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Abstract

This paper investigates whether and how institutional investor distraction affects stock return synchronicity. Using a sample of 52,364 Chinese listed firms over the 2003-2022 period, it documents significant and robust evidence of a positive relation between stock return synchronicity and institutional investor distraction. Further analysis suggests that this effect is less pronounced for firms with better information disclosure or a more favorable external information environment, but is more concentrated for those less affected by investor sentiments. In addition, the impact varies among different types of investors, with the relationship predominantly driven by pressure-resistant investors. The distraction also affects trading behaviors by reducing forecasting precision and increasing divergence. Collectively, these findings highlight the importance of institutional investors in promoting information efficiency in the stock market.

JEL Classifications: G14, G23, G41

Keywords: Institutional Investor; Distraction; Stock Return Synchronicity; Limited Attention; Market Efficiency.

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1. INTRODUCTION

Resource allocation efficiency in the capital market depends on whether stock prices can reflect corporate fundamentals on a timely basis. Therefore, researchers frequently concentrate on the information efficiency of stock price to comprehend its influence. Stock return synchronicity, demonstrating the correlation between the movement of a company's stock price and the overall market trend, is commonly employed to evaluate the information content of stock prices. Stock prices synchronization tends to be greater in emerging market relative to global markets. According to Jin and Myers (2006) survey of 40 countries, the China' capital market ranks at the top in terms of stock return synchronicity. Previous studies have identified various reasons for stock return synchronicity, encompassing both company-specific private information, unexplained noise, and irrational factors (Roll, 1988; Hasbrouck, 1993; Brogaard et al., 2022). The aim of this paper is to investigate the underlying causes of stock return synchronicity, and to examine if and in what ways it augments the information efficiency of stock prices and capital allocation reflected by stock return synchronicity in the Chinese A-share market.

In the Chinese stock market, institutional investors play a crucial role, particularly in the transmission of market information and the allocation of resources. According to the statistics of CSMAR, the proportion of shares held by institutional investors in China in recent years has remained above 40%. Institutional investors, as opposed to individual investors, enjoy substantial financial power. They are backed by professionals for gathering and analyzing information and making investment decisions.

Furthermore, they mitigate investment risks via the utilization of an investment portfolio approach.

Regarding the connections between institutional investors and stock return synchronicity, there exists a variety of empirical results and mechanisms in past research. Some academics have investigated this relationship and the underlying mechanisms from the viewpoint of the shareholding ratio, to unveil the triggers of stock return synchronicity. This type of research suggests that institutional holdings can enhance corporate information transparency, thereby increasing the amount of information in individual stocks (Chakravarty, 2001; Boehmer and Kelley, 2009; An and Zhang, 2013). Conversely, there is research that suggests institutional investors can exhibit a tendency to follow the crowd, neglecting personal private information and basing investment decisions on the choices of other institutions. This can lead to undervalue of their private information in the stock price (Tan et al., 2008; Brown et al., 2014). As such, it's not clear-cut within the literature as to how the institutional investors impacts the stock return synchronicity through market's information efficiency.

In our study, we aim to examine this connection through the lens of institutional investors' limited attention, investigating the influence of their distraction on market efficiency. The rationale behind this is the concept that attention from investors is a limited resource. For instance, mutual fund managers can't equally divert their attention to all their holdings, rather they focus on stocks in "hot" or high-risk sectors within their portfolios, a phenomenon known as investors' distraction (Kempf et al., 2017). This distraction leads institutional investors to limit their private information gathering on one hand, and reduce their firm monitoring on the other, causing a shift in attention (Kempf et al., 2017). This combination impacts share return synchronicity. Identifying the distraction of institutional investors presents a challenge due to the intangible and unquantifiable nature of attention. Kempf et al. (2017) suggest an approach to gauge this "distraction" by considering exogenous shocks to unrelated sectors within their portfolios. This method offers an excellent framework to examine the economic implications of the limited attention span of institutional investors.

In the last few years, research on institutional investor distraction has just begun to emerge (Kempf et al., 2017; Liu et al., 2020; Ni et al., 2020; Garel et al., 2021), primarily focusing on the influence of the distraction on corporate governance. This paper adds to the existing literature by exploring how institutional investors' limited attention can causally affect stock return synchronicity, using the external event of these investors' distraction. This approach aims to enrich the study of institutional investors' limited attention, considering it from the perspective of market information efficiency.

Using a sample of A-share listed companies in Chinese stock market from 2003 to 2022, the main findings of this study are as follows: first, there is a notable increase in return synchronicity due to institutional investor distraction, suggesting that these investors can dampen the 'information efficiency' as reflected in stock return synchronicity. Furthermore, these findings continue to hold substantial even after accounting for the impact of passive institutional investors through the removal of active institutional investors. Second, high-quality disclosure and a conducive information environment can diminish the positive impact of institutional investor distraction on return synchronicity. This suggests that the distraction of institutional investors contributes to return synchronicity via the information channel, by enhancing information transparency internally and externally. Third, upon considering fluctuations in investor sentiments, it was found that the increase in stock return synchronicity due to institutional investor distraction only stands when investor sentiment is low. Fourth, our findings indicate that the elevated return synchronicity is primarily driven by pressure-resistant investors rather than pressure-sensitive investors or other types. This suggests that different types of investors influence the relationship in varied ways. Lastly, and more importantly, we investigate the influence of distraction on financial analysts' behavior, considering forecast accuracy, dispersion, and the quantity of coverage. This is based on two reasons. First, analysts' trading patterns impact the disclosure of information, and subsequently, the informative content of stock prices. Concurrently, the distraction increases return synchronicity, thereby decreasing information efficiency. Our findings reveal that the distraction amplifies analysts’ coverage by attracting more attention. However, the forecasting accuracy diminishes and divergence escalates due to the diminished informative content in stock prices.

This paper contributes to the existing body of literature in three key ways. Firstly, we expand on the studies surrounding the factors influencing stock return synchronicity by exploring how institutional investor distraction can affect return synchronicity in the Chinese A-share market. Our results show that when institutional investors are distracted, there is a decrease in the collection of private information and oversight of companies, leading to enhanced stock return synchronicity. This supports the "information efficiency" hypothesis. Furthermore, our study shows that institutional investor distraction has a negative impact on both the accessibility and reliability of information disclosed by companies. As these companies disclose information that is less timely and of a lower quality, the efficiency of information is lowered, resulting in a rise in return synchronicity.

Secondly, our study offers valuable insights by establishing the role of institutional investors in Chinese markets. Our empirical findings verify that from the viewpoint of limited attention, institutional investors play an advantageous role in enhancing market efficiency. This research supplements prior studies that have primarily centered on the shareholding aspect, exhibiting their varied influence on market efficiency and the efficacy of corporate governance (Bushee, 1998; Chakravarty, 2001; Boone and White, 2015; Boehmer and Kelley, 2009).

Third, in line with limited attention theory, institutional investors' distraction impacts their attention allocation, which in turn affects the intensity of their monitoring (Kempf et al. 2017; Liu et al. 2020; Yang et al. 2021). Recent years have seen an increase in evidence probing the negative effects of institutional investors' distraction. Our study uncovers that information efficiency acts as an effective link between distraction and stock return synchronicity. This means that when institutional investors are distracted, their ability to acquire private information and monitor firms is curtailed, thereby diminishing information efficiency and increasing synchronization.

Lastly, our study contributes to the behavioral finance literature. Previous studies primarily focused on retail investors' limited attention (Hirshleifer et al., 2009; Israeli et al., 2021). However, this paper centers on institutional investors' limited attention. It pinpoints the causal effect of institutional investors' distraction on stock return synchronicity, using exogenous shocks to unrelated industries within their portfolios. This approach offers new empirical evidence for the limited attention theory from an institutional investor's viewpoint.

The rest of this paper is structured as follows. Section 2 presents a literature review, explains the theoretical rationales and develops the hypotheses. Section 3 outlines the data and methodology used. Section 4 discusses the empirical findings including the robustness checks, while Section 5 examines the underlying mechanisms. Section 6 offers a further analysis, and finally, Section 7 draws conclusions from the paper.

2. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

2.1 Stock return synchronization

Roll (1988) initially proposed the use of individual stock returns to measure return synchronicity via the estimated coefficients of the CAPM model regression. He found that market and industry-level information can explain only a minor portion of the volatility of individual stock prices, arguing that the unexplained portion (idiosyncratic volatility) is due to firm-specific information or noise. To this day, two main academic perspectives exist regarding the causes of return synchronicity: one rooted in an information-based explanation, termed "information efficiency," and the other rooted in a behavioral finance explanation, known as "irrational behavior".

