contributions to the literature. First, we add to the growing literature on the media's role in financial markets, with a focus on an international setting. Although a large body of research exists on the media's importance to financial markets, most prior studies focus on a single market (e.g., Ahern & Sosyura, 2014; Dyck et al., 2008; Fang & Peress, 2009; García, 2013; Gurun & Butler, 2012; Huberman & Regev, 2001; Tetlock, 2007, 2010, 2011; Tetlock, Saar-Tsechansky, & Macskassy, 2008; among others); few papers investigate the media's effects on international financial markets (Dang et al., 2015; Griffin, Hirschey, & Kelly, 2011; Kim, Zhang, Li, & Tian, 2014). Given that institutional characteristics and information environments are different across countries, which can affect the media's incentives and ability to collect, produce and (or) disseminate information to the public (Dang et al., 2015; Veldkamp, 2006), the effect of the media might also be different, or even non-existent, among countries. Our study extends this strand of literature by showing that media attention is an important factor affecting stock price synchronicity in the global financial markets.

Second, our paper is among few studies that examine the role of the media in improving the efficiency of stock prices in international financial markets. Specifically, our study is related to several recent papers that investigate the relation between the media and market efficiency in international markets (Dang et al., 2015; Griffin et al., 2011; Kim et al., 2014). However, our study differentiates itself from those papers in several distinct ways. Kim et al. (2014) focus on the effect of country-level press freedom on stock price informativeness, whereas we are interested in how firm-level media coverage affects the ability of stock prices to incorporate firm-specific information and thus, stock price synchronicity. Our article differs from Griffin et al.'s (2011) study in both method and focus. We rely on panel data to investigate whether the media, as a firm-level governance mechanism to enhance investor

[2] We use Big5 auditors in 1999–2001 (before Arthur Andersen's demise), and Big4 auditors from 2002 onwards. However, for expositional convenience, we refer to these top auditing firms as Big4 throughout the paper.

protection and firm transparency, is associated with stock price synchronicity. In contrast, Griffin et al. (2011) employ the event study method to examine how stock prices in international equity markets react to public news announcements. Our paper is closely related to Dang et al. (2015). However, Dang et al. (2015) focus on testing whether stock price synchronicity is driven by firm-specific information or noise, using a direct proxy for information production by the media (i.e., news commonality). In contrast, our focus is on whether the extent of media coverage is related to the ability of stock prices to incorporate firm-specific information. These two measures capture the two distinct dimensions of news media. News commonality is a measure of firm-specific information contained in news events produced by the media, whereas the extent of media coverage captures the media's attention. Therefore, higher media coverage does not necessarily imply more firm-specific information produced and provided to the public, and vice versa. In addition, we provide insights into the moderating role of firm-level transparency and corporate governance in the relation between media coverage and the synchronicity of stock prices.

Finally, we provide evidence on how the interaction between firm-level media coverage and country-level institutional infrastructures influences stock price synchronicity. In particular, we find that the synchronicity-reducing effect of the media, as a firm-level substitutive mechanism in providing investor protection and firm transparency, is greater in countries with weaker institutions. Although Kim et al. (2014) and Griffin et al. (2011) investigate the relation between the media and stock price informativeness across countries, neither of these studies evaluates explicitly how the media interacts with country-level institutional characteristics in improving stock price efficiency.

The remainder of the paper is organized as follows. Section 2 presents research hypotheses. Section 3 describes our data sources and the variable measurement procedure. Section 4 reports and discusses empirical evidence on the link between media coverage, stock price synchronicity, and the role of institutional structures. We conclude the paper in Section 5.

2. Hypothesis development

2.1. Media coverage and stock price synchronicity

Our hypotheses rest on two strands of the literature. The first strand is related to the link between governance mechanisms, transparency and stock price synchronicity. At the country level, Morck et al. (2000) find that stocks co-move more in countries with poor protection for investors because in such environments, informed risk arbitrage is less attractive, and investors are discouraged from uncovering private information, leading to less firm-specific information being capitalized into stock prices. Jin and Myers (2006) extend and complement Morck et al. (2000) by showing that less information transparency enables insiders to control firm-specific information flows to the public and therefore to absorb some firm-specific variations. In support of this argument, Jin and Myers (2006) find that stock prices co-move to a greater extent in countries with more-opaque information environments. A recent study by Eun, Wang, and Xiao (2015) show that stock prices are more synchronous in countries with cultural tightness and collectivism. They find that a country's information environment and investors' correlated trading are channels through which culture affects stock price synchronicity.[3]

Extending cross-country analysis to the firm level, a growing body of research provides empirical evidence that stock price synchronicity is negatively associated with the strength of both a firm's corporate governance and transparency. For instance, Ferreira and Laux (2007) and Fernandes and Ferreira (2008) find that stock price informativeness, an inverse measure of stock price synchronicity, is positively associated with openness to the market for corporate control, cross-listing and voluntary commitment to enhanced disclosures. Hutton et al. (2009) provide evidence that firms with less transparent information environments have stock prices that are more synchronous. Kim et al. (2014) find that stock prices co-move more in countries with less press freedom, suggesting that the lack of press freedom can weaken firms' information environment and reduce the ability of stock price to incorporate firm-specific information.[4]

Overall, findings from those studies suggest that when countries' or firms' environments are characterized by poor governance structures or information opacity, stock prices fail to reflect firm-specific information in a timely and precise manner and thus tend to co-move more with the market.

The second strand is related to the roles of the media in financial markets and corporate policies. On the one hand, media coverage might not affect, or even has a positive effect on, stock price synchronicity due to the unfavorable side of the media. Specifically, if the media only repeats firm-initiated news stories without adding new information content or if the firm-specific news events disseminated by the media do not reach a broader class of investors than is already afforded by other information intermediaries, then the media might not affect firms' information environments. Moreover, the media has an incentive to sensationalize news, even at the expense of accuracy, to appeal to its readership (Core et al., 2008). Even worse, if the media produces biased and distorted news stories when firms deliberately manipulate media news reporting (Ahern & Sosyura, 2015), then the media might impede the incorporation of firm-specific information into stock prices, thereby leading to higher stock price synchronicity.

On the other hand, the media can have a negative effect on stock price synchronicity. This conjecture is based on recent work documenting the beneficial effects of the media as a mechanism through which to enhance firm transparency and improve corporate governance. First, by producing new information and (or) disseminating information to market participants, the media helps reduce information asymmetry and increase firm transparency (e.g., Bushee et al., 2010; Fang & Peress, 2009; Tetlock, 2010). Second, the media can play an important role in improving the corporate governance of firms. In particular, the media can exert a governance role by pressuring firm managers to act in ways that are socially acceptable (Dyck & Zingales, 2002), providing early detection of corporate fraud (Dyck et al., 2010; Miller, 2006), monitoring management compensation (Core et al., 2008; Kuhnen & Niessen, 2012), improving governance structures (Dyck et al., 2008), influencing board effectiveness and quality (Joe et al., 2009), influencing capital allocation decisions (Liu & McConnell, 2013), and disciplining insiders' transactions (Dai, Parwada, & Zhang, 2015).

These discussions suggest that the media can have either a positive effect or a negative effect on stock price synchronicity. However, we expect that, on average, the beneficial effects of the media on firms' information and governance environments should outweigh its unfavorable effects. Thus, the media should have a negative effect on stock price synchronicity. Put differently, firms that receive more media coverage have stock prices that are less synchronous with the market. The underlying rationale is that these firms are more transparent and have better protection for investors, leading to a greater amount of firm-specific information being made publicly available. In addition, the enhanced transparency and improved investor protection encourage investors to collect and trade on proprietary information. With

[3] Country-level evidence also includes Li, Morck, Yang, and Yeung (2004), Fernandes and Ferreira (2009), Haw et al. (2012) among others.

[4] Other studies that provide supporting evidence on the negative association of stock price synchronicity and firm-level investor protection and firm transparency include Haggard, Martin, and Pereira (2008), Brockman and Yan (2009), Gul, Kim, and Qiu (2010), Kim and Shi (2012), An and Zhang (2013), He et al. (2013), and Boubaker, Mansali, and Rjiba (2014) among others.

greater information flow to the market, a greater amount of firm-specific information would be incorporated into stock prices. Therefore, our central hypothesis is stated as follows:

H1. There is a negative association between media coverage and stock price synchronicity.

2.2. The moderating effects of firm-level information environments and corporate governance

Based on the discussion of our key hypothesis concerning the negative relation between media news coverage and stock price synchronicity, we next examine the role of a firm's information and governance environments in determining this relation. Prior research suggests that the media is more effective in enhancing firm transparency and improving corporate governance in firms that are less transparent or in those with weaker governance quality (e.g., Dai et al., 2015; Fang & Peress, 2009). To the extent that the negative association of media coverage and stock price synchronicity results from the role of the media in reducing information asymmetry, we expect that this relation should be stronger for firms with more opaque information environments. Analogously, we argue that if the media enhances corporate governance and provides better investor protection, then the relation between media coverage and stock price synchronicity should be magnified for firms with weak governance structures. Therefore, our second hypothesis is formalized as follows:

H2. The negative association of media coverage and stock price synchronicity is more pronounced for firms with less transparent information environments or firms with weaker corporate governance.

2.3. The moderating effects of country-level information environments and institutional infrastructures

The negative effect of media coverage on stock price synchronicity is likely to vary across countries due to differences in country-level information environments and institutional infrastructures. Prior research suggests that stock price synchronicity is negatively associated with the strength of investor protection and information transparency at the country level (Jin & Myers, 2006; Morck et al., 2000). Therefore, it is important to investigate whether and how a country's institutional and information environments drive the negative relation between media coverage and stock price synchronicity. There are two competing arguments on how the interplay between country-level institutional infrastructures and firm-level media coverage affects the synchronicity of stock prices.

The first argument suggests that there might be a complementary effect between firm-level media coverage and country-level institutional infrastructures, in which one can complement the other in improving the ability of stock prices to incorporate firm-specific information, thus leading to lower stock price synchronicity. Specifically, a country's strong governance and transparent information environments can facilitate the media's production and dissemination of information because it is easier and less costly for the media to investigate firm-specific information in such environments (Dang et al., 2015). In addition, good investor protection and information transparency make firm-specific information more useful to investors (Jin & Myers, 2006; Morck et al., 2000), which can lead to a greater investor demand for firm-specific information and, therefore, can enable the media to produce and disseminate higher-quality information (i.e., more precise signals) to the market (Veldkamp, 2006). In this scenario, one can expect that the negative relation between media coverage and stock price synchronicity is more pronounced in countries with better institutional infrastructures.

The second argument is based on a large literature that suggests a substitute effect between country-level institutional structures and firm-level governance mechanisms (e.g., Doidge, Karolyi, & Stulz, 2004, 2007; Dyck & Zingales, 2004; Lel & Miller, 2008; Leuz, Lins, & Warnock, 2010). Specifically, strong institutional structures at the country level can enhance investor protection (Jensen, 1993; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998), improve firm disclosure with better quality (Ball, Kothari, & Robin, 2000; Bushman & Piotroski, 2006; Hope, 2003; Leuz, Nanda, & Wysocki, 2003), and thus reduce the need for firm-level corporate governance. In contrast, strong firm-level monitoring mechanisms can serve as a substitute for weak institutional infrastructures at the country level, and their effects on firms' investor protection and transparency could be greater in such markets.

To the extent that the media can act as a firm-level mechanism to enhance investor protection and to reduce information asymmetry, this role of media might be more important in countries with poor governance structures and information opacity. Therefore, we expect that the association of media coverage and stock price synchronicity would be accentuated in countries with weaker institutional infrastructures. We propose the following hypothesis:

H3. The negative association of media coverage and stock price synchronicity is stronger in countries with poorer protection for investors or less transparent information environments.

3. Research design

3.1. Data

We collect data from several sources to construct variables for firms across 40 countries for the period of 2000–2016. Specifically, (i) stock returns (in U.S. dollars) and trading volume come from Datastream; (ii) accounting-based control variables originate from Worldscope via Datastream; (iii) data on analyst coverage are from the Institutional Brokers' Estimate System (I/B/E/S); (iv) Big4 auditor appointment data are from Compustat Global and Worldscope; (v) institutional blockholding data are from the FactSet/Lionshares database; (vi) country-level variables are drawn from the literature (for time-invariant variables) or obtained from the World Development Indicators (for time-varying variables); (vii) country-level adoption status of IFRS is from the Deloitte Global Services IAS Plus's website, the IFRS's website, and the PwC's website.

