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► To cite this version:

Zeineb Barka, Ramzi Benkraiem, Taher Hamza, Faten Lakhal, Samuel Vigne. Institutional investor horizon and stock price synchronicity: Do product market competition and analyst coverage matter?. *International Review of Financial Analysis*, 2023, 89, pp.102733. 10.1016/j.irfa.2023.102733 . hal-04193270

HAL Id: hal-04193270

<https://audencia.hal.science/hal-04193270v1>

Submitted on 9 Jan 2025

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Institutional investor horizon and stock price synchronicity: Do product market competition and analyst coverage matter?

Zeineb Barka^a, Ramzi Benkraiem^b, Taher Hamza^{a,c}, Faten Lakhal^d, Samuel Vigne^{e,*}

^a PRESTIGE Labo, IHEC- University of Carthage, Tunisia

^b Audencia Business School (AACSB, EQUIS & AMBA), France

^c EM Normandie Business School, Metis Lab, France

^d Léonard de Vinci Pôle Universitaire, Research Center, 92916 Paris, La Défense, France

^e Luiss Business School, Via Nomentana, 216, 00162 Roma RM, Italy

ARTICLE INFO

Keywords:

Institutional investment horizon
Stock price synchronicity
Product market competition
Analyst coverage
Information asymmetry

ABSTRACT

This paper provides new insights into the relation between institutional investment horizon and stock price synchronicity and investigates whether this relationship depends on the intensity of product market competition and analyst coverage. Based on a sample of French listed companies, we find that long-term (short-term) institutional investors are associated with lower (higher) stock price synchronicity. The results also show that the negative effect of long-term institutional investors is more accentuated for firms in less competitive markets and with high analyst coverage. An additional analysis shows that the synchronicity reduction effect does not vary during the financial crisis. Overall, these findings suggest that unlike their short-term counterparts, long term investors reduce asymmetric information and help disseminate firm-specific information into stock prices.

1. Introduction

The concept of stock price synchronicity has recently attracted increasing attention (Su, Zhang, & Liu, 2022). According to Roll (1988), the degree to which individual stocks co-move with the market depends on the relative amount of firm-specific and market-wide information impounded into stock prices. Building on Roll (1988) work, Morck, Yeung, and Yu (2000) find that stock price synchronicity is higher in less developed countries due to the poor protection of investors' rights. This finding is further supported by Jin and Myers (2006), who argue that information opacity combined with managerial control of a firm's cash flow leads to a higher R-squared. Along this line, several studies discuss stock price synchronicity from the perspective of the corporate ownership structure (Boubaker, Mansali, & Rjiba, 2014; Brockman & Yan, 2009; Feng, Hu, & Johansson, 2016; Shahab, Ntim, Ullah, Yugang, & Ye, 2020), family control (Barka, Benkraiem, Hamza, & Lakhal, 2022; analyst coverage (Gao, Lin, Yang, & Chan, 2020; Chan & Hameed, 2006; Crawford, Roulstone, & So, 2012; Piotroski & Roulstone, 2004), media coverage (Dang, Dang, Hoang, Nguyen, & Phan, 2020), audit quality (Gul, Kim, & Qiu, 2010), managerial ability (Fu, Chen, Liu, & Chen, 2022), stock market liberalization (Li, Liu, Chen, & Wang, 2022) and

economic policy uncertainty (Shen, Liu, Xiong, Hou, & Tang, 2021). Overall, the findings from these studies suggest that in firms with less transparent information environments or with poor governance structures, stock prices fail to reflect firm-specific information in a timely and precise manner and thus tend to co-move more with the market.

Based on these previous studies, a related issue is whether institutional investors (II, hereafter) affect the extent to which stock prices incorporate value-relevant information. There are two potential monitoring channels for this relationship. The first monitoring channel implies that II contribute to the reduction in stock price synchronicity by improving the levels of transparency and the disclosure quality of firms (An & Zhang, 2013; Jin & Myers, 2006). The second channel through which II can exert an impact on stock price synchronicity is trading activity (Ferreira & Laux, 2007; Piotroski & Roulstone, 2004). II are usually perceived to be more sophisticated than individual investors in terms of investment experience and the ability to collect, process, and analyze value-relevant information. Thus, upon receipt of negative information, II can sell their shares, pushing down the stock price, which makes stock prices more informative about a firm's fundamentals (Admati & Pfleiderer, 2009).

Although II are among the most influential shareholder groups,

* Corresponding author.