On one hand, 'information efficiency' focuses on how a company's private information becomes available to investors, how this information is disseminated, and the subsequent impact on stock return synchronicity. Echoing Roll's (1988) study, Durnev et al. (2004) empirically illustrate that a low R-square is mostly due to the incorporation of firm-level private information. Likewise, Jin and Myers (2006) find that markets with high corporate information transparency have lower stock return synchronicity. Additionally, the more private information is disseminated, the more information investors have access to. For this very reason, market intermediaries such as media and analysts can affect stock return synchronicity. Media coverage integrates more firm-level information into stock prices, thereby reducing stock return synchronicity (Dang et al., 2020). Individualistic analysts is associated with lower stock return synchronicity of the firm covered, indicating that more firm-specific information is impounded in the stock price (Cao et al., 2023). On the contrary, in markets with short-selling restrictions, firm private information is less likely to be reflected in the stock price, resulting in higher synchronization. When investors pay less attention to financial markets, they rationally allocate more focus to market-level information over firm-specific information, inducing an increase in stock return synchronicity (Huang et al., 2019). Moreover, firms with lower R-square show a stronger correlation between current returns and future earnings (Durnev et al., 2003), and undergo more market scrutiny, leading to more efficient investment (Durnev et al., 2004). These studies examining the economic results of stock return synchronicity indirectly support the concept of information efficiency.

On the other hand, behavioral finance theory proposes that high stock return synchronicity results from market noise and irrational elements. For instance, theoretical models by Shiller (1981) and West (1988) found that individual stock price volatility significantly exceeds what can be explained by the volatility of firm fundamentals and the discount rate. Stock return synchronicity reflects not only investment behavior but also irrational factors such as investor preferences and limited risk tolerance of arbitrageurs. Li et al. (2014) empirically identified a negative correlation between stock return synchronicity and proxies for the information environment, such as the likelihood of informed trades, bid-ask spreads, price delays, and the level of illiquidity. This suggests that low stock return synchronicity is primarily caused by noise. Chan and Chan (2014) discovered a negative association between return synchronicity and the degree of discount of stock increase, implying the higher the return synchronicity, the higher the information content in the stock price. In the Chinese stock market, which experiences more simultaneous stock price movements, Wang et al. (2009) posit that stock prices contain very little extra information about the future operating performance of firms. Hu and Liu (2013) shows that the meaning of stock return synchronicity in China's stock market is quite different from that in developed markets in Europe and the United States. Lower stock return synchronicity means more noise trading and lower stock price information content. These studies contradict the private information-based explanation, thereby supporting the theory of irrational behavior.

Moreover, some studies have suggested that the relationship between stock return synchronicity and information or noise is not monotonically linear (Lee and Liu, 2011), implying that both private company information and noise influence stock return synchronicity. When information transparency is low, stock prices are predominantly driven by noise, since company information cannot be effectively and promptly disseminated to investors. Conversely, when information transparency improves, it lowers the uncertainty surrounding a company's future development, thereby effectively mitigating the impact of noise on stock prices.

In conclusion, the literature has yet to arrive at a consensus on whether the rational explanation for stock return synchronicity lies in information efficiency or irrational behavior, or whether the relationship is linear or non-linear. Additional analysis is still warranted.

2.2 Institutional investors and market efficiency

Institutional investors, with their vast expertise, information resources, and capability to unpack information, are capable of more accurately gauging the intrinsic value of stocks due to their informational edge and professional researchers (Hirshleifer et al., 1994; Bushee, 1998; Ke and Petroni, 2004; Irvine et al., 2007). Moreover, in comparison to individual investors, institutional investors tend to adjust their trading strategies and portfolios less frequently and are competent in using information correctly (Cohen et al., 2002; Boehmer and Kelly, 2009; Ongena and Zalewska, 2018). They play critical roles in asset pricing (Griffin et al., 2011; Di Maggio et al., 2019), keeping market stability (Bushee and Noe, 2000; Rubin and Smith, 2009; Breugem and Buss, 2019), enhancing corporate governance (Chung et al., 2002; Crane et al., 2019; Gu et al., 2022), and etc.

Regarding market information efficiency, most studies suggest that stocks with greater institutional ownership exhibit more efficient pricing (Boehmer and Kelley, 2009), reduced stock volatility (Bohl and Brzeszczyński, 2006) and lower stock return synchronicity (An and Zhang, 2013). Other market investors monitor changes in institutional investors' holdings, absorb information, and incorporate this knowledge into stock prices, thereby objectively enhancing the information content of stock prices (Chakravarty, 2001).

Conversely, there are studies that argue institutional investors do not necessarily enhance the information efficiency of the market. Kraus and Stoll (1972) introduced the notion of "Parallel trading," wherein a multitude of institutional investors trade the same stock synchronously and in the same direction, resulting in herd behavior. Like individual investors, institutional investors are not entirely rational and can also make cognitive errors. Under performance pressure, investment managers may adopt aggressive trading strategies to attract client capital inflows (Lakonishok et al., 1992). The existence of a herd effect among institutional investors (Wermers, 1999; Sias, 2004; Dasgupta et al., 2011), has been shown to trigger stock price overreactions and amplify stock risk (Tan et al., 2008; Brown et al., 2014). Studies focusing on longer horizons find that herding predicts reversals in returns(Gutierrez and Kelley, 2009; Brown et al., 2014). Institutional investors do not invariably stabilize the market (Chiyachantana et al., 2004), and may even heighten stock price volatility (Dennis and Strickland, 2002; Cai et al., 2019; Guerrieri and Kondor; 2012), inflate market bubble (Allen and Gorton, 1993; Griffin et al., 2011), and diminish information efficiency (Breugem and Buss, 2019).

Reflecting on prior studies, numerous scholars have explored the connection between institutional investors and stock return synchronicity, as well as the mechanisms influencing it, to explain the causes of stock return synchronicity. Some research suggests that the holdings of institutional investors can enhance corporate information transparency, thereby increasing the information content of individual stocks (Chakravarty, 2001; Boehmer and Kelley, 2009; An and Zhang, 2013). On the other hand, some studies indicate the existence of a herding effect, where institutional investors overlook their privately held information and base their investment decisions on the choices of other institutions, resulting in their private information not being fully incorporated into the stock price (Tan et al., 2008; Brown et al., 2014). Therefore, it's clear that the relationship between institutional investors and stock return synchronicity remains inconclusive.

2.3 Hypothesis development

The theoretical rationale of our study is drawn from three perspectives, building upon previous research. First, market microstructure theories categorize investors into two types: informed and uninformed traders. In the conventional noise rational expectation equilibrium (NRE) model, informed traders bear costs to acquire information and generate returns by trading with uninformed traders. Consequently, the private information held by informed traders is factored into the stock price (Grossman and Stiglitz, 1980; Hellwig, 1980; Diamond and Verrecchia, 1981; Verrecchia, 1982; Admati, 1985; Kyle, 1985). The balance struck between the cost constraints experienced by informed traders and the benefits accrued to uninformed traders reflects the informational efficiency of stock prices. Institutional investors serve as informed traders in the market. They are characterized by their structural combination, specialized management, and standardized behavior, which enhance their capability to make investment decisions and gather and dissect information. Additionally, institutional investors have the resources, ability, and motivation to collect more private company information. They effectively leverage their information advantages to actively trade and secure higher returns (Hartzell and Starks, 2003; Ferreira and Laux, 2007). They also exploit price deviations from value via arbitraging activities and restrain the impact of noisy trading. As such, through shareholding and other trading activities, institutional investors can rationally incorporate the private information of individual stocks into the stock prices, thereby increasing their information content (Chakravarty, 2001; Piotroski and Roulstone, 2004; Yang et al. 2021; Kacperczyk et al.， 2021). Additionally, they enhance corporate information transparency. There is ample evidence that institutional investors play a crucial part in corporate governance and mitigating agency problems by, among other things, curtailing management's opportunistic behavior (An and Zhang, 2013; Callen and Fang, 2013). This, in turn, improves corporate information transparency and expedites the incorporation of information into share prices.

Second, it worthies noting that, according to the Limited Attention Theory, the first stage of external information entering the decision-making process is the attention paid to this information. It contends that attention is scarce and costly (Barber and Odean, 2008), and an abundance of information tends to result in attention deficits. In the capital market, due to cognitive and time limitations, investors are unlikely to analyze and absorb all market information. They are prone to making behavioral adjustments based on the information that catches their attention (Gupta-Mukherjee and Pareek, 2020; Hendershott et al., 2022). Furthermore, investors' information processing abilities are imperfect, and competing information often leads to a distraction in their attention allocation, resulting in underreaction to the targeted information (Barber and Odean, 2008; Corwin and Coughenour, 2008; Peng and Xiong, 2006; Dellavigna and Pollet, 2009). A key challenge in the field of investor attention has been the struggle to find an appropriate metric for measuring attention. Kempf et al. (2017) developed an exogenous "distraction" metric by analyzing interactions between stocks in different sectors within an institutional investor's portfolio. They suggest that when an extreme return shock occurs in an unrelated sector within institutional investors' portfolios, institutional investors divert their attention to unaffected firms, exhibiting "distraction".