We obtain data on firm-level media news from RavenPack, a leading global news database increasingly used in finance and accounting research (e.g., Bushman, Williams, & Wittenberg-Moerman, 2017; Dai et al., 2015; Dang et al., 2015; Kolasinski, Reed, & Ringgenberg, 2013; Shroff, Verdi, & Yu, 2014). RavenPack collects and analyzes real-time economic and business news at both the country and firm levels from all leading global news providers, major real-time newswires, online media, and trustworthy sources, including Dow Jones Newswires, all editions of the Wall Street Journal, Barron's, other major publishers and Web aggregators, regional and local newspapers, blog sites, press releases, regulatory disclosures, and government and regulatory updates, to produce real-time news analytics. RavenPack processes news flows and the informational content of news articles for more than 34,000 firms across two hundred countries, with news covering a wide range of facts, opinions, and firm disclosures.

To measure the informational content of a news article, RavenPack generates company relevance scores and event-novelty scores ranging between zero and one hundred, with a high value indicating the greater relevance of a news article to a firm or the more recent release of a given news event, respectively. The company relevance scores allow us to extract and calculate aggregate counts of news articles related to a specific firm, whereas the event-novelty scores allow us to isolate and focus on only the first news article in a chain of similar articles about the firm's given news event. In order to compute the media coverage of a firm, we only use news articles with relevance scores equal to one hundred, which indicate that a firm is reported as the main subject of a

news article.[5] In an additional analysis, we utilize the event-novelty scores to identify the first news article in a chain of similar articles about a given news event, or repeated news articles about the same news event.

We include only common stocks in the sample and exclude those with special features, such as ADRs (American Depository Receipts), GDRs (Global Depository Receipts), warrants, trusts, funds, and non-equity securities. In addition, we use stocks from the single major exchange for each country, except for China (Shanghai Stock Exchange and Shenzhen Stock Exchange), Japan (Tokyo Stock Exchange and Osaka Stock Exchange), and the U.S. (American Stock Exchange and New York Stock Exchange), for which we use two exchanges because of their equal importance in these countries.

3.2. Variable measurement

3.2.1. Stock price synchronicity (SYNCH)

Following Morck et al. (2000) and Jin and Myers (2006), we estimate stock price synchronicity for each firm in a particular year using R^2 from the following market model:

$$r_{i,j,t} = \alpha_{i,j} + \beta_{1i,j} r_{M,j,t} + \beta_{2i,j} r_{US,t} + \varepsilon_{i,j,t} \quad (1)$$

where $r_{i,j,t}$ is the stock return of firm i (in country j) in week t; $r_{M,j,t}$ is the market return of country j in week t, which is measured as the equally weighted average of all weekly individual stock returns in country j in week t (excluding stock i); and $r_{US,t}$ is the U.S. market return in week t. Given that most countries are open to foreign capital, we follow Morck et al. (2000), Jin and Myers (2006) and include in Eq. (1) the U.S. market return as a proxy for the world market.[6]

In estimating Eq. (1), we follow prior studies (e.g., Amihud, Hameed, Kang, & Zhang, 2015; Bartram, Brown, & Stulz, 2012; Dang et al., 2015) and apply several filters to mitigate possible data errors, which are based on the spirit of Ince and Porter (2006). Specifically, we discard weekly stock returns that exceed 200% and reverse in the following week. We require that every country's weekly market portfolio has a minimum of ten stocks. We also remove the returns of the 0.1% extremes at the top and bottom of each country's stock return distribution when calculating the weekly market returns. Finally, we require each country and each stock to have a minimum of 24 weekly observations during a given year to estimate stock price synchronicity. Because the value of R^2 is bounded by zero and one, we follow Morck et al. (2000), Jin and Myers (2006) and use the logistic transformation of the R^2 in the empirical analyses.

$$SYNCH_i = \log\left(\frac{R_t^2}{1 - R_t^2}\right) \quad (2)$$

3.2.2. Media coverage (NEWSCOV)

Consistent with prior studies (e.g., Dai et al., 2015; Fang & Peress, 2009), we use the natural logarithm of one plus the number of news articles that cover news events for a firm in a given year as a proxy for the extent of media coverage.

3.2.3. Country-level institutional structures (IS)

Drawing from the literature, we use six proxies for governance characteristics and information environments at the country level. These proxies include (i) the good government index (*GGOV*) from Morck et al. (2000), which measures how well a country protects private property rights; (ii) the regulatory quality index (*RQUALITY*) from the World Bank, which captures investors' perceptions of a government's ability to formulate and implement sound policies and regulations that permit and promote private sector development; (iii) the government effectiveness index (*GOVEFFECT*) from the World Bank, which captures investors' perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (Kaufmann, Kraay, & Mastruzzi, 2009); (iv) the accounting standard index (*ACCSTA*) from La Porta et al. (1998), which assesses the detailed level and usefulness of disclosure requirements; (v) the disclosure score index (*DISC*) from Jin and Myers (2006), which measures the level of financial disclosure and availability of information to investors; and (vi) IFRS adoption at the country level (*IFRS*), which measures country-level accounting quality.[7] Except for IFRS adoption, the higher values of these country-level variables represent stronger protection for investors and a greater degree of informational transparency.

3.2.4. Control variables (CONTROLS)

Following prior literature, we control in our regression analyses for a battery of firm-specific characteristics that can drive the relation between media coverage and stock price synchronicity. These firm-level control variables include the natural logarithm of market capitalization (*MV*), the natural logarithm of the book-to-market ratio (*BM*), the return-on-equity ratio (*ROE*), the natural logarithm of individual stock liquidity (*LIQUID*), the fraction of shares closely held by insiders and controlling shareholders (*CH*), the U.S. cross-listing (*ADR*), annual stock returns (*RETURN*), the annualized standard deviation of monthly stock returns (*STD*); the natural logarithm of stock price at the end of the previous year (*PRICE*), the natural logarithm of one plus the number of financial analysts following a firm (*ANALYST*), and the MSCI index (*MSCI*), which is an MSCI index member dummy that equals 1 if the firm is included in an MSCI country index, and 0 (zero) otherwise. All firm-level control variables are measured over or at the end of the previous year. To mitigate potential outliers, we winsorize the continuous variables at the 1% and 99% levels, or we exclude extreme values when appropriate.

In addition, we control for a country's economic and financial development given that the economic and financial development is often correlated with the development of institutional environments and the level of information transparency, and thus is more likely to be associated with stock price synchronicity (Jin & Myers, 2006; Morck et al., 2000). Country-level controls include the natural logarithm of gross domestic product per capita (*GDPPC*), the natural logarithm of the ratio of market capitalization to GDP (*MVGDP*), the natural logarithm of the ratio of private credit to GDP (*PCREDITGDP*), and the annual GDP growth (*GGDP*). We also include industry-level (*INDHERF*) and firm-level (*FIRMHERF*) Herfindahl indexes in our regressions to capture the likely dominance of a few industries or large firms in a given country.

Detailed definitions of all of the above variables are provided in Appendix A.

[5] Hafez (2009) finds that 80% of all news stories simply add noise, and RavenPack suggests that relevance scores above 90 may be applied to eliminate noise.

[6] Because our focus is on which type of information, firm-specific information or market-wide information, is incorporated into stock prices, we consider only the market model as specified in Eq. (1), which is similar to a classical asset pricing model. Other asset pricing models, such as Fama and French (1993) three-factor model or Carhart (1997) four-factor model, while providing tradeoff between risk and expected returns, can capture both market risk and firm-specific characteristics (e.g., size or book-to-market ratio).

[7] For the countries that adopt the financial reporting frameworks that are substantially converged with (or equivalent to) IFRS Standards, we classify them as the countries adopting IFRS. Because our focus is not on IFRS per se, rather we only employ country-level IFRS adoption as a proxy for a country's information environment, this classification should not affect substantially the interpretation of our results.

Table 1
Summary statistics of firm-specific variables.

This table reports the mean value of firm-specific variables for each of the 40 countries in the sample. Variables include news coverage (*NEWSCOV*), stock price synchronicity (*SYNCH*), individual stock liquidity (*LIQUID*), MSCI index (*MSCI*), book-to-market ratio (*BM*), firm size (*MV*), closely held ownership (*CH*), U.S. cross-listing (*ADR*), annual stock returns (*RETURN*), stock return volatility (*STD*), stock price (*PRICE*), analyst coverage (*ANALYST*), return-on-equity ratio (*ROE*), Big 4 auditors (*BIG4*), and block institutional ownership (*BIO*). Detailed definitions of the variables are provided in Appendix A. DEV, EMG, and GLB denote the developed, emerging, and global markets, respectively. The sample period is 2000–2016.

Panel A: Developed markets

Country	No.firm-years	R^2	*SYNCH*	*NEWSCOV*	*LIQUID*	*MSCI*	*BM*	*MV*	*CH*	*ADR*	*RETURN*	*STD*	*PRICE*	*ANALYST*	*ROE*	*BIG4*	*BIO*
Australia	6137	0.144	−2.344	2.600	−5.807	0.170	−0.429	12.944	0.248	0.028	−0.032	0.460	−1.310	0.366	−0.182	0.331	0.003
Austria	556	0.235	−1.640	2.823	−8.632	0.517	−0.256	14.789	0.338	0.053	0.003	0.259	3.156	0.792	0.043	0.648	0.005
Belgium	931	0.200	−1.848	2.635	−8.615	0.351	−0.352	14.580	0.262	0.017	−0.008	0.250	3.559	0.737	0.044	0.603	0.006
Canada	9025	0.175	−2.059	3.399	−7.334	0.298	−0.399	13.690	0.097	0.078	0.005	0.487	0.719	0.699	−0.078	0.796	0.025
Denmark	925	0.194	−1.918	2.759	−7.557	0.315	−0.387	13.607	0.205	0.023	−0.003	0.276	2.898	0.605	0.018	0.825	0.017
Ireland	528	0.161	−2.107	2.955	−7.607	0.573	−0.584	14.835	0.242	0.155	−0.029	0.351	0.842	1.028	0.049	0.816	0.025
Finland	1153	0.254	−1.399	2.924	−8.132	0.456	−0.668	14.294	0.265	0.034	0.036	0.265	1.844	1.310	0.069	0.823	0.014
France	4042	0.174	−2.098	3.153	−7.451	0.254	−0.463	13.895	0.319	0.030	0.001	0.360	2.866	0.670	0.054	0.465	0.005
Germany	4544	0.146	−2.363	2.806	−5.804	0.070	−0.297	13.702	0.249	0.026	−0.112	0.418	1.980	0.693	−0.012	0.474	0.006
Hong Kong	6950	0.199	−1.873	2.097	−8.874	0.430	−0.040	14.334	0.477	0.037	0.007	0.439	−2.256	0.503	0.005	0.646	0.002
Italy	1658	0.306	−1.042	3.079	−9.646	0.576	−0.379	14.945	0.350	0.033	−0.018	0.250	1.311	0.926	0.010	0.822	0.003
Japan	28,461	0.305	−1.036	2.486	−10.075	0.586	−0.015	14.722	0.282	0.021	0.003	0.266	2.068	0.692	0.034	0.427	0.006
Netherlands	1014	0.241	−1.506	3.177	−9.433	0.557	−0.613	14.658	0.267	0.133	−0.025	0.294	2.395	1.462	0.070	0.866	0.025
Norway	1380	0.210	−1.841	2.635	−7.502	0.366	−0.306	14.175	0.220	0.033	0.003	0.320	1.415	0.898	−0.001	0.769	0.019
New Zealand	352	0.186	−2.069	3.229	−6.571	0.233	−0.487	13.633	0.250	0.027	0.007	0.306	−0.387	0.676	0.018	0.632	0.003
Singapore	1651	0.184	−1.992	2.943	−6.022	0.213	−0.068	13.841	0.383	0.012	0.006	0.346	−1.518	0.397	0.048	0.634	0.002
Spain	1002	0.313	−1.007	2.989	−10.622	0.762	−0.578	15.673	0.362	0.054	0.020	0.227	2.189	1.512	0.081	0.875	0.008
Sweden	2012	0.226	−1.679	2.673	−7.674	0.282	−0.401	13.666	0.137	0.020	−0.026	0.354	0.935	0.622	−0.040	0.730	0.017
Switzerland	2011	0.251	−1.502	2.714	−9.635	0.545	−0.654	15.206	0.330	0.041	0.027	0.227	4.752	1.074	0.056	0.828	0.013
United Kingdom	9879	0.155	−2.213	3.156	−13.028	0.279	−0.407	13.443	0.258	0.034	−0.085	0.378	1.149	0.674	−0.031	0.514	0.021
United States	22,188	0.240	−1.755	4.708	−12.284	0.718	50.938	15.881	0.170	0.000	0.006	0.308	2.844	1.379	0.068	0.818	0.120