Third, taking together the arguments presented above, the impact of institutional investor distraction on stock return synchronicity can be conceptualized through two distinct pathways. On one hand, distraction leads institutional investors to diminish their accumulation of private information. The noise rational expectations equilibrium model posits that investors' motivations to gather information are driven by the balance between the marginal benefit and marginal cost of said information. The market achieves equilibrium when the marginal benefits to informed investors align with the marginal costs. When institutional investors see the marginal benefits of information surpass its marginal cost, they're inclined to gather private data (Grossman and Stiglitz, 1980). Conversely, when the cost of information escalates, the informational efficiency of stock prices is lowered (Verrecchia, 1982). The necessity of investor attention allocation among information and other activities arises due to resource and capacity constraints. When institutional investors' attention is consumed by exogenous shocks in unrelated industries within their portfolio, it means they can dedicate less attention to collecting firm-specific private information, thus increasing their opportunity cost. This elevation in opportunity cost diminishes the marginal returns from private information, lowering institutional investors' drive to obtain such private information (Admati, 1985; Kacperczyk et al., 2016). On the other hand, distraction causes institutional investors to lessen their monitoring of the company (Kempf et al., 2017), which impacts the synchronization of share prices. When attention becomes limited, institutional investors shift their focus. In instances of extreme return shocks within a portfolio, institutional investors tend to concentrate more on that specific sector due to biases like significance bias (SB). This heightened focus often results in a dilution of attention towards other companies within the portfolio (Barber and Odean, 2008; Hirshleifer et al., 2009). In line with principal-agent theory, when external oversight weakens, managers may exploit this lapse to advance their personal interests. They may opt to decrease corporate disclosure, leveraging the temporary reduction in institutional investor oversight if alternative monitors such as the board of directors fail to promptly fill the gap (Xue et al., 2020; Liu et al., 2020) in order to conceal opportunistic behaviors.

Therefore, this paper suggests the hypothesis that when institutional investors are distracted, they decrease their efforts to seek private information about firms and to monitor them. This decrease in attention leads to a decline in the market's informational efficiency and slows down the speed at which stock prices incorporate private information about firms.

Meanwhile, regarding stock return synchronicity, Roll (1988) defines it as the ratio of the variance of the correlated portion of market returns to the total variance, with influence from the residual term. This residual term comprises both private company information and noise, offering two explanations for return synchronicity: "information efficiency" and "irrational behavior." The former explanation posits that stock return synchronicity primarily stems from firms' private information. It suggests that a reduction in private information expands the portion of stock price variance linked to the market rate of return within the total variance, thereby enhancing stock return synchronicity (Morck et al., 2000; Durnev et al., 2004; Jin and Myers, 2006; Gul et al., 2010). By contrast, the latter proposes that the primary contributors to stock return synchronicity are noise and irrational factors disconnected from fundamentals. It argues that reducing private information in stock prices elevates the proportion of noise and the variance within the entire residual term, resulting in a decline in stock return synchronicity (West , 1988; De Long et al., 1989). Hence, the distraction of institutional investors results in a reduction of private information embedded in stock prices. Under the premise of "information efficiency," a decline in private information augments stock return synchronicity; however, under the "irrational behavior" paradigm, noise assumes a significant role, causing a decline in stock return synchronicity with an increase in noise. Consequently, this paper proposes two competing hypotheses:

H1a: (Information Efficiency) *All else being equal, the co-movement of stock returns are greater for those stocks with more distracted institutional investors.*

H1b: (Irrational Behaviour) *All else being equal, the co-movement of stock returns are less for those stocks with more distracted institutional investors.*

3. DATA AND VARIABLES

3.1 Data

Our data come from China Stock Market & Accounting Research Database (CSMAR) and the Chinese Research Data Service Platform (CNRDS). We start with all Chinese A-share listed firms from 2003 to 2022. We obtain data on equity holdings for institutional investors from CNRDS to estimate our key variable, institutional investor distraction. Since public equity funds disclose detailed equity holdings on a semi-annual basis, we also obtain financial data and trading data from CSMAR to measure firm characteristics and stock return synchronicity. Following the literature, we exclude financial firms from our empirical analysis since they are fundamentally different from non-financial firms. We also exclude those firms with ST status, or firms with a listing history of less than 6 months. We finally remove those firm-year observations with insufficient information on variables of our interest. This filtering procedure yields a total of 52,364 firm-year observations for … unique firms. To mitigate the impact of outliers, all continuous variables are winsorized at the 1st and 99th percentiles.

3.2 Stock return synchronicity

Following Ang et al. (2006) and Chue et al. (2019), we construct the four daily factors –market factor (MKT), size factor (SMB), value factor (HML), and momentum factor (UMD) – using all Chinese A-share stocks. We then calculate stock return synchronicity of each individual stock using R^2 estimated from the following Carhart (1997) four-factor model:

$$r_{i,d} - r_d = \beta_0 + \beta_{mkt,i} MKT_d + \beta_{HML,i} HML_d + \beta_{SMB,t} SMB_d + \beta_{UMD,i} UMD_d + \varepsilon_{i,d} \quad \textbf{(1)}$$

where r_d is the risk-free rate. To alleviate potential distortions caused by significant skewness and kurtosis, we follow Roll (1988), Morck et al. (2000), and Xu et al. (2013), by transforming the original R^2 into ***Syn*** to measure the stock return synchronicity of individual stock i at the end of the time interval h using the following Equation (2):

$$Syn_{i,h} = \ln\left(\frac{R^2_{i,h}}{1 - R^2_{i,h}}\right) \quad \textbf{(2)}$$

Using equal weighting and value weighting by market value of each stock, we obtain two stock return synchronicity measures: value weighted stock return synchronicity using market capitalization (**Syn_vw**), and equally-weighted stock return synchronicity (**Syn_ew**). A higher value of stock return synchronicity using either measure corresponds to a great extent of stock return synchronicity between individual stock and the overall market.

3.3 Institutional investor distraction

Following Kempf et al. (2017) and Liu et al. (2020), we define $D_{i,h}$ as institutional investor distraction for firm ***i*** over the time interval ***h***, measured as follows:

$$D_{i,h} = \sum_{f \in F_{h-1}} \sum_{IND \neq IND_i} W_{f,i,h-1} \times W_{f,h-1}^{IND} \times IS_h^{IND} \quad \textbf{(3)}$$

where f denotes institutional investor, IND denotes industry, IND_i denotes the industry to which firm i belongs, and F denotes the set of all institutional investors which have equity holding in firm i. More Specifically, $W_{f,i,h-1}$ represents the degree to which institutional investor f prioritizes firm i over the time period $h-1$ calculated as follows:

$$W_{f,i,h-1} = \frac{QPFweight_{f,i,h-1} + QPercOwn_{f,i,h\text{-}1}}{\sum_{f \in F_{h-1}} \left(QPFweight_{f,i,h-1} + QPercOwn_{f,i,h-1} \right)} \quad \textbf{(4)}$$

where $PFweight_{f,i,h-1}$ denotes the weight of firm i in institutional investor f's portfolio in the period $h-1$. We sort the $PFweight_{f,i,h-1}$ value of all firms held by the same institutional investor f into quintiles and then define $QPFweight_{f,i,h-1}$ as the ranking from 1 for the lowest fifth to 5 for the highest fifth of $PFweight_{f,i,h-1}$. Similarly, $PercOwn_{f,i,h-1}$ denotes the proportion of shares outstanding held by institutional investor f and $QPercOwn_{f,i,h-1}$ represents the sorted quintile based on $PercOwn_{f,i,h-1}$ for all firms held by institutional investor f from 1 for the lowest 20% all the way up to 5 for the highest 20% of $PercOwn_{f,i,h-1}$.

All institutional holdings are normalized. $W_{f,h-1}^{IND}$ represents the degree of attention received from institutional investor f to the industry IND, measured as the proportion of the market capitalization of all shareholdings into the industry IND to the market value of all shareholdings in institutional investor f's entire portfolio across all industries.

Finally, IS_h^{IND} represents the exogenous shock to the industry IND during the half-year interval h. Consistent with Kempf et al. (2017), industry shocks are delineated as extreme return scenarios occurring each quarter. IS_h^{IND} equals 1 if an industry's return becomes the highest or lowest in the market for that quarter, indicating that extreme return shocks stemming from the industry *IND* have captured the attention of institutional investors, leading them to allocate less attention to the firm, and 0 otherwise.

3.4 Control variables

Following Hutton et al. (2009), we include a number of firm characteristics and macroeconomic conditions into our multivariate regression analysis, including firm size (*Size*), gearing ratio (*Lev*), return on total assets (*ROA*), book-to-market ratio (*BM*), equity concentration (*Top*), firm age (*Age*), have a big four auditor or not (*Bigfour*), institutional ownership (*Ins*), standard deviation of volatility (*Std*), average daily turnover (*TurnAvg*), skewness (*Skew*), kurtosis (*Kurt*), and legal environment index (*InvProct*). Detailed definitions of the remaining variables are provided in Appendix A of the table. Following Chue et al. (2019), we also include economic growth (*GDP*) and illiquidity (*Illiq*). *GDP* is the growth rate of real GDP since Brockman et al. (2010) documented evidence that time variation in stock return synchronicity is related to general economic activities. *Illiq* is the average daily Amihud (2002) illiquidity over a month, measured as the absolute daily return on the stock divided by its daily dollar volume using Equation (5). A higher value of *Illiq* indicates greater stock liquidity.

$$Illiq_{i,h} = \frac{1}{Days_{i,h}} \sum_{t=1}^{Days_{i,h}} \frac{|R_{i,h,d}|}{VOLD_{i,h,d}} \tag{5}$$

where $Days_{i,h}$ represents the total number of trading days during each half-year period h; $R_{i,h,d}$ denotes daily individual stock return; $VOLD_{i,h,d}$ indexes the daily volume of an individual stock.