Panel B: Emerging markets

Country	No.firm-years	R^2	*SYNCH*	*NEWSCOV*	*LIQUID*	*MSCI*	*BM*	*MV*	*CH*	*ADR*	*RETURN*	*STD*	*PRICE*	*ANALYST*	*ROE*	*BIG4*	*BIO*
Argentina	166	0.306	−1.050	3.082	−6.006	0.396	−0.086	13.835	0.262	0.166	−0.013	0.332	−0.205	0.398	0.007	0.428	0.000
Brazil	597	0.269	−1.425	3.429	−8.526	0.670	−0.662	16.243	0.295	0.089	0.078	0.375	1.805	0.674	0.086	0.577	0.011
China	885	0.452	−0.269	3.292	−12.226	0.774	−1.143	16.405	0.210	0.005	0.067	0.291	0.106	0.420	0.063	0.075	0.002
Chile	338	0.227	−1.820	2.523	−7.264	0.559	−0.309	15.130	0.505	0.129	0.103	0.247	−0.573	0.367	0.095	0.798	0.001
Egypt	232	0.342	−0.935	2.820	−6.414	0.351	−0.358	15.129	0.186	0.002	0.052	0.311	0.849	0.183	0.125	0.548	0.000
Indonesia	578	0.190	−1.959	2.591	−3.990	0.320	−0.273	13.334	0.522	0.006	0.040	0.442	−3.030	0.402	0.072	0.430	0.006
India	9234	0.243	−1.503	2.564	−4.554	0.165	−0.017	13.902	0.261	0.005	0.070	0.402	−0.304	0.233	0.092	0.092	0.002
Israel	713	0.210	−1.838	3.192	−5.975	0.161	0.119	14.128	0.140	0.050	0.007	0.376	0.661	0.072	0.014	0.521	0.002
South Korea	4756	0.257	−1.436	2.114	−9.624	0.457	0.304	13.947	0.248	0.010	0.013	0.417	1.931	0.482	0.027	0.103	0.006
Mexico	536	0.229	−1.744	3.133	−7.247	0.559	−0.323	15.591	0.183	0.213	0.046	0.274	0.126	0.845	0.067	0.732	0.004
Malaysia	1470	0.217	−1.726	2.849	−5.665	0.230	0.073	13.144	0.390	0.004	−0.006	0.309	−1.415	0.389	0.031	0.531	0.001
Peru	127	0.182	−2.149	2.336	−5.654	0.270	−0.092	14.603	0.246	0.038	0.122	0.351	−0.351	0.178	0.136	0.603	0.000
Poland	767	0.239	−1.582	2.126	−6.198	0.240	−0.196	14.185	0.235	0.004	0.017	0.349	1.108	0.276	0.054	0.214	0.023
Philippines	356	0.184	−1.959	3.064	−4.464	0.341	−0.068	13.331	0.569	0.011	0.027	0.430	−3.028	0.390	0.021	0.513	0.003

(*continued on next page*)

Table 1 (*continued*)

Panel B: Emerging markets

Country	No.firm-years	R^2	*SYNCH*	*NEWSCOV*	*LIQUID*	*MSCI*	*BM*	*MV*	*CH*	*ADR*	*RETURN*	*STD*	*PRICE*	*ANALYST*	*ROE*	*BIG4*	*BIO*
Russia	501	0.211	−1.850	3.255	−6.265	0.274	0.048	16.446	0.273	0.048	0.052	0.456	−0.548	0.329	0.103	0.455	0.001
South Africa	1045	0.210	−1.882	2.854	−5.963	0.336	−0.427	13.425	0.236	0.042	0.007	0.410	−0.709	0.529	0.111	0.494	0.003
Thailand	659	0.241	−1.510	2.794	−6.406	0.307	−0.195	12.573	0.386	0.005	0.056	0.331	−1.475	0.466	0.076	0.448	0.001
Turkey	1005	0.427	−0.450	2.032	−9.308	0.396	−0.200	14.270	0.405	0.013	0.050	0.475	0.893	0.701	0.052	0.412	0.004
Taiwan	6631	0.343	−0.829	2.558	−10.082	0.597	−0.178	14.727	0.214	0.009	0.010	0.327	−0.562	0.535	0.063	0.852	0.001
DEV	106,399	0.217	−1.771	3.162	−9.225	0.395	6.900	14.286	0.264	0.028	−0.017	0.351	1.294	0.746	0.000	0.576	0.024
EMG	30,596	0.292	−1.248	2.576	−7.268	0.381	−0.260	14.396	0.279	0.017	0.039	0.361	−0.244	0.373	0.063	0.312	0.003
GLB	136,995																
GLB (Mean)		0.247	−1.559	3.031	−8.399	0.389	4.153	14.329	0.270	0.024	0.005	0.355	0.676	0.591	0.024	0.477	0.015
GLB (Std.Dev)		0.190	1.507	1.551	4.271	0.488	1788.439	4.143	0.299	0.152	0.574	0.451	2.426	0.919	0.300	0.499	0.062

3.3. Summary statistics

Table 1 presents the summary statistics of firm-level variables for each of the 40 sample countries and for the whole sample.[8] The average of firm-level stock price synchronicity (*SYNCH*) is −1.559 for the entire sample. Consistent with prior studies (e.g., He, Li, Shen, & Zhang, 2013; Jin & Myers, 2006; Morck et al., 2000), we find that stock prices tend to co-move more in emerging markets than in developed markets. In particular, the average *SYNCH* value of the emerging markets is −1.248, whereas that of the developed markets is −1.771.[9]

On average, firms in the developed markets are more exposed to media attention. Media coverage has a mean of 3.162 (approximately 23 news articles per year) in developed markets and of 2.576 (approximately 12 news articles per year) in emerging markets. Among developed markets, the U.S. has the highest firm-level media coverage (4.708), followed by Canada (3.399), New Zealand (3.229) and the U.K. (3.156). In the emerging markets, firms in Brazil, China, Russia, and Israel receive more media attention than firms do in other countries, with the values of media coverage variables being 3.429, 3.292, 3.255 and 3.192, respectively.

Table 2 reports the average of country-specific economic and institutional characteristics for the sample countries over the period of 2000–2016. As expected, the developed countries have higher GDP per capita, a higher ratio of market capitalization to GDP, and a greater ratio of private credit to GDP. In contrast, the emerging markets, which are often characterized by high growth prospects, tend to have greater annual GDP growth. We note that the developed markets tend to exhibit better protection for investors and more-transparent information environments. Specifically, these countries have a greater "good government index" (*GGOV*) value, better regulatory quality (*RQUALITY*), stronger government effectiveness (*GOVEFFECT*), higher accounting information quality (*ACCSTA*), and a better disclosure score index (*DISC*) than do emerging countries.

Appendix B reports the Pearson correlation coefficients between the variables used in our analyses. In general, the correlations between the independent variables are moderately low, which attenuate our concern regarding multicollinearity.

4. Empirical results

4.1. Relationship between media coverage and stock price synchronicity

To examine whether media coverage is related to stock price synchronicity, we estimate the following ordinary least squares (OLS) regressions:

$$SYNCH_{i,j,t} = \alpha + \beta NEWSCOV_{i,j,t} + CONTROLS_{i,j,t-1} + \varepsilon_{i,j,t} \quad (3)$$

where $SYNCH_{i,j,t}$ is stock price synchronicity of firm i (country j) in year t. $NEWSCOV_{i,j,t}$ is the media coverage of firm i (country j) in year t. $CONTROLS_{i,j,t-1}$ is the set of control variables defined in Section 3.2.4.

Chan and Hameed (2006), Fernandes and Ferreira (2008) use a variety of firm characteristics to explain the cross-section of firm-specific return variation, an inverse measure of stock price synchronicity. Following Chan and Hameed (2006), we include *MV*, *ANALYST*, and *STD* to control for firm size, the effect of analyst coverage, and stock return volatility, respectively. In addition, following Fernandes and Ferreira (2008), we control for the effect of the U.S. cross-listing (*ADR*), book-to-market ratio (*BM*), return on equity (*ROE*), closely held

[8] The number of observations is lower in regression analyses because of missing data when we combine variables.

[9] Compared to Jin and Myers (2006) (Table 2 - page 277), our average R^2 is lower almost across sample countries. The difference is likely the result of our recent sample period. Stock prices seem less synchronous, or more informative, over time.

Table 2
Summary statistics of country-level variables.

This table reports the mean value of country-level variables for each of the 40 countries in the sample. Variables include GDP per capita (*GDPPC*), stock market capitalization to GDP (*MVGDP*), private credit to GDP (*PCREDITGDP*), GDP growth (*GGDP*), industry Herfindahl index (*INDHERF*), firm Herfindahl index (*FIRMHERF*), good government index (*GGOV*), regulatory quality index (*RQUALITY*), government effectiveness index (*GOVEFFECT*), accounting standard index (*ACCSTA*), disclosure score index (*DISC*), and the year a country adopts IFRS (*IFRSyear*). Detailed definitions of the variables are provided in Appendix A. DEV, EMG, and GLB denote the developed, emerging, and global markets, respectively. NA denotes "not available" or "not applicable". The sample period is 2000–2016.

Panel A: Developed markets

Country	*GDPPC*	*MVGDP*	*PCREDITGDP*	*GGDP*	*FIRMHERF*	*INDHERF*	*GGOV*	*RQUALITY*	*GOVEFFECT*	*ACCSTA*	*DISC*	*IFRSyear*
Australia	10.215	0.774	0.782	0.032	0.026	0.252	21.600	1.756	1.753	75.000	6.300	2005
Austria	10.278	−0.126	0.810	0.020	0.079	0.272	21.900	1.568	1.730	54.000	6.000	2005
Belgium	10.211	0.401	0.487	0.019	0.111	0.300	20.300	1.386	1.603	61.000	5.900	2005
Canada	10.234	0.880	1.447	0.027	0.017	0.217	22.700	1.633	2.042	74.000	6.300	2011
Denmark	10.447	0.546	1.330	0.013	0.122	0.322	23.300	1.710	2.137	62.000	6.200	2005
Ireland	10.400	0.230	1.123	0.050	0.079	0.290	20.600	1.904	1.511	NA	5.600	2005
Finland	10.288	1.111	0.469	0.023	0.063	0.267	23.500	1.780	2.116	77.000	6.500	2005
France	10.161	0.541	0.693	0.017	0.023	0.213	20.200	1.148	1.645	69.000	5.900	2005
Germany	10.225	0.175	0.818	0.016	0.030	0.176	21.800	1.555	1.733	62.000	6.000	2005
Hong Kong	10.470	3.172	1.220	0.042	0.044	0.276	18.400	2.001	1.754	69.000	5.800	2005
Italy	10.047	0.015	0.619	0.007	0.070	0.287	21.964	0.955	0.676	62.000	NA	2005
Japan	10.549	0.463	1.434	0.012	0.005	0.208	20.500	1.281	1.646	65.000	5.600	2010
Netherlands	10.290	0.737	1.238	0.020	0.101	0.228	23.600	1.797	1.968	64.000	6.100	2005
Norway	10.701	0.214	0.584	0.021	0.133	0.224	22.600	1.298	1.949	74.000	5.800	2005
New Zealand	9.816	−0.059	1.106	0.026	0.061	0.247	22.300	1.802	1.778	70.000	6.000	2007
Singapore	10.468	1.561	0.805	0.055	0.037	0.298	20.600	1.925	2.284	78.000	5.900	2009
Spain	9.853	0.510	1.109	0.023	0.056	0.215	19.400	1.200	1.150	64.000	5.600	2005
Sweden	10.415	0.906	0.830	0.026	0.041	0.268	22.800	1.661	1.923	83.000	6.300	2005
Switzerland	10.627	1.932	1.303	0.019	0.061	0.305	23.000	1.688	2.086	68.000	5.700	2005
United Kingdom	10.280	1.188	1.349	0.023	0.035	0.215	21.500	1.844	1.827	78.000	6.300	2005
United States	10.588	1.035	1.556	0.023	0.007	0.173	23.563	1.632	1.703	71.000	NA	NA