4. EMPIRICAL RESULTS

4.1 Descriptive statistics

Table 1 presents descriptive statistics for the primary variables used in our empirical analysis. The average institutional investor distraction (*D*) for our sample is 0.042. With a minimum of 0 and a maximum of 0.392, *D* seems to have great variation across firms and years, with a standard deviation of 0.053. The mean values of two measures for stock return synchronicity *Syn_vw* and *Syn_ew* stand at -0.452 and -0.420, respectively. With the same standard deviation of 0.872, they seem to indicate that variations in stock return synchronicity is not trivial. As for the control variables, the average firm size (*Size*) is 15.819, the average leverage ratio (*Lev*) is 0.432, and the average return on assets (*ROA*) is 0.067.

***** Insert Table 1 about here *****

Table 2 presents Pearson correlation coefficients for the main variables. First, we find that two measures of stock return synchronicity are positively correlated since their Pearson correlation is 0.987 and significant at the 10% level. Second, stock return synchronicity (*Syn_vw* and *Syn_ew*) and the institutional investor distraction (*D*) are positively correlated too. The corresponding Pearson coefficients are 0.111 and 0.112, respectively, both significant at the 10% level. These unconditional correlation results provide preliminary empirical support for our H1a hypothesis that stock returns are more synchronous when institutional investors are distracted. However, we should look into this relation more carefully and examine whether this positive relation continues to stand after we take account of firm characteristics and market conditions documented in the empirical literature using multivariate regression analysis. Third, except for the correlation between two measures for stock return synchronicity, and the correlation between skewness and kurtosis, all the other correlation coefficients are less than 0.6, which implies that multicollinearity may not be a serious problem for our multivariate analysis.

***** Insert Table 2 about here *****

4.2 Baseline results

Table 3 present the main findings from the baseline regression analysis. We examine the relationship between institutional investor distraction and stock return synchronicity by estimating the following multivariate regression model:

$$Syn_{i,h} = \beta_0 + \beta_1 D_{i,h-1} + \beta_2 Controls_{i,h-1} + \sum Yearhalf + \sum Firm + \varepsilon_{i,h} \qquad \textbf{(6)}$$

where *Syn* is the stock return synchronicity, measured as *Syn_vw* and *Syn_ew*; *D* represents institutional investor distraction for firm *i* over the time interval *h*; *Controls* denotes a set of control variables introduced in Section 3.4. To mitigate potential confounding effects, all regressions control for year fixed effects and firm fixed effects. *t*-statistics are calculated using standard errors clustered at the firm level. Table 3 presents regression results.

***** Insert Table 3 about here *****

Regression results in Table 3 reveal a positive relation between stock return synchronicity and institutional investor distraction. Consistent with unconditional correlation analysis, we find that the coefficients on institutional investor distraction (*D*) are positive and significant for Columns (1) and (2) which do not include control variables. More importantly, even after controlling for these well-documented determinants of stock return synchronicity, we find strong and robust evidence of a positive relation between stock return synchronicity and institutional investor distraction. More specifically, the coefficients on institutional investor distraction (*D*) are 0.222 (t-stat = 2.908) for the *Syn_vw* regression in Column (3) and 0.304 (t-stat = 0.379) for the *Syn_ew* regression in Column (4), respectively. This positive relation is not only statistically significant but also economically meaning. On average, a one-standard-deviation increase in institutional investor distraction leads to an increase of 0.222 in *Syn_vw* and 0.304 in *Syn_ew*. Given that the standard deviation of these two measures for stock return synchronicity is 0.872, this difference is non-trivial and thus economically significant. These findings are consistent with **H1a** that stock return synchronicity tends to increase when institutional investors are distracted.

We also find that stock return synchronicity are positive correlated with firm size (*Size*), firm age (*Age*), firm profitability (*ROA*), book-to-market ratio (*BM*), and turnover ratio (*TurnAvg*), while negatively correlated with firm leverage (*Lev*), stock illiquidity (*Illiq*), and institutional ownership (*Ins*). These results are broadly consistent with previous studies such as Hutton et al. (2009).

4.3 Robustness Checks

4.3.1 Alternative measures for stock return synchronicity

We rely on the Carhart (1997) four-factor model in our baseline analysis to measure stock return synchronicity. To explore whether our baseline results are sensitive to model specifications, we use the other two commonly used factor models instead to measure stock return synchronicity. More specifically, we first use the original Fama-French three-factor model and generate two measures for stock return synchronicity: *syn_fama_vw* and *syn_fama_ew*. We then use the recently-developed China's three-factor model due to Liu et al. (2019) and generate another two measures for stock return synchronicity: *syn_liu_vw* and *syn_liu_ew*. Using these alternative measures for stock return synchronicity, we repeat our baseline analysis.

***** Insert Table 4 about here *****

Regression results presented in Table 4 continue to show a positive relation between stock return synchronicity and institutional investor distraction. Controlling for those variable used in our baseline analysis, the coefficients on institutional investor distraction (*D*) are 0.225 (t-stat = 2.939) for the *syn_fama_vw* regression in column (1), 0.324 (t-stat = 4.237) for the *syn_fama_ew* regression in column (2), 0.204 (t-stat = 2.625) for the *syn_liu_vw* regression in column (3), and 0.284 (t-stat = 3.680) for the *syn_liu_ew* regression in column (4), respectively. These findings suggest that our main findings are robust to alternative measure of stock return synchronicity.

4.3.2 Alternative measures for institutional investor distraction

Our baseline measure for institutional investor distraction considers shareholding information for all institutional investors. The implicit assumption under this variable measurement is that all institutional investors are equally relevant for the distraction hypothesis. This is probably not the case among the universe of institutional investors. Institutional investors can be classified into two broad categories: passive and active investors. The former passive investors typically encompass index funds such as ETFs, which construct their portfolios based on the underlying index they track. Given that their trading strategies is not to trade too often based upon private information (Gillan and Starks, 2000; Parrino et al., 2003), and that their diversified nature of shareholdings into portfolio firms limits their incentives and capacity to gather private information and to actively monitor corporate governance, due to constrained resources and monitoring capabilities, passive institutional investors, it is reasonable to believe that passive institutional investors are not as sensitive as those active institutional investors to firm-specific news. The implication is that passive institutional investors are not very relevant for the distraction hypothesis which involves monitoring and information production.

To complement our baseline analysis, we focus on active institutional investors instead to construct a refined measure for institutional investor distraction (*D_ac*). Using this alternative measure for institutional investor distraction, we repeat our baseline regression analysis and regression results presented in Table 5 continue to show a positive relation between stock return synchronicity and institutional investor distraction. The coefficients on institutional investor distraction (*D_ac*) are 0.262 (t-stat = 3.094) for the *Syn_vw* regression in Column (1) and 0.318 (t-stat = 0.378) for the *Syn_ew* regression in Column (2), respectively, which appear to be greater than the corresponding coefficients shown in the Table 3 regressions. This difference is probably reasonable given that the distraction effect due to active institutional investors should be more pronounced. This robustness checks not only show that our main results are not sensitive to alternative measures of institutional investor distraction but also confirm that the effect of institutional investor distraction on stock return synchronicity is more likely due to active institutional investors.

***** Insert Table 5 about here *****

4.3.3 Subsample analysis

Institutional investors in the Chinese stock market have experienced a significant growth since 2007. Given the sample size before 2007 is relatively smaller, one potential concern over our main findings is sample selection bias. To examine whether our baseline results are not driven by sample selection bias, we perform subsample analysis by focusing on the 2007-2022 period. Regression results presented in Table 6 suggest that our main findings are very unlikely driven by sample selection bias since the coefficients on institutional investor distraction (*D*) are positive and significant at the 1% level in all six regression specifications, including our two baseline measures for stock return synchronicity, and four alternative measures for stock return synchronicity. These additional findings lend strong empirical support that sample selection bias is unlikely drive our main findings.

***** Insert Table 6 about here *****

5. POTENTIAL MECHANISMS

5.1 Information transparency

Previous studies have shown that institutional investors mitigate stock return synchronicity by enhancing information quality. If institutional investors can facilitate private information acquisition, the positive relation between institutional investor distraction on stock return synchronicity should be more pronounced for firms characterized by a poor quality of information disclosure.

To explore whether information quality is a potential mechanism through which institutional investors distraction increases stock return synchronicity, we focus on two traditional measures for accounting information quality: accrual earnings management and real activities earnings management. Using the median of accrual earnings management (AEM) in each industry-year cohort, we divide our sample into two groups: those firm-year observations below the median belong to the high information quality group (HQ) while those above the median are classified into the low information quality group (LQ). Likewise, using the median of real activities earnings management (AEM) in each industry-year cohort, those observations below the median belong to the high information quality group (HQ) while the rest go to the low information quality group (LQ). Table 7 presents results for the *Syn_vw* regressions in Panel A and for the *Syn_ew* regressions in Panel B using these two very different groups.

***** Insert Table 7 about here *****

Regression results are very much consistent with our expectation. In Panel A, the coefficient on institutional investor distraction (*D*) is significantly positive only for the LQ group. In Panel B, although the coefficient on institutional investor distraction (*D*) are positive for both groups, the coefficients for the LQ group is greater than the one for the HQ group. These findings suggest that institutional investor distraction affects stock return synchronicity through accounting information quality.

We also use the number of financial analysts, a widely accepted measure of external informational environment to measure information transparency. All firms are categorized into two groups using the median number of analyst coverage (Analyst) in each industry-year cohort: those firm-year observations above the median belong to the high external information environment group (HA) while those below the median go to the low external information environment group (LA). Table 8 presents regression results using these two groups.

***** Insert Table 8 about here *****

The Table 8 results are also consistent with our expectation, since the positive relation between institutional investor distraction and stock return synchronicity is significantly positive only for the LA group in columns (2) and (4). These findings imply that institutional investor distraction appears to increase stock return synchronicity through a firm's external information environment.

5.2 The moderating effect of investor sentiment

Several studies have highlighted that the relationship between stock return synchronicity and stock price informativeness is non-linear. Given that changes in stock price can be theoretically rationalized as firm-specific private information (Morck et al., 2000; Jin and Myers, 2006) and noise (De Long et al. 1990; Brogaard et al., 2022), stock prices in scenarios with low information transparency are more driven by noise. To the extent that institutional investor distraction affects stock return synchronicity through information acquisition, this effect should be more pronounced when investor sentiment is low.

To operationalize this idea, we construct the CICSI index, which is equivalent to the BW index in the US due to Baker and Wurgler (2006), using the similar first principal components of six indicators: closed-end fund discount rate, stock turnover rate, number of IPO companies, average return on the first day of IPO listing, equity financing ratio, and dividend premium. Using CICSI which measures aggregate investor sentiment over time, we divide our sample into two groups based on the median of the CICSI index. Those firm-year observations corresponding to an CICSI value less than the sample median belong to the low investor sentiment group (LS) while those with CICSI greater than the median go to the high investor sentiment group (HS). Table 9 presents regression results using these two subsamples.

***** Insert Table 9 about here *****

Consistent with our conjecture, we find that the positive relation between stock return synchronicity and institutional investor distraction concentrates only in the LS group. The coefficients on institutional investor distraction (*D*) are 0.391 (t-stat = 4.071) for the *Syn_vw* regression in Column (2) and 0.376 (t-stat = 3.900) for the *Syn_ew* regression in Column (4). These findings suggest that investor sentiment plays an important moderating role on the relationship between stock return synchronicity and institutional investor distraction.

6. FURTHER TESTS

6.1 The types of institutional investor

Different types of institutional investors exert different efforts in supervising companies (Chen et al., 2007). Pressure-sensitive institutional investors have a close business relationship with listed firms and benefit from establishing strong business relationships or potential cooperative relationships with listed firms (Brickley et al., 1988). Pressure-sensitive institutional may be more focused on short-term interests, making it difficult for them to perform corporate governance functions. The pressure-resistant institutional investors only have an investment relationship with listed firms, which gives them sufficient incentives to supervise corporate management.

According to Brickley et al. (1988), we classify institutional investors based on whether they have business relations with investee companies. We define pressure-sensitive institutional investors as insurance companies, trust companies, financial products of securities brokerages, and financial companies, pressure-resistant institutional investors as funds, social security funds, QFII, enterprise annuity., other types of institutional investors as those not mentioned. We construct three distraction indicators *D1*, *D2*, and *D3*. *D1* takes the value of 1 if a firms has pressure-sensitive institutional investors and 0 otherwise. Similarly, *D2* is equal to 1 if a firm has pressure-resistant institutional investors and 0 otherwise, and *D3* equals 1 if a firm has the other types of institutional investors in addition to pressure-sensitive institutional investors and pressure-resistant institutional investors defined above, and 0 otherwise.

***** Insert Table 10 about here *****

Regression results presented in Table 10 reveal that the positive relation between stock return synchronicity and institutional investor distraction is only evidence for pressure-resistant institutional investors since the coefficients on D2 are 0.290 (t-stat = 3.576) for t the *Syn_vw* regression in column (1) and 0.393 (t-stat = 4.858) for the *Syn_ew* regression in column (2). In sharp contrast, however, the coefficients on D1 or D3 are insignificant in these two regressions. These contrasting findings suggest that our main findings are concentrated on those pressure-resistant institutional investors who should make the difference.

6.2 Financial analysts

Our empirical analysis suggests that institutional investor distraction leads to an increase in stock return synchronicity, which implies less firm-specific information being incorporated into stock prices. The unexpected decline in stock price informativeness should create incentives for other market participants to obtain firm-specific private information. We focus on financial analysts, an important source of information production, and examine whether more financial analysts are attracted, whether external information environment tends to improve. We define *Analyst* as a proxy of analyst attention measured as the natural logarithm of the number of financial analysts following a firm. We also look at analyst forecast accuracy (*Accuracy*), and analyst forecast divergence (*FDispersion*). Following Duru and Reeb's (2002), we measure analyst forecast accuracy as the absolute difference between analysts' forecasted EPS and the actual EPS in the current period, divided by stock price at the beginning of the forecast period. We also measure forecast divergence by the standard deviation of analyst forecast errors. Table 11 presents regression results.

***** Insert Table 11 about here *****

First, we document evidence of a positive relation between institutional investor distraction and the number of financial analysts following since the coefficient on institutional investor distraction (*D*) for the column (1) regression is 0.536 (t-stat = 6.964). Second, the negative coefficient on institutional investor distraction for the *Accuracy* regression in column (2) and the positive coefficient on institutional investor distraction for the *FDispersion* regression in column (3) appears to imply that analyst forecasts become less accurate after the distraction event. This result is not too surprising – stock prices become less informative due to institutional investor distraction, leading to a noisier information environment for financial analysts to make earnings forecasts.

7. CONCLUSIONS

Our paper concentrates on the impact of institutional investors' distraction on stock return synchronicity in China, using data from Chinese A-share listed companies between 2003 and 2022. For our main regression, we use the daily Carhart 4-factor model to establish indicators for stock return synchronicity. In our robustness test, we apply both the Fama-French 3-factor model and the Liu 3-factor model. To gauge the level of distraction among institutional investors, we employ extreme return shocks in the industry. We explore how such distractions influence the institutional investors' private information collection and company surveillance behaviors, and consequently, their effect on stock return synchronicity.

The key findings of this research are: Firstly, distraction among institutional investors substantially enhances return synchronicity, reinforcing the concept of 'information efficiency' as a fundamental driver of return synchronicity. This outcome remains notable even after actively engaging institutional investors are screened out and the influence of passive institutional investors is excluded. Secondly, better-quality information internally and externally lessens the effect of institutional investor distraction on return synchronicity, indicating that information acts as the inherent process through which distraction among institutional investors leads to return synchronicity. Thirdly, the mood of investors influences the impact of institutional investor distraction on stock return synchronicity. Upon considering varying levels of investor sentiment, we discover that the increased return synchronicity due to distraction only occurs when investor sentiment is low. This reaffirms the concept of 'information efficiency', as it highlights that the content of information is richer when sentiment is lower. We also discover that the negative impact of distraction on information efficiency, evidenced by a rise in return synchronicity, is largely caused by pressure-resistant investors rather than other types. This validates that various types of investors hold different sway over information disclosure and corporate monitoring. Additionally, our findings indicate that distraction influences the trading behaviour of analysts in the Chinese A-share market. As a result of the reduced information content of stock prices, there's a decrease in the precision of analysts' predictions and an increase in the divergence of their forecasts.

Our results hold significant implications for policy makers and those overseeing the stock market in China. Firstly, companies should use the skills and resources of institutional investors to improve governance and information quality. Secondly, institutional investors should rationally distribute assets and supervise corporate governance. They should also diversify investments and establish risk warnings to respond to market shocks. Thirdly, policies should reinforce market systems, create relevant laws and utilize the capital market's resource distribution function. This requires considering the impact of different institutional investors and improving share prices' information value. Lastly, regulators should foster a variety of investment entities, oversee large institutional investors' holdings and enhance the market's information environment. Information disclosure by listed companies should be standardized, market reform should be progressed and penalties and rewards should be applied to encourage positive interactions between companies, institutional investors and other market participants.

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Table 1. Descriptive Statistics

Table 1 presents descriptive statistics of main variables used in our empirical tests. Our sample consists of 52,364 observations over the 2003-2022 period. All continuous variables are winsorized at the 1 % and 99 % levels. Appendix A provides a full list of variables with their detailed definitions.

Variable	N	Mean	SD	Min	Median	Max
Syn_vw	52,364	-0.452	0.872	-4.142	-0.400	2.163
Syn_ew	52,364	-0.420	0.872	-3.824	-0.366	2.263
D	52,364	0.042	0.053	0.000	0.024	0.392
Size	52,364	15.819	1.037	12.894	15.709	19.584
Lev	52,364	0.432	0.200	0.027	0.433	0.887
ROA	52,364	0.067	0.076	-0.709	0.059	0.409
BM	52,364	0.633	0.249	0.064	0.637	1.286
Illiq	52,364	0.093	0.465	0.001	0.031	11.149
Top	52,364	0.361	0.154	0.083	0.343	0.848
Age	52,364	2.074	0.806	0.000	2.197	3.401
Bigfour	52,364	0.082	0.274	0.000	0.000	1.000
Ins	52,364	0.505	0.250	0.003	0.539	0.984
Std	52,364	0.030	0.012	0.010	0.029	0.237
TurnAvg	52,364	2.733	2.321	0.137	2.040	17.620
Skew	52,364	0.178	0.995	-2.110	0.068	13.080
Kurt	52,364	5.882	9.752	1.852	4.446	185.689
GDP	52,364	0.101	0.055	-0.288	0.099	0.280
InvProct	52,364	9.846	3.828	0.473	10.004	18.974

Table 2. Correlation Analysis

Table 2 reports the Pearson correlations for all variables used in our main empirical tests. ***, **, * indicate coefficients statistically different from zero at the 1 %, 5 %, and 10 % levels (two-tailed), respectively. All continuous variables are winsorized at the 1 % and 99 % levels. Appendix A provides a full list of variables with their detailed definitions.