Panel B: Emerging markets

Country	*GDPPC*	*MVGDP*	*PCREDITGDP*	*GGDP*	*FIRMHERF*	*INDHERF*	*GGOV*	*RQUALITY*	*GOVEFFECT*	*ACCSTA*	*DISC*	*IFRSyear*
Argentina	9.270	−0.436	−0.494	0.033	0.084	0.231	17.300	−0.515	−0.035	45.000	4.900	2012
Brazil	8.704	0.067	0.109	0.031	0.046	0.207	17.226	0.110	−0.048	54.000	NA	2010
China	7.957	0.172	0.845	0.092	0.030	0.200	15.500	−0.341	0.168	NA	3.800	NA
Chile	9.049	0.684	0.568	0.039	0.037	0.221	18.000	1.478	1.092	52.000	5.800	2009
Egypt	7.935	−0.099	−0.017	0.046	0.059	0.295	14.930	−0.554	−0.516	24.000	NA	NA
Indonesia	7.591	−0.087	−0.199	0.051	0.022	0.257	15.306	−0.290	−0.216	NA	NA	NA
India	6.963	0.320	0.083	0.071	0.023	0.224	13.900	−0.243	−0.078	57.000	4.800	NA
Israel	10.024	0.488	0.551	0.038	0.034	0.252	20.040	1.168	1.363	64.000	NA	2008
South Korea	9.766	0.414	0.762	0.046	0.020	0.243	19.100	0.685	1.049	62.000	4.700	2011
Mexico	9.009	−0.098	−0.255	0.030	0.040	0.227	16.800	0.418	0.203	60.000	4.600	2012
Malaysia	8.882	1.067	1.016	0.055	0.012	0.198	18.000	0.377	0.970	76.000	5.100	2012
Peru	8.277	0.005	−0.205	0.055	0.050	0.227	15.300	0.338	−0.255	38.000	4.600	NA
Poland	9.018	−0.174	0.022	0.039	0.055	0.234	20.100	0.765	0.674	NA	4.700	2005
Philippines	7.557	0.241	−0.108	0.052	0.042	0.271	14.800	−0.048	−0.097	65.000	4.600	2005
Russia	8.362	0.166	−0.014	0.055	0.080	0.349	13.100	−0.650	−0.320	NA	3.800	NA
South Africa	8.426	1.707	1.155	0.035	0.021	0.235	17.800	0.662	0.602	70.000	5.500	2005
Thailand	8.333	0.320	0.823	0.043	0.048	0.301	16.100	0.291	0.197	64.000	4.300	2011
Turkey	8.896	−0.242	−0.040	0.049	0.042	0.330	14.000	0.141	0.042	51.000	5.100	2006
Taiwan	9.739	0.968	1.301	0.038	0.018	0.246	17.700	1.101	0.953	65.000	5.400	2013
DEV	10.374	0.940	1.156	0.024	0.030	0.226	21.486	1.599	1.767	70.766	5.999	
EMG	8.304	0.408	0.510	0.059	0.029	0.235	16.227	0.164	0.361	61.148	4.669	
GLB (Mean)	9.522	0.721	0.889	0.039	0.030	0.230	19.320	1.008	1.188	67.478	5.440	
GLB (Std.Dev)	1.345	0.894	0.714	0.031	0.033	0.287	3.104	0.862	0.831	8.553	0.776	

ownership and controlling shareholders (*CH*). We also follow Dang et al. (2015) and include several variables that are likely correlated with both stock price synchronicity and media coverage, including stock returns (*RETURN*), stock liquidity (*LIQUID*), stock price (*PRICE*), and a MSCI index member dummy (*MSCI*). All control variables are included in the regressions with a one-year lag. We include country-fixed, industry-fixed, and year-fixed effects to control for cross-sectional and time-series dependence. All models are estimated with robust standard errors to correct for heteroscedasticity and are clustered at the firm level (Petersen, 2009).

Regression results are reported in Table 3. Our primary variable of interest is the measure of media coverage (*NEWSCOV*). We consider two model specifications to examine the relation between media coverage and stock price synchronicity - one without and another with controlling for the country-level economic conditions and financial market development. In addition, to alleviate the concern that our results might be driven by the relative proportion of firms in developed versus emerging markets, in the U.S. versus other countries, we also divide the entire sample into subsamples: developed versus emerging markets, and U.S. versus non-U.S. stocks.

We find that the coefficient estimates of the *NEWSCOV* variable are significantly negative at the conventional 1% level, and the results are consistent across subsamples. For the global sample regression in Table 3, the coefficient estimate on *NEWSCOV* is −0.058 (*t*-stat = −9.14) without controlling for country-level economic conditions or financial market development. The results are also robust when

Table 3
Media coverage and stock price synchronicity.

This table reports the panel regression of stock price synchronicity on media coverage. The regression model is as follows:

$SYNCH_{i,\,j,\,t} = \alpha + \beta NEWSCOV_{i,\,j,\,t} + CONTROLS_{i,\,j,\,t-1} + \varepsilon_{i,\,j,\,t}$

where $SYNCH_{i,j,t}$ denotes the stock price synchronicity of firm *i* (country *j*) in year *t*. $NEWSCOV_{i,j,t}$ is a proxy for the media coverage of firm *i* (country *j*) in year *t*. $CONTROLS_{i,j,t-1}$ is the set of control variables. All control variables are included in the regression with a one-year lag. The firm-level control variables include individual stock liquidity (*LIQUID*), MSCI index (*MSCI*), book-to-market ratio (*BM*), firm size (*MV*), closely held ownership (*CH*), U.S. cross-listing (*ADR*), annual stock returns (*RETURN*), stock return volatility (*STD*), stock price (*PRICE*), analyst coverage (*ANALYST*), and return-on-equity ratio (*ROE*). The country-level control variables include GDP per capita (*GDPPC*), stock market capitalization to GDP (*MVGDP*), private credit to GDP (*PCREDITGDP*), GDP growth (*GGDP*), industry Herfindahl index (*INDHERF*), and firm Herfindahl index (*FIRMHERF*). Detailed definitions of the variables are provided in Appendix A. The sample covers stocks across 40 countries in 2000–2016 (from 1999 to 2015 for the lagged variables). Country-fixed, industry-fixed and year-fixed effects are included (not reported). Nobs is the number of observations. Adjusted R^2 is the adjusted R^2 value. The *t*-statistics shown in parentheses are based on standard errors that are adjusted for heteroscedasticity and are clustered at the firm level. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.

Variable	GLB		EMG		DEV		US	Non-US	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
NEWSCOV	**−0.058*****	**−0.066*****	**−0.067*****	**−0.049*****	**−0.062*****	**−0.043*****	**−0.124*****	**−0.053*****	**−0.057*****
	(**−9.14**)	(**−9.64**)	(**−6.76**)	(**−4.61**)	(**−8.30**)	(**−5.32**)	(**−3.83**)	(**−8.81**)	(**−8.83**)
LIQUID	−0.135***	−0.133***	−0.144***	−0.143***	−0.125***	−0.112***	−0.170***	−0.126***	−0.123***
	(−32.57)	(−31.08)	(−19.13)	(−18.19)	(−26.10)	(−22.55)	(−7.02)	(−33.17)	(−31.79)
MSCI	0.279***	0.251***	0.064**	0.062**	0.341***	0.329***	0.910***	0.182***	0.150***
	(15.83)	(13.73)	(2.32)	(2.19)	(16.39)	(15.45)	(11.80)	(11.04)	(8.89)
BM	0.049**	0.050*	0.189***	0.183***	0.027**	0.028*	0.012**	0.128***	0.126***
	(2.08)	(1.75)	(11.67)	(11.45)	(2.06)	(1.76)	(2.00)	(13.96)	(14.27)
MV	0.057***	0.072***	0.028**	0.021	0.071***	0.086***	−0.039	0.079***	0.094***
	(6.35)	(7.29)	(2.03)	(1.52)	(7.89)	(9.10)	(−1.26)	(10.24)	(11.98)
CH	−0.395***	−0.307***	−0.044	−0.092**	−0.395***	−0.370***	−0.221**	−0.298***	−0.207***
	(−15.38)	(−11.47)	(−1.08)	(−2.16)	(−13.14)	(−11.93)	(−2.20)	(−11.99)	(−8.19)
ADR	−0.041	−0.065**	−0.044	−0.098	−0.084***	−0.097***		0.001	−0.023
	(−1.61)	(−2.39)	(−0.82)	(−1.64)	(−3.01)	(−3.26)		(0.05)	(−0.88)
RETURN	0.071***	0.063***	−0.059***	−0.057***	0.090***	0.090***	0.054	0.056***	0.050***
	(5.39)	(4.66)	(−2.92)	(−2.81)	(5.72)	(5.70)	(1.07)	(4.97)	(4.44)
STD	0.133***	0.053**	0.142***	0.163***	0.065**	0.004	0.182*	0.204***	0.119***
	(4.91)	(2.01)	(2.96)	(3.26)	(2.21)	(0.13)	(1.95)	(7.39)	(4.80)
PRICE	−0.015***	−0.025***	−0.038***	−0.039***	−0.018***	−0.018***	0.136***	−0.016***	−0.031***
	(−2.96)	(−4.77)	(−4.14)	(−4.11)	(−3.26)	(−3.10)	(4.68)	(−3.53)	(−6.25)
ANALYST	−0.059***	−0.062***	−0.117***	−0.137***	−0.003	−0.025**	0.110***	−0.093***	−0.097***
	(−6.90)	(−6.94)	(−8.54)	(−9.61)	(−0.30)	(−2.36)	(5.22)	(−10.44)	(−10.62)
ROE	0.158***	0.130***	0.104**	0.105**	0.163***	0.164***	0.041	0.151***	0.112***
	(6.26)	(4.94)	(2.14)	(2.04)	(5.79)	(5.59)	(0.55)	(6.32)	(4.52)
GDPPC		−0.386***		0.346***		−1.152***			−0.370***
		(−22.30)		(7.27)		(−21.76)			(−22.11)
MVGDP		−0.058**		0.122*		−0.170***			0.032
		(−2.42)		(1.84)		(−5.82)			(1.31)
PCREDITGDP		−0.183***		0.576***		0.101***			−0.174***
		(−8.19)		(8.33)		(2.70)			(−7.69)
GGDP		−0.744***		1.090***		−3.029***			0.255
		(−2.72)		(3.05)		(−4.70)			(0.93)
FIRMHERF		−2.253***		−1.805		0.014			−2.037***
		(−4.98)		(−1.05)		(0.03)			(−4.48)
INDHERF		−0.245***		−0.193***		−0.134***			−0.267***
		(−6.39)		(−3.02)		(−2.92)			(−7.06)
Fixed effects	CIY	CIY	CIY	CIY	CIY	CIY	IY	CIY	CIY
Nobs	84,462	77,490	20,361	18,635	64,101	58,855	13,698	70,764	64,567
Adjusted R^2	31.1%	31.4%	30.0%	30.5%	33.6%	34.1%	35.9%	32.6%	32.9%

we control for country-level variables, with the coefficient estimate of *NEWSCOV* for the global sample being −0.066 (*t*-stat = −9.64). The magnitude of the results is economically significant. Using the global sample in column 1 of Table 3 as an example, a one-standard-deviation increase in media coverage (1.551) results in a decrease of approximately 9.0 percentage points (=1.551*(−0.058)) in stock price synchronicity (*SYNCH*), which is roughly 5.8% (=(1.551*(−0.058))/−1.559) of the average *SYNCH* across sample firms. These results suggest that greater media coverage is associated with lower stock price synchronicity, supporting our key hypothesis.

Turning to control variables, we observe that most coefficient estimates of control variables are statistically significant and consistent with previous studies (e.g., Dang et al., 2015; Fernandes & Ferreira, 2008; Kim et al., 2014). For example, firms with high book-to-market ratio (*BM*), large size (*MV*), and high volatility (*STD*) have greater stock price synchronicity. In contrast, firms with stocks that are less liquid (*LIQUID*) and firms with a higher fraction of shares closely held by insiders and controlling shareholders (*CH*) tend to co-move less with the market.

4.2. Robustness checks

In this section, we conduct a number of robustness checks to further confirm our results in the previous section.

4.2.1. Firm-fixed effects

Although we control in the regressions for many firm-level characteristics that are potentially correlated with media coverage and stock price synchronicity, we are aware that the results can be driven by unobservable and time-invariant heterogeneity across firms. We address this concern by performing a regression that includes firm-fixed effects. Columns (1) and (2) of Table 4 present the results of this

Table 4
Endogeneity.

This table reports the panel regression of stock price synchronicity on media coverage. The regression model is as follows:

$SYNCH_{i,\,j,\,t} = \alpha + \beta NEWSCOV_{i,\,j,\,t} + CONTROLS_{i,\,j,\,t-1} + \varepsilon_{i,\,j,\,t}$

where $SYNCH_{i,j,t}$ denotes the stock price synchronicity of firm *i* (country *j*) in year *t*. $NEWSCOV_{i,j,t}$ is a proxy for the media coverage of firm *i* (country *j*) in year *t*. $CONTROLS_{i,j,t-1}$ is the set of control variables. All control variables are included in the regression with a one-year lag. The firm-level control variables include individual stock liquidity (*LIQUID*), MSCI index (*MSCI*), book-to-market ratio (*BM*), firm size (*MV*), closely held ownership (*CH*), U.S. cross-listing (*ADR*), annual stock returns (*RETURN*), stock return volatility (*STD*), stock price (*PRICE*), analyst coverage (*ANALYST*), and return-on-equity ratio (*ROE*). The country-level control variables include GDP per capita (*GDPPC*), stock market capitalization to GDP (*MVGDP*), private credit to GDP (*PCREDITGDP*), GDP growth (*GGDP*), industry Herfindahl index (*INDHERF*), and firm Herfindahl index (*FIRMHERF*). Detailed definitions of the variables are provided in Appendix A. Columns (1) and (2) present regression results with firm-fixed effects. Columns (3) and (4) present regression results using the lagged value of the *NEWSCOV* variable. Columns (5) and (6) report regression results using the two-stage least squares (2SLS) regression, which exploits nationwide media strikes as an exogenous shock to media coverage. The sample period is 2000–2016 (from 1999 to 2015 for the lagged variables). Country-fixed, industry-fixed and year-fixed effects are included when appropriate (not reported). Nobs is the number of observations. Adjusted R^2 is the adjusted R^2 value. The *t*-statistics shown in parentheses are based on standard errors that are adjusted for heteroscedasticity and are clustered at the firm level. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.

Variable	Firm-fixed effects		Lagged media coverage		Two-stage least squares	
	(1)	(2)	(3)	(4)	(5)	(6)
					First-stage	Second-stage
NEWSCOV	**−0.052*****	**−0.042*****	**−0.066*****	**−0.077*****		**−0.556*****
	(−6.57)	**(−5.10)**	**(−9.78)**	**(−10.61)**		**(−56.98)**
LIQUID	−0.085***	−0.077***	−0.135***	−0.133***	0.012***	−0.085***
	(−14.14)	(−12.56)	(−31.24)	(−30.13)	(6.69)	(−33.34)
MSCI			0.276***	0.252***	−0.077***	0.297***
			(15.12)	(13.30)	(−8.25)	(22.94)
BM	0.011*	0.013	0.049**	0.052*	0.029***	0.079***
	(1.80)	(1.39)	(2.02)	(1.69)	(10.00)	(19.48)
MV	0.089***	0.155***	0.063***	0.078***	0.384***	0.305***
	(7.04)	(11.25)	(6.70)	(7.52)	(107.70)	(51.94)
CH	−0.373***	−0.214***	−0.401***	−0.319***	−0.746***	−0.799***
	(−10.75)	(−5.99)	(−15.05)	(−11.51)	(−52.77)	(−36.65)
ADR	0.006	−0.008	−0.036	−0.051*	0.320***	0.044**
	(0.12)	(−0.16)	(−1.40)	(−1.89)	(21.15)	(2.10)
RETURN	0.035**	0.043***	0.025*	0.013	−0.048***	0.066***
	(2.48)	(3.01)	(1.83)	(0.97)	(−5.17)	(5.12)
STD	0.239***	0.157***	0.108***	0.027	0.177***	0.196***
	(7.50)	(5.21)	(3.80)	(0.98)	(10.88)	(8.68)
PRICE	0.044***	0.009	−0.014***	−0.026***	0.003	−0.043***
	(5.59)	(1.06)	(−2.64)	(−4.72)	(1.24)	(−13.99)
ANALYST	−0.036***	−0.012	−0.065***	−0.065***	0.231***	0.039***
	(−3.13)	(−1.03)	(−7.40)	(−7.18)	(49.14)	(5.41)
ROE	0.132***	0.061*	0.165***	0.138***	−0.256***	0.092***
	(4.42)	(1.94)	(6.24)	(4.97)	(−17.06)	(4.39)
GDPPC		−0.461***		−0.394***	−0.070***	−0.179***
		(−20.55)		(−22.28)	(−12.02)	(−22.54)
MVGDP		−0.148***		−0.014	0.020***	−0.130***
		(−5.60)		(−0.58)	(2.68)	(−12.26)
PCREDITGDP		−0.190***		−0.195***	0.135***	0.052***
		(−6.94)		(−8.28)	(13.78)	(3.86)
GGDP		−0.674**		−0.764***	3.023***	−1.517***
		(−2.31)		(−2.68)	(14.90)	(−5.37)
FIRMHERF		−0.618		−2.821***	−5.201***	−4.062***
		(−0.84)		(−5.77)	(−37.72)	(−20.55)
INDHERF		−0.126**		−0.254***	0.190***	−0.193***
		(−2.32)		(−6.54)	(9.47)	(−6.94)
STRIKEDAYS					−0.256***	
					(−22.54)	
STRIKECOUNTRY					1.135***	
					(141.47)	
Fixed effects	FY	FY	CIY	CIY	IY	IY
Nobs	84,508	77,531	78,118	71,580	77,531	77,531
Adjusted R^2	44.2%	44.8%	31.2%	31.5%	65.7%	16.3%

analysis for the whole sample. As shown, media coverage is significantly and negatively associated with stock price synchronicity even after controlling for firm-fixed effects. Specifically, the coefficient estimates of the *NEWSCOV* variable are −0.052 (*t*-stat = −6.57) and −0.042 (*t*-stat = −5.10) for the specification without and with controlling for country-level variables, respectively. These results suggest that our results are not driven by time-invariant unobservable firm characteristics.

4.2.2. Lagged media coverage

It is likely that the relation between media coverage and stock price synchronicity is driven by reverse causality or simultaneity problems. For example, firms that are transparent or well governed and thus have lower price synchronicity might attract more media attention, which would bias our results. To mitigate this endogeneity bias, we use the lagged value of the media coverage variable in the regression. Columns (3) and (4) of Table 4 report results for the model with the lagged value of the media coverage variable. The results confirm a negative relation

between media coverage and stock price synchronicity. The *NEWSCOV* coefficient estimates are −0.066 (*t*-stat = −9.78) and −0.077 (*t*-stat = −10.61) for the specification without and with controlling for the country-level economic conditions and financial market development, respectively.

4.2.3. Instrument variable approach

Although using the lagged value of media coverage can alleviate reverse causality to some extent, this endogeneity issue might, however, exist if a firm's stock price synchronicity is persistent. To further address this endogeneity concern, we conduct a two-stage instrumental variable analysis by exploiting *nationwide* media strikes (i.e., the strikes that affect a large percentage of the media sector) as an exogenous shock to media coverage (Peress, 2014). Media strikes, which take the form of journalists' strikes, printers' strikes, or distributors' strikes, would result in a decrease in the media's information production and dissemination and prevent readers from receiving news. Strikes are often called as a reaction to policy changes; thus, they are not driven by stock market movements (i.e., they are exogenous to the market). Therefore, we should observe a significant decrease in media news coverage in the years of strikes in countries that experience nationwide media strikes. Importantly, media strikes and stock price synchronicity are not likely to be directly correlated, unless via a media news coverage channel.

In the first-stage regression, we estimate the fitted value of media coverage from the following model:

$$NEWSCOV_{i,j,t} = \alpha + \beta_1 STRIKEDAYS_{j,t} + \beta_2 STRIKECOUNTRY_j + CONTROLS_{i,j,t-1} + \varepsilon_{i,j,t} \quad (4)$$

where $NEWSCOV_{i,j,t}$ is the media coverage of firm *i* (country *j*) in year *t*. The instrumental variables for *NEWSCOV* are *STRIKEDAYS* and *STRIKECOUNTRY*. $STRIKEDAYS_{j,t}$ is the number of days on which nationwide media strikes occur in country *j* in year *t*, and $STRIKECOUNTRY_j$ is a dummy that equals one for countries in which there is at least one nationwide media strike occurring during the sample period, and zero otherwise.[10] $CONTROLS_{i,j,t-1}$ are the firm-specific and country-level control variables, which are the same as those defined in Eq. (3). We also include industry- and year-fixed effects.

The test statistics suggest that our instruments satisfy the exclusion restriction and the relevance condition. Specifically, Hansen *J* statistics for over-identifying restrictions show that the instruments satisfy the exogeneity requirement of instruments (*p*-value = 0.159), and the Kleibergen-Paap rk Wald statistic (the first-stage F-statistics) for the weak instrument test is far above 10, which is acceptable based on Staiger and Stock's (1997) rule of thumb.

We then use the fitted value of media coverage in the second-stage regression. Columns (5) and (6) of Table 4 present results for the instrumental variable regression. The two-stage regression shows a significant and negative association of media coverage and stock price synchronicity, with the *NEWSCOV* coefficient estimates being −0.556 (*t*-stat = −56.98).[11]

4.2.4. News categories

To the extent that the media simply reproduces and rebroadcasts the news disclosed by firms, the media might not have a meaningful role in enhancing firms' information environments and corporate governance. Then, the relationship between the media and stock price synchronicity only reflects the effect of firm-initiated disclosures. In addition, it is likely that firms manage their media coverage to advance their strategic interests (Ahern & Sosyura, 2014). To alleviate this concern, we restrict our media news sample to press-initiated news only. The results of this check are reported in columns (1) and (2) of Table 5. As shown, the results remain consistent with our primary findings.

Finally, prior research suggests that the media's effect on firms' information environments and corporate governance works through either the information dissemination function (e.g., Bushee et al., 2010; Dai et al., 2015) or the information exploration function (e.g., Dyck et al., 2008; Miller, 2006). Therefore, it is of interest to examine whether the synchronicity-reducing effect of media coverage is driven by either or both of these functions.

Given event-novelty scores provided by RavenPack, we can observe whether a story is a new news article (First News) or a repeated news article (Repeated News). Using these event-novelty scores to filter news articles, we rerun separately regressions for the sample with only first news articles and then with only repeated news articles. The results are presented in Table 5 (columns (3)–(6)). We find that both first news coverage and repeated news coverage reduce stock price synchronicity, suggesting that both the information exploration function and the information dissemination function matter for stock price synchronicity.

4.2.5. Additional control

Kim et al. (2014) find that stock prices tend to be less synchronous in countries with the higher level of press freedom. Therefore, it is likely that our results in the previous sections are affected by the level of press freedom. To alleviate this endogeneity concern, we control for press freedom (*PRESSFREEDOM*) in our regressions. We collect each country's press freedom scores from Freedom House's annual Press Freedom survey. The press freedom score has a value ranging between 0 and 100, with a higher score indicating a lower level of press freedom. The results shown in Table 6 demonstrate that our findings are not sensitive to this additional control variable.

In summary, the above additional checks confirm the robustness of our primary findings. However, although our results are less likely to be driven by omitted correlated variables or simultaneity relationships, we might not be able to fully resolve the endogeneity issues. Therefore, these results should be interpreted with caution.

4.3. Moderating effects of firm-level information transparency and corporate governance

In this section, we examine whether a firm's information and governance environments moderate the relation between media coverage and stock price synchronicity.

4.3.1. Firm-level information environment

Previous studies suggest that the media can reduce information asymmetry and enhance firm transparency (e.g., Bushee et al., 2010; Fang & Peress, 2009; Peress, 2014; Tetlock, 2010), which enables more firm-specific information to be publicly available. In addition, the improved transparency enhances investor protection and thus encourages investors to collect and trade on private information. These effects then jointly contribute to facilitating the ability of stock prices to incorporate firm-specific information, leading to lower stock price synchronicity (Jin & Myers, 2006; Morck et al., 2000). Because the media can have a more important role in firms that are less transparent, we expect the synchronicity-reducing effect of media coverage to be more pronounced for firms with higher information asymmetry.