	1	2	3	4	5	6	7	8	9
1.*Syn_vw*	1								
2.*Syn_ew*	0.987*	1							
3.*D*	0.111*	0.112*	1						
4.*Size*	-0.044*	-0.063*	0.108*	1					
5.*Lev*	0.046*	0.039*	0.059*	0.107*	1				
6.*ROA*	0.025*	0.020*	0.063*	0.235*	-0.067*	1			
7.*BM*	0.081*	0.077*	-0.019*	-0.155*	0.418*	-0.170*	1		
8.*Illiq*	0.035*	0.038*	0.014*	-0.136*	-0.050*	0.019*	0.003	1	
9.*Top*	0.037*	0.024*	0.062*	0.133*	0.081*	0.110*	0.191*	0.014*	1
10.*Age*	0.023*	0.006	0.062*	0.285*	0.386*	-0.060*	0.166*	-0.212*	-0.037*
11.*Bigfour*	0.014*	-0.002	0.064*	0.308*	0.106*	0.052*	0.158*	-0.032*	0.145*
12.*Ins*	0.032*	0.015*	0.100*	0.303*	0.231*	0.161*	0.160*	-0.029*	0.504*
13.*Std*	0.123*	0.132*	-0.034*	-0.027*	-0.068*	0.002	-0.285*	0.171*	-0.080*
14.*TurnAvg*	0.091*	0.107*	-0.029*	-0.170*	-0.180*	-0.023*	-0.222*	0.240*	-0.110*
15.*Skew*	-0.055*	-0.051*	-0.049*	-0.008*	-0.050*	0.082*	-0.003	0.169*	0.022*
16.*Kurt*	-0.014*	-0.011*	-0.013*	-0.051*	-0.060*	0.041*	0.062*	0.115*	0.016*
17.*GDP*	0.148*	0.141*	0.045*	-0.214*	0.074*	0.085*	0.071*	0.034*	0.074*
18.*InvProct*	-0.266*	-0.261*	-0.217*	0.282*	-0.117*	-0.012*	-0.115*	-0.047*	-0.095*

Table 2. Correlation Analysis Continued

	10	11	12	13	14	15	16	17	18
10.*Age*	1								
11.*Bigfour*	0.115*	1							
12.*Ins*	0.209*	0.241*	1						
13.*Std*	-0.257*	-0.088*	-0.093*	1					
14.*TurnAvg*	-0.443*	-0.129*	-0.269*	0.589*	1				
15.*Skew*	-0.246*	0.017*	0.015*	0.471*	0.200*	1			
16.*Kurt*	-0.229*	0.003	-0.005	0.464*	0.139*	0.853*	1		
17.*GDP*	-0.080*	0.001	0.138*	-0.002	-0.033*	0.061*	0.034*	1	
18.*InvProct*	-0.017*	0.058*	-0.171*	0.030*	0.004	0.056*	0.015*	-0.397*	1

Table 3. Institutional Investor Distraction and Stock Return Synchronicity

Table 3 presents regression results on the relationship between institutional investor distraction and stock return synchronicity. The dependent variables are value-weighted stock return synchronicity (*Syn_vw*) for the column (1) and column (3) regressions while equally weighted stock return synchronicity for the column (2) and column (4) regressions. The independent variable is a measure of firm-level shareholder distraction (*D*), defined in Equation (3). Firm fixed effects and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using standard errors clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix A provides a full list of variables with their detailed definitions.

	(1)	(2)	(3)	(4)
	Syn_vw	*Syn_ew*	*Syn_vw*	*Syn_ew*
D	1.822***	1.832***	0.222***	0.304***
	(26.488)	(26.271)	(2.908)	(3.979)
Size			0.119***	0.105***
			(9.555)	(8.668)
Lev			-0.229***	-0.229***
			(-5.613)	(-5.727)
ROA			0.290***	0.353***
			(5.153)	(6.395)
BM			0.406***	0.451***
			(11.614)	(13.041)
Illiq			-0.015**	-0.017**
			(-1.976)	(-2.150)
Top			-0.069	-0.107
			(-1.007)	(-1.576)
Age			0.041**	0.043**
			(2.110)	(2.303)
Bigfour			0.015	0.003
			(0.474)	(0.092)
Ins			-0.707***	-0.671***
			(-15.769)	(-15.326)
Std			2.713***	2.456***
			(4.194)	(3.775)
TurnAvg			0.019***	0.021***
			(7.257)	(7.809)
Skew			-0.040***	-0.035***
			(-5.303)	(-4.628)
Kurt			0.002**	0.001*
			(2.026)	(1.681)
GDP			0.081	0.054
			(0.704)	(0.476)
InvProct			-0.003	-0.002
			(-0.750)	(-0.614)
Constant	-0.528***	-0.496***	-2.197***	-2.033***
	(-68.874)	(-64.938)	(-11.500)	(-10.783)
Year Fixed Effects	No	No	Yes	Yes
Firm Fixed Effects	No	No	Yes	Yes

Observations	52364	52364	52364	52364
Adj. R^2	0.012	0.013	0.413	0.413

Table 4. Alternative Dependent Variables

Table 4 presents regression results using alternative measures for dependent variables. The dependent variable in column (1) is value-weighted stock return synchronicity (*syn_fama_vw*) using the Fam-French three-factor model. The dependent variable in column (2) is equally weighted stock return synchronicity (*syn_fama_vw*) using the Fama-French three-factor model. The dependent variable in column (3) is value-weighted stock return synchronicity (*syn_liu_vw*) using the China's three-factor model due to Liu et al. (2019). The dependent variable in column (4) is equally-weighted stock return synchronicity (*syn_liu_vw*) using the China's three-factor model due to Liu et al. (2019). The independent variable of our interest is a measure of firm-level shareholder distraction (*D*), defined in Equation (3). The control variables are the same as those used in the Table 3 regressions. Firm fixed effects and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using standard errors clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix A provides a full list of variables with their detailed definitions.

	(1)	(2)	(3)	(4)
	syn_fama_vw	*syn_fama_ew*	*syn_liu_vw*	*syn_liu_ew*
D	0.225***	0.324***	0.204***	0.284***
	(2.939)	(4.237)	(2.625)	(3.680)
Constant	-2.130***	-1.914***	-2.218***	-2.080***
	(-11.122)	(-10.022)	(-11.492)	(-10.907)
Baseline Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observations	52336	52313	52326	52314
Adj. R^2	0.423	0.425	0.421	0.425

Table 5. Alternative Independent Variable

Table 5 presents regression results using alternative measures for institutional investor distraction. The dependent variables are value-weighted stock return synchronicity (*Syn_vw*) in column (1) and equally-weighted stock return synchronicity (*Syn_vw*) in column (2). The independent variable is the institutional investor distraction (*D_ac*) for active institutional investors. The control variables are the same as those used in the Table 3 regressions. Firm fixed effects and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using standard errors clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix A provides a full list of variables with their detailed definitions.

	(1)	(2)
	Syn_vw	*Syn_ew*
D_ac	0.262***	0.318***
	(3.094)	(3.789)
Constant	-1.963***	-1.789***
	(-8.880)	(-8.058)
Baseline Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Firm Fixed Effects	Yes	Yes
Observations	51061	51061
Adj. R^2	0.417	0.417

Table 6. Alternative sample Period

Table 6 presents regression results using alternative sample period. More specifically, we exclude observations before 2007. The dependent variables for columns (1) – (6) are valued weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_vw*), equally-weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_ew*), value-weighted stock return synchronicity using the Fama-French three-factor model (*syn_fama_vw*), equally-weighted stock return synchronicity using the Fama-French three-factor model (*syn_fama_ew*), value-weighted stock return synchronicity using the China's three factor model (*syn_liu_vw*) due to Liu et al. (2019), equally-weighted stock return synchronicity using the China's three-factor model (*syn_liu_ew*) due to Liu et al. (2019). The independent variable is the institutional investor distraction (*D*). The control variables are the same as those used in Table 3. Firm fixed effects and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using standard errors clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix A provides a full list of variables with their detailed definitions.