To conduct this investigation, we employ a *BIG4* auditor dummy as a proxy for a firm's information asymmetry. Existing evidence suggests that firms that are audited by Big4 auditors report more reliable and high-quality information; thus, there is less information asymmetry (e.g., Behn et al., 2008; Bushman et al., 2004). We define the *BIG4* auditor dummy equal to one if the firm is audited by any of the Big4

[10] In our sample period, we identify seven countries that experienced nationwide media strikes, including France, Italy, Norway, Australia, Canada, United Kingdom, and United States.

[11] As an alternative, we use a dummy *STRIKE* that equals one for the year *t* in which country *j* experiences media strikes, rather than the number of days of the media strikes in country *j* in the year *t* (*STRIKEDAYS*). Our results do not change qualitatively.

Table 5
News categories.

This table reports the panel regression of stock price synchronicity on media coverage. The regression model is as follows:

$SYNCH_{i,\,j,\,t} = \alpha + \beta NEWSCOV_{i,\,j,\,t} + CONTROLS_{i,\,j,\,t-1} + \varepsilon_{i,\,j,\,t}$

where $SYNCH_{i,j,t}$ denotes the stock price synchronicity of firm *i* (country *j*) in year *t*. $NEWSCOV_{i,j,t}$ is a proxy for the media coverage of firm *i* (country *j*) in year *t*. $CONTROLS_{i,j,t-1}$ is the set of control variables. All control variables are included in the regression with a one-year lag. The firm-level control variables include individual stock liquidity (*LIQUID*), MSCI index (*MSCI*), book-to-market ratio (*BM*), firm size (*MV*), closely held ownership (*CH*), U.S. cross-listing (*ADR*), annual stock returns (*RETURN*), stock return volatility (*STD*), stock price (*PRICE*), analyst coverage (*ANALYST*), and return-on-equity ratio (*ROE*). The country-level control variables include GDP per capita (*GDPPC*), stock market capitalization to GDP (*MVGDP*), private credit to GDP (*PCREDITGDP*), GDP growth (*GGDP*), industry Herfindahl index (*INDHERF*), and firm Herfindahl index (*FIRMHERF*). Detailed definitions of the variables are provided in Appendix A. Columns (1) and (2) report regression results using the press-initiated news sample. Columns (3) and (4) report regression results using the first news articles sample. Columns (5) and (6) report regression results using the repeated news articles sample. The sample covers stocks across 40 countries in 2000–2016 (from 1999 to 2015 for the lagged variables). Country-fixed, industry-fixed and year-fixed effects are included (not reported). Nobs is the number of observations. Adjusted R^2 is the adjusted R^2 value. The *t*-statistics shown in parentheses are based on standard errors that are adjusted for heteroscedasticity and are clustered at the firm level. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.

Variable	Press-initiated news		First news		Repeated news	
	(1)	(2)	(3)	(4)	(5)	(6)
NEWSCOV	**−0.055*****	**−0.065*****	**−0.040*****	**−0.053*****	**−0.052*****	**−0.058*****
	(−8.57)	**(−9.36)**	**(−5.88)**	**(−7.11)**	**(−7.51)**	**(−7.75)**
LIQUID	−0.135***	−0.133***	−0.135***	−0.132***	−0.135***	−0.134***
	(−32.38)	(−30.90)	(−32.33)	(−30.91)	(−27.11)	(−25.94)
MSCI	0.280***	0.252***	0.281***	0.253***	0.339***	0.319***
	(15.80)	(13.72)	(15.97)	(13.89)	(16.04)	(14.24)
BM	0.048**	0.050*	0.048**	0.049*	0.040*	0.042
	(2.08)	(1.75)	(2.08)	(1.75)	(1.93)	(1.60)
MV	0.057***	0.072***	0.050***	0.065***	0.052***	0.061***
	(6.30)	(7.30)	(5.60)	(6.71)	(5.43)	(5.86)
CH	−0.394***	−0.307***	−0.386***	−0.300***	−0.405***	−0.330***
	(−15.26)	(−11.41)	(−15.01)	(−11.19)	(−13.45)	(−10.37)
ADR	−0.045*	−0.069**	−0.054**	−0.076***	−0.035	−0.057**
	(−1.75)	(−2.55)	(−2.10)	(−2.79)	(−1.33)	(−2.04)
RETURN	0.071***	0.062***	0.070***	0.061***	0.075***	0.066***
	(5.34)	(4.62)	(5.32)	(4.58)	(4.34)	(3.76)
STD	0.131***	0.050*	0.133***	0.053**	0.110***	0.027
	(4.77)	(1.86)	(4.89)	(2.02)	(3.30)	(0.85)
PRICE	−0.014***	−0.025***	−0.013***	−0.024***	−0.013**	−0.023***
	(−2.88)	(−4.73)	(−2.64)	(−4.47)	(−2.37)	(−3.79)
ANALYST	−0.061***	−0.063***	−0.063***	−0.065***	−0.051***	−0.057***
	(−7.11)	(−7.09)	(−7.38)	(−7.33)	(−5.41)	(−5.63)
ROE	0.159***	0.132***	0.165***	0.137***	0.150***	0.128***
	(6.29)	(4.96)	(6.55)	(5.20)	(4.96)	(4.00)
GDPPC		−0.387***		−0.386***		−0.366***
		(−22.34)		(−22.27)		(−18.66)
MVGDP		−0.059**		−0.056**		−0.036
		(−2.44)		(−2.35)		(−1.29)
PCREDITGDP		−0.189***		−0.182***		−0.121***
		(−8.43)		(−8.11)		(−4.28)
GGDP		−0.776***		−0.760***		−2.226***
		(−2.83)		(−2.78)		(−5.58)
FIRMHERF		−2.319***		−2.266***		−1.922***
		(−5.08)		(−5.01)		(−3.72)
INDHERF		−0.243***		−0.256***		−0.187***
		(−6.32)		(−6.67)		(−4.49)
Fixed effects	CIY	CIY	CIY	CIY	CIY	CIY
Nobs	83,971	77,036	84,462	77,490	61,813	56,194
Adjusted R^2	31.0%	31.4%	31.0%	31.4%	32.1%	32.2%

auditors and zero otherwise. The information asymmetry proxy is measured at the end of the previous year. We then examine the information effect by augmenting Eq. (3) to allow for an interaction between the media coverage variable and the *BIG4* auditor dummy. Specifically,

$$SYNCH_{i,j,t} = \alpha + \beta_1 NEWSCOV_{i,j,t} + \beta_2 BIG4_{i,j,t-1} + \beta_3 NEWSCOV_{i,j,t} * BIG4_{i,j,t-1} + CONTROLS_{i,j,t-1} + \varepsilon_{i,j,t} \quad (5)$$

The regression results of Eq. (5) are presented in Panel A of Table 7. Consistent with our hypothesis, the coefficient estimates on the interaction between the *NEWSCOV* variable and the *BIG4* dummy are significantly positive, suggesting that the negative relation between media coverage and stock price synchronicity becomes weaker when firms are audited by a Big4 auditor.

4.3.2. Firm-level governance environment

Concerning the moderating role played by firm-level corporate governance, we argue that the media can enhance investor protection, thus encouraging informed risk arbitrage and increased firm transparency. This effect then facilitates the incorporation of firm-specific information into stock prices, leading to the stock prices being less synchronous. Given that the governance effect of the media can be stronger in weakly governed firms, we expect the synchronicity-reducing effect

Table 6
Controlling for the level of press freedom.

This table reports the panel regression of stock price synchronicity on media coverage. The regression model is as follows:

$$SYNCH_{i,\,j,\,t} = \alpha + \beta NEWSCOV_{i,\,j,\,t} + CONTROLS_{i,\,j,\,t-1} + \varepsilon_{i,\,j,\,t}$$

where $SYNCH_{i,j,t}$ denotes the stock price synchronicity of firm i (country j) in year t. $NEWSCOV_{i,j,t}$ is a proxy for the media coverage of firm i (country j) in year t. $CONTROLS_{i,j,t-1}$ is the set of control variables. All control variables are included in the regression with a one-year lag. The firm-level control variables include individual stock liquidity (*LIQUID*), MSCI index (*MSCI*), book-to-market ratio (*BM*), firm size (*MV*), closely held ownership (*CH*), U.S. cross-listing (*ADR*), annual stock returns (*RETURN*), stock return volatility (*STD*), stock price (*PRICE*), analyst coverage (*ANALYST*), and return-on-equity ratio (*ROE*). The country-level control variables include GDP per capita (*GDPPC*), stock market capitalization to GDP (*MVGDP*), private credit to GDP (*PCREDITGDP*), GDP growth (*GGDP*), industry Herfindahl index (*INDHERF*), firm Herfindahl index (*FIRMHERF*), and press freedom score (*PRESSFREEDOM*). Detailed definitions of the variables are provided in Appendix A. The sample covers stocks across 40 countries in 2000–2016 (from 1999 to 2015 for the lagged variables). Country-fixed, industry-fixed and year-fixed effects are included (not reported). Nobs is the number of observations. Adjusted R^2 is the adjusted R^2 value. The *t*-statistics shown in parentheses are based on standard errors that are adjusted for heteroscedasticity and are clustered at the firm level. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.

Variable	GLB	EMG	DEV	Non-US
	(1)	(2)	(3)	(4)
NEWSCOV	**−0.068*****	**−0.049*****	**−0.043*****	**−0.059*****
	(**−9.81**)	(**−4.65**)	(**−5.24**)	(**−9.18**)
LIQUID	−0.132***	−0.143***	−0.111***	−0.121***
	(−30.82)	(−18.21)	(−22.38)	(−31.43)
MSCI	0.252***	0.062**	0.329***	0.151***
	(13.82)	(2.18)	(15.46)	(9.01)
BM	0.049*	0.182***	0.027*	0.124***
	(1.76)	(11.44)	(1.76)	(14.04)
MV	0.076***	0.022	0.086***	0.099***
	(7.78)	(1.55)	(9.15)	(12.66)
CH	−0.326***	−0.095**	−0.375***	−0.230***
	(−12.16)	(−2.20)	(−12.06)	(−9.05)
ADR	−0.065**	−0.098*	−0.101***	−0.021
	(−2.40)	(−1.65)	(−3.37)	(−0.81)
RETURN	0.065***	−0.057***	0.092***	0.051***
	(4.89)	(−2.81)	(5.82)	(4.52)
STD	0.052*	0.163***	0.001	0.119***
	(1.93)	(3.26)	(0.02)	(4.74)
PRICE	−0.027***	−0.039***	−0.017***	−0.032***
	(−5.01)	(−4.11)	(−3.04)	(−6.63)
ANALYST	−0.065***	−0.137***	−0.025**	−0.101***
	(−7.26)	(−9.60)	(−2.34)	(−11.04)
ROE	0.131***	0.105**	0.164***	0.114***
	(4.95)	(2.04)	(5.58)	(4.60)
GDPPC	−0.439***	0.339***	−1.147***	−0.432***
	(−25.24)	(7.01)	(−21.41)	(−25.22)
MVGDP	−0.092***	0.120*	−0.185***	−0.011
	(−3.84)	(1.81)	(−6.26)	(−0.44)
PCREDITGDP	−0.144***	0.569***	0.103***	−0.113***
	(−6.32)	(8.19)	(2.74)	(−4.86)
GGDP	−1.092***	1.075***	−3.353***	−0.141
	(−3.93)	(3.00)	(−5.04)	(−0.51)
FIRMHERF	−2.101***	−1.350	−0.098	−1.800***
	(−4.71)	(−0.74)	(−0.21)	(−4.03)
INDHERF	−0.228***	−0.190***	−0.136***	−0.245***
	(−5.94)	(−2.96)	(−2.96)	(−6.46)
PRESSFREEDOM	−0.028***	−0.003	−0.008**	−0.034***
	(−10.05)	(−0.75)	(−2.01)	(−11.85)
Fixed effects	CIY	CIY	CIY	CIY
Nobs	77,256	18,635	58,621	64,333
Adjusted R^2	31.6%	30.5%	34.1%	33.1%

of media coverage would be more pronounced for firms with weaker governance effectiveness.

To proxy for firm-level corporate governance, we use block institutional ownership (*BIO*) in a firm. Given block institutional investors' greater ownership stakes, institutional blockholders have incentives and are able to monitor and discipline firm management.[12] Following previous studies (e.g., Li, Moshirian, Pham, & Zein, 2006; Ng, Wu, Yu, & Zhang, 2016), institutional blockholders are defined as institutional investors who hold at least 5% of a firm's outstanding shares. Analogously, the block institutional ownership is measured at the end of the previous year. To investigate the governance effect, we use the augmented model that allows for an interaction between the media coverage variable and the *BIO* variable as follows:

$$SYNCH_{i,j,t} = \chi + \delta_1 NEWSCOV_{i,j,t} + \delta_2 BIO_{i,j,t-1} + \delta_3 NEWSCOV * BIO_{i,j,t-1} + CONTROLS_{i,j,t-1} + \xi_{i,j,t} \quad (6)$$

The regression results of Eq. (6) are reported in Panel B of Table 7. We find that the coefficient estimates on the interaction between media coverage and block institutional ownership are statistically significantly positive, suggesting that the negative effect of media coverage on stock price synchronicity is more pronounced in weakly governed firms.

Overall, we find positive effects of firm-level information and governance environments in moderating the negative relation between media coverage and stock price synchronicity.

4.4. Role of country-level institutional structures

In this section, we examine whether the relation between media coverage and stock price synchronicity is conditional on a country's governance and information environments. Given the competing arguments on the interaction between firm-level media coverage and country-level institutional characteristics, we aim to provide evidence on which effect, substitution or complementary effect, is driving the negative relation between the media and stock price synchronicity.

Following the literature, we use six proxies for country-level governance characteristics and information environments, including (i) the good government index (*GGOV*), (ii) the regulatory quality index (*RQUALITY*), (iii) the government effectiveness index (*GOVEFFECT*), (iv) the accounting standard index (*ACCSTA*), (v) the disclosure score index (*DISC*), and (vi) IFRS adoption at the country level (*IFRS*). To investigate the role of country-level institutional structures, we augment Eq. (3) by incorporating the interaction between media coverage and an institutional characteristic variable of interest.[13]

Table 8 reports the regression results of this analysis.[14] We make three interesting observations. First, the *NEWSCOV* variable is negatively associated with stock price synchronicity even after controlling for country-level institutional characteristics, indicating that the effect of media coverage is partly independent of institutional environments. Second, the coefficient estimates of the country-level institutional characteristics are significantly negative across all models, a finding consistent with the previous studies that stock prices are more synchronous in countries with low-quality institutions (e.g., Haw, Hu, Lee, & Wu, 2012; Jin & Myers, 2006; Morck et al., 2000). Third and more importantly, the negative relation between media coverage and the synchronicity of stock prices is more pronounced in countries with poor protection of investors (measured by the "good government index"), weak government effectiveness, poor regulatory quality, low accounting standards, and with less-strict disclosure requirements. We also find that the negative relation between media coverage and stock price synchronicity is stronger in the IFRS non-adopting countries. Specifically, the coefficient estimates of the interaction term between the *NEWSCOV* variable and the institutional characteristic variable are

[12] See Edmans (2014) for a comprehensive literature review on blockholders.

[13] Due to high correlation between the variable of gross domestic product per capita (*GDPPC*) and the proxies for country-level institutional characteristics, we do not include *GDPPC* in the regressions of Table 8.

[14] For brevity, we only report in Table 8 results that control for the country-level economic conditions and financial market development.

Table 7
The moderating effects of firm-level information transparency and corporate governance.

This table reports the panel regression for the following models:

$$SYNCH_{i,\,j,\,t} = \alpha + \beta_1 NEWSCOV_{i,\,j,\,t} + \beta_2 BIG4_{i,\,j,\,t-1} + \beta_3 NEWSCOV_{i,\,j,\,t} * BIG4_{i,\,j,\,t-1} + CONTROLS_{i,\,j,\,t-1} + \varepsilon_{i,\,j,\,t} \quad (5)$$

$$SYNCH_{i,\,j,\,t} = \chi + \delta_1 NEWSCOV_{i,\,j,\,t} + \delta_2 BIO_{i,\,j,\,t-1} + \delta_3 NEWSCOV * BIO_{i,\,j,\,t-1} + CONTROLS_{i,\,j,\,t-1} + \xi_{i,\,j,\,t} \quad (6)$$

where $SYNCH_{i,j,t}$ denotes the stock price synchronicity of firm *i* (country *j*) in year *t*. $NEWSCOV_{i,j,t}$ is a proxy for the media coverage of firm *i* (country *j*) in year *t*. *BIG4* is a dummy equal to one if the firm is audited by any of the Big4 or Big5 auditors, and zero otherwise; *BIO* is block institutional ownership and is defined as the percentage of shares outstanding, in which block refers to holding more than 5% of total shares. $CONTROLS_{i,j,t-1}$ is the set of control variables. All control variables are included in the regression with a one-year lag. The firm-level control variables include individual stock liquidity (*LIQUID*), MSCI index (*MSCI*), book-to-market ratio (*BM*), firm size (*MV*), closely held ownership (*CH*), U.S. cross-listing (*ADR*), annual stock returns (*RETURN*), stock return volatility (*STD*), stock price (*PRICE*), analyst coverage (*ANALYST*), and return-on-equity ratio (*ROE*). The country-level control variables include GDP per capita (*GDPPC*), stock market capitalization to GDP (*MVGDP*), private credit to GDP (*PCREDITGDP*), GDP growth (*GGDP*), industry Herfindahl index (*INDHERF*), and firm Herfindahl index (*FIRMHERF*). Detailed definitions of the variables are provided in Appendix A. The sample covers stocks across 40 countries in 2000–2016 (from 1999 to 2015 for the lagged variables). Panel A reports results for Eq. (5), and Panel B reports results for Eq. (6). Country-fixed, industry-fixed and year-fixed effects are included (not reported). Nobs is the number of observations. Adjusted R^2 is the adjusted R^2 value. The *t*-statistics shown in parentheses are based on standard errors that are adjusted for heteroscedasticity and are clustered at the firm level. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.

Panel A:	*Information environment* (*BIG4*)		Panel B:	*Corporate governance* (*BIO*)	
Variable	(1)	(2)	Variable	(3)	(4)
NEWSCOV	**−0.155*****	**−0.169*****	*NEWSCOV*	**−0.073*****	**−0.079*****
	(−16.61)	**(−17.17)**		**(−11.04)**	**(−11.17)**
BIG4	**−0.293*****	**−0.382*****	*BIO*	**−1.446*****	**−1.251*****
	(−10.70)	**(−13.24)**		**(−6.98)**	**(−5.75)**
*NEWSCOV*BIG4*	**0.136*****	**0.147*****	*NEWSCOV*BIO*	**0.510*****	**0.466*****
	(13.30)	**(13.68)**		**(10.96)**	**(9.51)**
LIQUID	−0.130***	−0.128***	*LIQUID*	−0.133***	−0.130***
	(−30.52)	(−29.29)		(−32.42)	(−30.96)
MSCI	0.268***	0.246***	*MSCI*	0.261***	0.234***
	(14.71)	(13.03)		(14.85)	(12.83)
BM	0.045**	0.046*	*BM*	0.048**	0.050*
	(2.11)	(1.77)		(2.03)	(1.71)
MV	0.056***	0.071***	*MV*	0.066***	0.080***
	(6.07)	(7.08)		(7.37)	(8.21)
CH	−0.347***	−0.258***	*CH*	−0.361***	−0.278***
	(−13.01)	(−9.31)		(−14.15)	(−10.47)
ADR	−0.087***	−0.111***	*ADR*	−0.030	−0.055**
	(−3.27)	(−3.97)		(−1.17)	(−2.04)
RETURN	0.068***	0.058***	*RETURN*	0.071***	0.064***
	(5.19)	(4.36)		(5.47)	(4.76)
STD	0.116***	0.042	*STD*	0.134***	0.056**
	(4.39)	(1.63)		(4.99)	(2.14)
PRICE	−0.008	−0.016***	*PRICE*	−0.017***	−0.028***
	(−1.58)	(−2.95)		(−3.48)	(−5.25)
ANALYST	−0.068***	−0.072***	*ANALYST*	−0.064***	−0.067***
	(−7.49)	(−7.67)		(−7.50)	(−7.60)
ROE	0.143***	0.110***	*ROE*	0.157***	0.131***
	(5.56)	(4.09)		(6.33)	(5.02)
GDPPC		−0.376***	*GDPPC*		−0.374***
		(−20.21)			(−21.47)
MVGDP		−0.063**	*MVGDP*		−0.049**
		(−2.44)			(−2.05)
PCREDITGDP		−0.183***	*PCREDITGDP*		−0.180***
		(−7.59)			(−8.12)
GGDP		−0.493*	*GGDP*		−0.727***
		(−1.72)			(−2.66)
FIRMHERF		−2.262***	*FIRMHERF*		−2.029***
		(−4.05)			(−4.50)
INDHERF		−0.333***	*INDHERF*		−0.248***
		(−7.96)			(−6.50)
Fixed effects	CIY	CIY	Fixed effects	CIY	CIY
Nobs	75,873	69,664	Nobs	84,462	77,490
Adjusted R^2	31.0%	31.4%	Adjusted R^2	31.4%	31.8%

significantly positive across all institutional characteristic proxies. These results indicate that the media can act as a substitute for weak country-level institutional infrastructures to increase stock price efficiency.

5. Conclusion

In this paper, we study the relation between media coverage and stock price synchronicity around the world and the role of country-level institutional structures in shaping this relation. Using a comprehensive dataset for stocks across 40 countries between 2000 and 2016, we document the following key results.

First, firms with greater media coverage have lower stock price synchronicity, suggesting that the intensity of media coverage increases the ability of stock prices to incorporate firm-specific information. Second, the negative effect of media coverage on stock price synchronicity is more pronounced for firms that are not audited by Big4 auditors and firms with lower institutional block ownership. Finally, the negative relation between media coverage and stock price synchronicity is stronger in countries with weak governance mechanisms or less

Table 8
Media coverage, stock price synchronicity, and country-level institutional structures.

This table reports the panel regression for the following model:

$SYNCH_{i,\,j,\,t} = \alpha + \beta_1 NEWSCOV_{i,\,j,\,t} + \beta_2 IS_{j,\,t-1} + \beta_3 NEWSCOV_{i,\,j,\,t} * IS_{j,\,t-1} + CONTROLS_{i,\,j,\,t-1} + \varepsilon_{i,\,j,\,t}$

where $SYNCH_{i,j,t}$ denotes the stock price synchronicity of firm i (country j) in year t. $NEWSCOV_{i,j,t}$ is a proxy for the media coverage of firm i (country j) in year t. IS_j is a proxy for the country-level institutional structures of country j. Country-level institutional structure variables include good government index (*GGOV*), regulatory quality index (*RQUALITY*), government effectiveness index (*GOVEFFECT*), accounting standard index (*ACCSTA*), disclosure score index (*DISC*), and dummy equal to one if a country adopts IFRS (*IFRS*). $CONTROLS_{i,j,t-1}$ is the set of control variables. All control variables are included in the regression with a one-year lag. The firm-level control variables include individual stock liquidity (*LIQUID*), MSCI index (*MSCI*), book-to-market ratio (*BM*), firm size (*MV*), closely held ownership (*CH*), U.S. cross-listing (*ADR*), annual stock returns (*RETURN*), stock return volatility (*STD*), stock price (*PRICE*), analyst coverage (*ANALYST*), and return-on-equity ratio (*ROE*). The country-level control variables include GDP per capita (*GDPPC*), stock market capitalization to GDP (*MVGDP*), private credit to GDP (*PCREDITGDP*), GDP growth (*GGDP*), industry Herfindahl index (*INDHERF*), and firm Herfindahl index (*FIRMHERF*). Nobs is the number of observations. Adjusted R^2 is the adjusted R^2 value. Industry-fixed and year-fixed effects are included (not reported). The *t*-statistics shown in parentheses are based on standard errors that are adjusted for heteroscedasticity and are clustered at the firm level. Superscripts *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively. The sample covers stocks across 40 countries in 2000–2016 (from 1999 to 2015 for the lagged variables). Detailed definitions of the variables are provided in Appendix A.

Variable	*GGOV*	*RQUALITY*	*GOVEFFECT*	*ACCSTA*	*DISC*	*IFRS*
	(1)	(2)	(3)	(4)	(5)	(6)
NEWSCOV	**−0.496*****	**−0.197*****	**−0.181*****	**−0.227*****	**−0.366*****	**−0.184*****
	(−13.81)	**(−17.73)**	**(−14.05)**	**(−4.24)**	**(−7.28)**	**(−24.56)**
IS	−0.149***	−0.333***	−0.090***	−0.036***	−0.302***	−0.785***
	(−14.61)	(−13.55)	(−3.45)	(−11.56)	(−9.17)	(−18.57)
*NEWSCOV*IS*	**0.019*****	**0.047*****	**0.026*****	**0.002***	**0.050*****	**0.142*****
	(10.98)	**(6.78)**	**(3.37)**	**(1.92)**	**(5.68)**	**(13.20)**
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Country-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	IY	IY	IY	IY	IY	IY
Nobs	77,490	77,490	77,490	76,074	62,948	77,490
Adjusted R^2	27.2%	26.9%	26.6%	27.8%	27.8%	27.4%

information transparency.