	(1)	(2)	(3)	(4)	(5)	(6)
	Syn_vw	*Syn_ew*	*syn_fama_vw*	*syn_fama_ew*	*syn_liu_vw*	*syn_liu_ew*
D	0.222***	0.301***	0.229***	0.326***	0.213**	0.288***
	(2.691)	(3.645)	(2.774)	(3.943)	(2.553)	(3.461)
Constant	-1.855***	-1.672***	-1.749***	-1.499***	-1.860***	-1.711***
	(-9.241)	(-8.521)	(-8.700)	(-7.547)	(-9.175)	(-8.648)
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	49279	49279	49252	49229	49245	49230
Adj. R^2	0.424	0.424	0.434	0.436	0.431	0.436

Table 7. Mechanism Analysis: Disclosure Quality

Table 7 presents regression results for disclosure quality as a potential mechanism through which institutional investor distraction affects stock return synchronicity. The dependent variables are valued weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_vw*) for Panel A while equally-weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_ew*) for Panel B. The independent variable of our interest for all regression is institutional investor distraction (*D*). Using the median of accrual earnings management (AEM) in each industry-year cohort, those observations below the median belong to the high information quality group (HQ) in column (1) while those observations above the median are classified into the low information quality group (LQ) in column (2). Using the median of real earnings management (AEM) in each industry-year cohort, those observations below the median belong to the high information quality group (HQ) in column (3) while those observations above the median are classified into the low information quality group (LQ) in column (4). The control variables are the same as those used in the Table 3 regressions. Firm fixed effects and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using standard errors clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix A provides a full list of variables with their detailed definitions.

Panel A： *Syn_vw*				
	(1)	(2)	(3)	(4)
	AEM		*REM*	
	HQ	LQ	HQ	LQ
D	0.179	0.282***	0.157	0.288**
	(1.583)	(2.599)	(1.374)	(2.484)
Size	0.118***	0.122***	0.156***	0.099***
	(6.894)	(8.343)	(8.790)	(5.661)
Lev	-0.148***	-0.265***	-0.241***	-0.240***
	(-2.702)	(-4.944)	(-3.985)	(-4.002)
ROA	0.464***	0.224***	0.135	0.321***
	(4.320)	(3.366)	(1.410)	(4.004)
BM	0.477***	0.355***	0.352***	0.434***
	(10.160)	(8.065)	(6.494)	(8.746)
Illiq	-0.010	-0.030**	-0.086**	-0.177***
	(-0.904)	(-2.519)	(-2.327)	(-3.280)
Top	-0.046	-0.066	-0.066	-0.138
	(-0.492)	(-0.762)	(-0.641)	(-1.507)
Age	0.067***	0.009	0.025	0.036
	(2.597)	(0.358)	(0.763)	(1.161)
Bigfour	-0.004	0.033	-0.004	-0.009
	(-0.103)	(0.838)	(-0.106)	(-0.176)
Ins	-0.698***	-0.684***	-0.794***	-0.611***
	(-11.152)	(-12.235)	(-12.274)	(-9.980)
Std	3.590***	2.726***	4.048***	2.895**
	(3.541)	(3.010)	(3.222)	(2.239)
TurnAvg	0.019***	0.020***	0.018***	0.023***
	(4.919)	(5.528)	(3.937)	(4.993)
Skew	-0.037***	-0.048***	-0.060***	-0.042***
	(-3.528)	(-4.226)	(-5.063)	(-3.334)
Kurt	0.001	0.002*	0.002	-0.003
	(0.774)	(1.874)	(1.093)	(-1.251)
GDP	-0.066	0.186	0.084	0.170
	(-0.399)	(1.241)	(0.481)	(1.040)
InvProct	-0.004	-0.003	-0.008	-0.003
	(-0.809)	(-0.528)	(-1.182)	(-0.574)
Constant	-2.347***	-2.190***	-2.618***	-1.880***
	(-8.826)	(-9.625)	(-9.430)	(-6.807)

Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observations	26034	26330	23913	24217
Adj. R^2	0.421	0.407	0.426	0.401

Panel B：Syn_ew

	(1)	(2)	(3)	(4)
	AEM		*REM*	
	HO	*LO*	*HO*	*LO*
D	0.252**	0.381***	0.286**	0.306***
	(2.226)	(3.488)	(2.524)	(2.607)
Size	0.105***	0.105***	0.131***	0.097***
	(6.302)	(7.328)	(7.835)	(5.509)
Lev	-0.144***	-0.267***	-0.246***	-0.235***
	(-2.684)	(-5.042)	(-4.175)	(-3.974)
ROA	0.534***	0.294***	0.200**	0.373***
	(5.011)	(4.474)	(2.149)	(4.686)
BM	0.513***	0.415***	0.435***	0.445***
	(11.046)	(9.470)	(8.358)	(8.874)
Illiq	-0.010	-0.035***	-0.097**	-0.186***
	(-0.824)	(-2.827)	(-2.348)	(-3.075)
Top	-0.060	-0.126	-0.122	-0.148
	(-0.665)	(-1.471)	(-1.214)	(-1.608)
Age	0.066***	0.014	0.043	0.023
	(2.602)	(0.565)	(1.438)	(0.739)
Bigfour	-0.009	0.017	-0.016	-0.013
	(-0.217)	(0.443)	(-0.401)	(-0.258)
Ins	-0.685***	-0.636***	-0.743***	-0.591***
	(-11.182)	(-11.551)	(-11.763)	(-9.716)
Std	3.349***	2.530***	3.949***	2.757**
	(3.280)	(2.783)	(3.179)	(2.112)
TurnAvg	0.021***	0.021***	0.019***	0.023***
	(5.401)	(5.770)	(4.238)	(5.025)
Skew	-0.033***	-0.039***	-0.052***	-0.041***
	(-3.182)	(-3.494)	(-4.461)	(-3.191)
Kurt	0.001	0.002	0.002	-0.004
	(0.511)	(1.537)	(0.987)	(-1.482)
GDP	-0.106	0.181	0.099	0.109
	(-0.670)	(1.203)	(0.577)	(0.686)
InvProct	-0.004	-0.002	-0.006	-0.004
	(-0.731)	(-0.403)	(-1.038)	(-0.676)
Constant	-2.186***	-1.992***	-2.347***	-1.832***
	(-8.378)	(-8.820)	(-8.766)	(-6.574)
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observations	26034	26330	23913	24217
Adj. R^2	0.421	0.408	0.432	0.396

Table 8. Mechanism Analysis: External Information Environment

Table 8 presents regression results for external information environment as a potential mechanism through which institutional investor distraction affects stock return synchronicity. The dependent variables are valued weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_vw*) and equally-weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_ew*). The independent variable of our interest for all regression is institutional investor distraction (*D*). Using the median number of analyst coverage (*Analyst*) in each industry-year, those observations above the median belong to the high external information environment group (HA) while those observations below the median are classified into the low external information environment group (LA). The control variables are the same as those used in the Table 3 regressions. Firm fixed effects and yearly fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using standard errors clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix A provides a full list of variables with their detailed definitions.

	(1)	(2)	(3)	(4)
	Syn_vw	*Syn_vw*	*Syn_ew*	*Syn_ew*
	HA	*LA*	*HA*	*LA*
D	0.042	0.503***	0.139	0.510***
	(0.389)	(4.274)	(1.272)	(4.307)
Size	0.165***	0.077***	0.138***	0.075***
	(9.647)	(4.087)	(8.286)	(4.036)
Lev	-0.271***	-0.193***	-0.268***	-0.192***
	(-4.618)	(-3.492)	(-4.660)	(-3.484)
ROA	0.122	0.357***	0.205**	0.398***
	(1.403)	(4.684)	(2.378)	(5.315)
BM	0.377***	0.385***	0.445***	0.405***
	(7.407)	(8.167)	(8.977)	(8.547)
Illiq	-0.040***	-0.021**	-0.048***	-0.020*
	(-3.310)	(-2.070)	(-3.867)	(-1.928)
Top	0.034	-0.149	-0.024	-0.170*
	(0.321)	(-1.552)	(-0.238)	(-1.765)
Age	0.083***	-0.012	0.096***	-0.023
	(2.924)	(-0.435)	(3.618)	(-0.848)
Bigfour	0.104***	-0.064	0.068*	-0.048
	(2.817)	(-1.346)	(1.851)	(-1.059)
Ins	-0.883***	-0.537***	-0.844***	-0.529***
	(-15.304)	(-7.994)	(-14.850)	(-7.949)
Std	2.270**	3.142***	2.430**	2.454**
	(2.279)	(3.221)	(2.411)	(2.508)
TurnAvg	0.018***	0.019***	0.019***	0.021***
	(4.199)	(5.158)	(4.557)	(5.617)
Skew	-0.027**	-0.035***	-0.020*	-0.032***
	(-2.468)	(-3.081)	(-1.892)	(-2.808)
Kurt	0.001	0.001	0.000	0.001
	(0.868)	(0.628)	(0.453)	(0.596)
GDP	0.232	0.058	0.227	0.014
	(1.350)	(0.359)	(1.340)	(0.087)
InvProct	0.004	-0.005	0.003	-0.003
	(0.614)	(-0.810)	(0.599)	(-0.592)
Constant	-3.023***	-1.556***	-2.690***	-1.518***
	(-10.941)	(-5.537)	(-9.908)	(-5.426)
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observations	24614	27750	24614	27750
Adj. R^2	0.450	0.388	0.457	0.382

Table 9. Moderating Analysis: Investor Sentiment

Table 9 presents regression results for the moderating role of investor sentiment. The dependent variables are valued weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_vw*) and equally-weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_ew*). The independent variable of our interest for all regression is institutional investor distraction (*D*). Using investor sentiment (CICSI) in each industry-year cohort, those observations above the median belong to the high investor sentiment group (HS) while those observations below the median are classified into the low investor sentiment group (LS). The control variables are the same as those used in the Table 3 regressions. Firm fixed effects and half-yearly fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using standard errors clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix A provides a full list of variables with their detailed definitions.

	(1)	(2)	(3)	(4)
	Syn_vw	*Syn_vw*	*Syn_ew*	*Syn_ew*
	HS	*LS*	*HS*	*LS*
D	0.024	0.391***	0.206	0.376***
	(0.189)	(4.071)	(1.578)	(3.900)
Size	0.174***	0.076***	0.158***	0.070***
	(10.168)	(4.878)	(9.420)	(4.485)
Lev	-0.158***	-0.320***	-0.160***	-0.326***
	(-2.686)	(-6.383)	(-2.743)	(-6.545)
ROA	0.327***	0.331***	0.362***	0.404***
	(3.847)	(4.682)	(4.315)	(5.762)
BM	0.339***	0.524***	0.373***	0.586***
	(6.605)	(11.813)	(7.289)	(13.184)
Illiq	-0.079*	-0.029***	-0.061	-0.031***
	(-1.820)	(-3.208)	(-1.307)	(-3.377)
Top	-0.383***	0.136	-0.430***	0.113
	(-3.741)	(1.582)	(-4.229)	(1.312)
Age	-0.013	0.093***	-0.005	0.090***
	(-0.416)	(3.857)	(-0.178)	(3.765)
Bigfour	0.021	0.004	-0.003	-0.003
	(0.419)	(0.104)	(-0.060)	(-0.083)
Ins	-0.677***	-0.736***	-0.652***	-0.699***
	(-10.252)	(-13.576)	(-9.921)	(-13.055)
Std	1.741**	6.791***	1.383	6.492***
	(1.977)	(6.799)	(1.563)	(6.485)
TurnAvg	0.023***	0.011***	0.025***	0.013***
	(6.384)	(3.044)	(6.880)	(3.396)
Skew	-0.052***	-0.015	-0.047***	-0.010
	(-4.843)	(-1.446)	(-4.442)	(-0.905)
Kurt	0.002	-0.001	0.001	-0.002*
	(1.284)	(-1.529)	(0.984)	(-1.733)
GDP	0.051	0.385*	0.036	0.351*
	(0.386)	(1.813)	(0.279)	(1.683)
InvProct	0.000	-0.012**	-0.000	-0.012**
	(0.031)	(-2.186)	(-0.029)	(-2.217)
Constant	-2.408***	-1.825***	-2.171***	-1.782***
	(-8.909)	(-7.752)	(-8.135)	(-7.492)
Year Fixed Effects	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Observations	27666	24698	27666	24698
Adj. R^2	0.421	0.376	0.423	0.370

Table 10. Types of Institutional Investors

Table 10 presents regression results for the distraction of different types of institutional investors on stock price synchronicity. The dependent variables are valued weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_vw*) and equally-weighted stock return synchronicity using the Carhart (1997) four-factor model (*Syn_ew*). The independent variable of our interest are pressure-sensitive institutional investors distraction (*D1*), pressure-resistant institutional investors distraction (*D2*), and other types of institutional investors distraction (*D3*). The control variables are the same as those used in the Table 3 regressions. Firm fixed effects and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using standard errors clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix A provides a full list of variables with their detailed definitions.

	(1)	(2)
	Syn_vw	*Syn_ew*
D1	0.661	0.572
	(0.452)	(0.383)
D2	0.290***	0.393***
	(3.576)	(4.858)
D3	-0.347	-0.537*
	(-1.190)	(-1.829)
Constant	-2.194***	-2.027***
	(-11.477)	(-10.753)
Baseline Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Firm Fixed Effects	Yes	Yes
Observations	52364	52364
Adj. R^2	0.413	0.413

Table 11. Effects of Institutional Investor Distraction on Analyst Behavior

Table 11 presents regression results for effects of institutional investor distraction on analyst behavior. The dependent variables are and analyst coverage (*Analyst*), analyst forecast accuracy (*Accuracy*), and analyst forecast dispersion (*Dispersion*). The independent variable of our interest is the institutional investor distraction (*D*). The control variables are the same as those used in the Table 3 regressions. Firm fixed effects and year fixed effects are controlled in all regressions. *t*-statistics in parentheses are calculated using standard errors clustered by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix A provides a full list of variables with their detailed definitions.

	(1)	(2)	(3)
	Analyst	*Accuracy*	*Dispersion*
D	0.536***	-0.034***	0.007**
	(6.964)	(-6.234)	(2.431)
Size	0.445***	-0.002	0.001*
	(29.682)	(-1.590)	(1.822)
Lev	0.121**	-0.005	-0.002
	(2.266)	(-1.420)	(-1.162)
ROA	1.249***	0.106***	-0.034***
	(17.784)	(16.390)	(-12.966)
BM	-0.415***	-0.075***	0.026***
	(-9.452)	(-21.612)	(17.669)
Illiq	-0.003	-0.000	0.000
	(-0.361)	(-0.440)	(0.082)
Top	-0.458***	0.019***	0.003
	(-4.703)	(2.943)	(0.872)
Age	-0.196***	-0.011***	0.006***
	(-8.259)	(-7.245)	(7.785)
Bigfour	0.020	0.002	-0.000
	(0.503)	(0.707)	(-0.004)
Ins	0.893***	0.032***	-0.018***
	(15.141)	(8.518)	(-10.205)
Std	1.191**	-0.160***	0.141***
	(2.018)	(-3.353)	(6.876)
TurnAvg	-0.024***	0.002***	-0.001***
	(-8.624)	(9.696)	(-10.238)
Skew	0.001	0.001**	0.001***
	(0.228)	(2.153)	(4.548)
Kurt	-0.003***	-0.000	-0.000***
	(-3.805)	(-0.006)	(-8.298)
GDP	0.141	0.005	-0.002
	(1.159)	(0.566)	(-0.471)
InvProct	-0.002	-0.000	-0.000
	(-0.303)	(-0.113)	(-0.019)
Constant	-5.375***	0.050***	-0.024***
	(-22.871)	(2.807)	(-3.000)
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Observations	48296	48606	47521
Adj. R^2	0.340	0.182	0.195

APPENDIX A: Variable Definitions

This table provides names and definitions of all variables used in the empirical analysis.

Variable	Definition and measurement
Dependent Variables	
Syn_vw	Calculated based on Carhart four-factor model weighted by market value.
Syn_ew	Calculated based on Carhart four-factor model with equal weight.
Independent Variables	
D	firm-level institutional investor distraction proposed by Kempf et al. (2017), calculated using Equations (3) and (4).
Control Variables	
Size	Natural logarithm of total market value.
Lev	Total liabilities divided by total assets.
ROA	Net profit divided by total assets.
BM	Book value divided by its market value at the end of the period.
Illiq	According to Amihud (2002), it is calculated by model (5).
Top	Percentage of shares held by the largest shareholder.
Age	Natural logarithm of 1 plus the number of years a firm has been listed.
Bigfour	A dummy variable that equals 1 if the auditor is one of the big 4 auditing firms and 0 otherwise.
Ins	Percentage of shares held by institutional investors.
Std	Standard deviation of stock daily return.
TurnAvg	The annual average of the stock daily turnover rate. The daily turnover rate of individual stock is calculated as: total trading volume divided by the number of outstanding shares at the end of the period.
Skew	Skew of stock daily return.
Kurt	Kurt of stock daily return.
GDP	The growth rate of GDP.
InvProct	The legal environment index of the province where the company is located, measured by "the development of market intermediary organizations and legal environment system" in China Provincial Marketization Index Report (2016) compiled by Fan et al. (2011).
Variables Used in Further Analyses	
Syn_fama_vw	Calculated by the three-factor model weighted by market value based on Fama and French (1992).
Syn_fama_ew	Calculated by the three-factor model with equal weight based on Fama and French (1992).
Syn_liu_vw	Calculated by the three-factor model weighted by market value based on Liu et al. (2019).
Syn_liu_ew	Calculated by the three-factor model with equal weight based on Liu et al. (2019).
D_ac	A measure very similar to *D*, except that we exclude index funds from the variable calculation since they are not active institutional investors.
AEM	Accrual earning management, calculated by the absolute value of manipulated accruals estimated by the modified Jones model (Dechow et al., 1995).
REM	Real earning management, calculated by the abnormal production costs minus abnormal cash flow minus abnormal discretionary expenses (Roychowdhury, 2006).
D1	A measure very similar to *D*, we calculate the distraction of pressure-sensitive institutional investors, including insurance companies, trust companies, financial products of securities brokerages, and financial companies.
D2	A measure very similar to *D*, we calculate the distraction of pressure-resistant

	institutional investors, including funds, social security funds, QFII, enterprise annuity.
D3	A measure very similar to *D*, we calculate the distraction of pressure-sensitive institutional investors, including other types of institutional investors which are not classified as pressure-sensitive institutional investors or pressure-resistant institutional investors.
Accuracy	Absolute difference between the analyst's forecast earnings per share and actual earnings per share, divided by the stock price at the beginning of the period.
Dispersion	Standard deviation of the analyst's forecast error.
Analyst	Natural logarithm of 1 plus the number of analyst coverage.