Since high stock price synchronicity is the result of limited information and poor protection of investors (Jin & Myers, 2006; Morck et al., 2000), our study implies that, as an information intermediary, the media can act as an alternative governance mechanism that improves a firm's information environment and governance, as manifested in lower stock price synchronicity.

A few caveats are in order, however. First, our measure of price synchronicity relies on the information-efficiency view that stock price synchronicity is caused by the capitalization of firm-specific information (Dang et al., 2015; Jin & Myers, 2006; Morck et al., 2000; Roll, 1988). Although empirically justified in numerous previous studies, this measure might be driven by noise trading (Dasgupta, Gan, & Gao, 2010; Mashruwala, Rajgopal, & Shevlin, 2006; Pontiff, 2006). Furthermore, our inferences are based on the association between media coverage and stock price synchronicity rather than on causality. While conducting a battery of tests to mitigate endogeneity concerns, we cannot rule out alternative explanations and we acknowledge that there are possibly other factors that drive this observed relation. Therefore, we call for caution in interpreting these results and recommend that these angles stay on our collective radars for future research as we strive to achieve a better understanding of the phenomenon of stock price synchronicity.

Appendix A. Variable definitions

Variables	Acronym	Description	Data sources
A. Firm-level variables			
A.1. Key variables			
News coverage	*NEWSCOV*	Log of one plus the number of news articles that cover news events for a firm in a given year	RavenPack
Stock price synchronicity	*SYNCH*	Logistic transformation of R^2 estimated from a firm's weekly stock returns regressed on a country's weekly market returns and the U.S. weekly market returns	Datastream
A.2. Other firm-level characteristics			
Individual stock liquidity	*LIQUID*	Log of the average of daily Amihud's (2002) measure, calculated as the absolute value of stock return divided by dollar trading volume on a given day, in a given year	Datastream
MSCI index	*MSCI*	An MSCI index member dummy that equals one if the firm is included in an MSCI country index	Worldscope
Book-to-market ratio	*BM*	Log of book-to-market equity ratio	Worldscope
Firm size	*MV*	Log of market capitalization denominated in U.S. dollars	Worldscope
Closely held ownership	*CH*	Fraction of shares closely held by insiders and controlling shareholders	Worldscope
U.S. cross-listing	*ADR*	An ADR dummy that equals one if the firm was cross-listed on a U.S. exchange	Worldscope
Annual stock returns	*RETURN*	Annual stock returns	Worldscope
Stock return volatility	*STD*	Annualized standard deviation of monthly stock returns	Worldscope

Stock price	*PRICE*	Log of stock price in U.S. dollars	Worldscope
Analyst coverage	*ANALYST*	Log of one plus the number of financial analysts covering a firm	I/B/E/S
Return-on-equity ratio	*ROE*	Return on equity	Worldscope
Big 4 auditors	*BIG4*	A dummy that equals to one if the firm is audited by any of the Big4 or Big5 auditors, and zero otherwise	Compustat Global & Worldscope
Block institutional ownership	*BIO*	Block institutional ownership as the percentage of shares outstanding, in which block refers to holding more than 5% of total shares	FactSet/LionShares
B. Country-level variables			
B.1. Institutional structures			
Good government index	*GGOV*	A measure of how well a country protects private property rights, which is the sum of three indexes: (i) government corruption, (ii) the risk of expropriation of private property by the government, and (iii) the risk of the government repudiating contracts	Morck et al. (2000)
Regulatory quality index	*RQUALITY*	Investors' perceptions of the government's ability to formulate and implement sound policies and regulations that permit and promote private sector development	Kaufmann et al. (2009)
Government effectiveness index	*GOVEFFECT*	Investors' perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies	Kaufmann et al. (2009)
Accounting standard index	*ACCSTA*	The index was created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 specific accounting items, covering general information, income statements, balance sheets, funds flow statement, accounting standards, stock data, and special items.	La Porta et al. (1998)
Disclosure score index	*DISC*	A measure of the level of financial disclosure and availability of information to investors, which is calculated based on survey results about the level and effectiveness of financial disclosure in the annual Global Competitiveness Report in 1999 and 2000	Jin and Myers (2006)
IFRS adoption at the country level	*IFRS*	An IFRS dummy that equals one if a country adopts IFRS in year t, and zero otherwise	The Deloitte Global Services IAS Plus's website (https://www.iasplus.com/en/resources/ifrs-topics/use-of-ifrs), the IFRS's website (https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/), and the PwC's website (https://www.ifrspublicationsonline.com/)
Press freedom index	*PRESSFREEDOM*	The scores are calculated based on annual press freedom survey results about (*i*) Laws and regulations that influence media content, (*ii*) Political pressures and controls on media content, (*iii*) Economic influences over media content.	Freedom House
B.2. Other country-level characteristics			
GDP per capita	*GDPPC*	Log of GDP per capita measured in U.S. dollars	World Development Indicators
Stock market cap to GDP	*MVGDP*	Log of ratio of stock market capitalization to GDP	World Development Indicators
Private credit to GDP	*PCREDITGDP*	Log of ratio of private credit to GDP	World Development Indicators
GDP growth	*GGDP*	Annual GDP growth	World Development Indicators
Firm Herfindahl index	*FIRMHERF*	Defined as $F_j = \Sigma_i h_{i\in j}^2$, where $h_{i\in j}$ is the sales of firm i as a percentage of the total sales of all country j firms	Worldscope
Industry Herfindahl index	*INDHERF*	Defined as $H_j = \Sigma_k h_{k,\,j}^2$, where $h_{k,j}$ is the combined value of the sales of firms in industry k of country j as a percentage of those sales of all country j firms	Worldscope

Appendix B. Correlation coefficients matrix

This table presents Pearson correlation coefficients among variables used in the analyses of this paper. The firm-level variables include news coverage (*NEWSCOV*), stock price synchronicity (*SYNCH*), individual stock liquidity (*LIQUID*), MSCI index (*MSCI*), book-to-market ratio (*BM*), firm size (*MV*), closely held ownership (*CH*), U.S. cross-listing (*ADR*), annual stock returns (*RETURN*), stock return volatility (*STD*), stock price (*PRICE*), analyst coverage (*ANALYST*), return-on-equity ratio (*ROE*), Big 4 auditors (*BIG4*), and block institutional ownership (*BIO*). The country-level variables include GDP per capita (*GDPPC*), stock market capitalization to GDP (*MVGDP*), private credit to GDP (*PCREDITGDP*), GDP growth (*GGDP*), industry Herfindahl index (*INDHERF*), firm Herfindahl index (*FIRMHERF*), good government index (*GGOV*), regulatory quality index (*RQUALITY*), government effectiveness index (*GOVEFFECT*), accounting standard index (*ACCSTA*), disclosure score index (*DISC*), and a dummy that equals one if a country adopts IFRS (*IFRS*). Detailed definitions of the variables are provided in Appendix A. The sample period is 2000–2016.

Variable	*SYNCH*	*NEWSCOV*	*LIQUID*	*MSCI*	*BM*	*MV*	*CH*	*ADR*	*RETURN*	*STD*	*PRICE*	*ANALYST*	*ROE*	*BIG4*	*BIO*
SYNCH	1.000														
NEWSCOV	0.074	1.000													
LIQUID	−0.392	−0.559	1.000												
MSCI	0.333	0.331	−0.612	1.000											
BM	−0.018	0.000	0.043	0.003	1.000										
MV	0.054	0.522	−0.440	0.334	−0.016	1.000									
CH	−0.115	−0.201	0.106	0.052	0.011	0.153	1.000								
ADR	0.027	0.193	−0.158	0.124	0.000	0.158	0.004	1.000							
RETURN	0.074	−0.008	−0.106	0.059	0.000	0.059	0.026	0.001	1.000						
STD	0.056	−0.228	0.178	−0.095	−0.002	−0.580	−0.143	−0.044	0.081	1.000					
PRICE	0.127	0.363	−0.532	0.303	0.001	0.333	−0.058	0.088	0.169	−0.208	1.000				
ANALYST	0.190	0.556	−0.591	0.490	−0.002	0.380	0.096	0.219	0.004	−0.107	0.402	1.000			

ROE	0.166	0.111	−0.224	0.168	−0.001	0.170	0.040	0.008	0.181	−0.164	0.260	0.175	1.000		
BIG4	−0.006	0.312	−0.224	0.202	−0.004	0.212	0.069	0.119	−0.007	−0.121	0.185	0.338	0.079	1.000	
BIO	0.025	0.348	−0.224	0.172	−0.001	0.138	−0.031	0.007	−0.016	−0.053	0.221	0.259	0.029	0.188	1.000
GDPPC	−0.201	0.216	−0.321	0.072	0.003	0.315	0.114	0.063	−0.060	−0.214	0.315	0.228	−0.096	0.310	0.170
MVGDP	0.017	−0.151	−0.067	−0.013	−0.001	−0.470	−0.097	−0.031	0.063	0.285	−0.091	−0.022	0.013	0.098	0.002
PCREDITGDP	0.121	−0.064	−0.270	0.123	−0.001	−0.499	−0.243	−0.051	−0.026	0.278	0.138	0.083	−0.020	0.059	0.103
GGDP	0.154	−0.110	0.122	0.001	−0.001	0.006	0.001	−0.050	0.084	0.025	−0.266	−0.161	0.093	−0.247	−0.120
FIRMHERF	−0.081	−0.026	0.087	−0.048	−0.001	0.117	0.050	0.059	−0.007	−0.062	−0.012	0.012	−0.020	0.081	−0.063
INDHERF	−0.079	0.081	0.014	−0.013	−0.001	0.255	0.139	0.037	0.000	−0.150	0.006	0.021	−0.018	0.056	−0.001
GGOV	−0.184	0.309	−0.262	0.040	0.003	−0.010	−0.100	0.042	−0.052	−0.021	0.368	0.226	−0.100	0.323	0.249
RQUALITY	−0.217	0.139	−0.205	−0.021	0.001	−0.003	0.001	0.051	−0.059	−0.013	0.198	0.162	−0.115	0.352	0.157
GOVEFFECT	−0.166	0.082	−0.217	−0.011	0.001	−0.052	−0.030	0.040	−0.055	0.003	0.251	0.153	−0.101	0.322	0.127
ACCSTA	−0.164	0.189	−0.170	−0.018	0.001	−0.059	−0.018	0.005	−0.040	0.015	−0.072	0.086	−0.111	0.169	0.109
DISC	−0.299	0.121	0.005	−0.169	0.009	−0.128	−0.011	0.066	−0.060	0.041	0.136	0.115	−0.139	0.309	0.096
IFRS	−0.185	−0.007	0.043	−0.106	−0.002	0.123	0.159	0.057	−0.040	−0.090	−0.012	0.053	−0.077	0.116	−0.026

Variable	*GDPPC*	*MVGDP*	*PCREDITGDP*	*GGDP*	*FIRMHERF*	*INDHERF*	*GGOV*	*RQUALITY*	*GOVEFFECT*	*ACCSTA*	*DISC*	*IFRS*
GDPPC	1.000											
MVGDP	0.110	1.000										
PCREDITGDP	0.269	0.601	1.000									
GGDP	−0.571	0.020	−0.282	1.000								
FIRMHERF	0.014	−0.096	−0.230	−0.026	1.000							
INDHERF	0.089	−0.159	−0.245	−0.017	0.144	1.000						
GGOV	0.817	0.216	0.492	−0.596	−0.003	−0.028	1.000					
RQUALITY	0.801	0.368	0.431	−0.550	0.018	0.012	0.836	1.000				
GOVEFFECT	0.815	0.356	0.470	−0.521	−0.042	−0.025	0.862	0.905	1.000			
ACCSTA	0.509	0.377	0.400	−0.201	−0.069	−0.014	0.623	0.632	0.669	1.000		
DISC	0.694	0.324	0.329	−0.590	0.032	0.007	0.832	0.861	0.825	0.679	1.000	
IFRS	0.323	0.067	−0.085	−0.194	0.320	0.138	0.253	0.408	0.290	0.267	0.416	1.000

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