E-mail addresses: zeineb.barka@ihec.ucar.tn (Z. Barka), rbenkraiem@audencia.com (R. Benkraiem), thamza@em-normandie.fr (T. Hamza), faten.lakhal@devinci.fr (F. Lakhal), svigne@luiss.it (S. Vigne).

<https://doi.org/10.1016/j.irfa.2023.102733>

Received 3 March 2023; Received in revised form 6 June 2023; Accepted 26 June 2023

Available online 28 June 2023

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recent studies argue that they exhibit heterogeneous characteristics and preferences (Chen, Harford, & Li, 2007; Gaspar, Massa, & Matos, 2005). For example, An and Zhang (2013) document that only dedicated II are associated with lower stock price synchronicity because it can reduce managers' extraction of firms' cash flow. Kim, Pantzalis, and Wang (2018) further report that shareholder coordination among long-term independent II improves the incorporation of firm-specific information into stock prices. Thus, investors who are long-term oriented and more independent are typically believed to be more effective monitors (Harford, Kecskés, & Mansi, 2018).

Our paper extends this line of research by investigating the impact of II horizon on stock price synchronicity and whether this relationship depends on the intensity of product market competition and analyst coverage. Following Bushee (1998), II are classified as "transient" or "dedicated" investors. II are "dedicated" if they hold large stakes in relatively few firms and have low portfolio turnover. Due to a long investment horizon and highly concentrated positions in the firms, these investors are likely to be effective monitors and to gather costly firm-specific information. On the other hand, "transient" investors take small positions in the firms in which they hold stakes and have high portfolio turnover. Both portfolio characteristics suggest that transient investors are likely to be passive buy-and-hold investors focusing on short-term trading profits.

Based on a sample of 224 French listed firms over the 2004–2016 period and consistent with the monitoring hypothesis, we find that long-term (short-term) II have a significantly negative (positive) impact on stock price synchronicity. Long-horizon II are more concerned with monitoring than short-horizon ones. Additional tests show that the synchronicity reduction effect is more pronounced for firms in less competitive industries and those with high analyst coverage. In addition, we find that the negative association between long-term II and stock price synchronicity holds during the global financial crisis, indicating that the main results are not driven by any external shock caused by the crisis.

The findings contribute to two strands of literature. First, we contribute to the literature about the effects of II horizon on firm outcomes, such as R&D decisions (Bushee, 1998), stock price efficiency (Cremers & Pareek, 2015, acquisition premium (Gaspar et al., 2005), firm valuation (Borochin & Yang, 2017), corporate governance (Harford et al., 2018), and corporate social responsibility (Nguyen, Kecskés, & Mansi, 2020). Our paper extends this literature by examining the role of II' horizons on stock price synchronicity through the monitoring and trading activity channel. Second, the findings add to the literature on the determinants of stock price behavior (Barka et al., 2022; Boubaker et al., 2014; Dang et al., 2020; Fu et al., 2022; Gao et al., 2020; Gul et al., 2010; Li, Qiao, & Zhao, 2019) by showing that II's heterogeneity plays an important role in increasing a firm's transparency and improving the incorporation of more firm-specific information into stock prices.

This study also complements the study by An and Zhang (2013), who document that U.S. firms with more long-term (short-term) II have a lower (higher) stock price synchronicity. We investigate a sample of French listed firms. Because stock price synchronicity is generally affected by a number of institutional factors, including investor protection, regulation, degree of voluntary disclosure, and supervision, our empirical work provides evidence on different country-level governance qualities that drive the variations in stock prices. In addition, compared to U.S. firms, French firms are characterized by high ownership concentration, and particularly, family ownership, with weak legal investor protection and enforcement (Faccio & Lang, 2002). Therefore, whether II play a corporate governance role and how this role is shaped by the prevailing country-level legal institutions remain important issues to investigate.

Finally, we further explore the role of firm-level governance (e.g., product market competition and analyst coverage) in influencing the relationship between II horizon and stock price synchronicity. Our findings indicate that the monitoring role of long-term II in reducing

synchronous prices exists, particularly in less competitive product markets and when firms have a large amount of financial analyst coverage.

The remainder of the paper is organized as follows. Section 2 presents the literature review and presents our hypotheses. Section 3 presents the sample and methodology followed by empirical results in section 4. Section 5 presents the results of the robustness checks. The last section concludes the paper.

2. Literature review and hypotheses development

2.1. II horizon and stock price synchronicity

Institutional investors have been traditionally considered a powerful corporate governance mechanism that mitigates information asymmetry problems and imposes discipline on firm management (Shleifer & Vishny, 1986). Recent studies discuss the role of II in the information production process. For example, Piotroski and Roulstone (2004) show that stock prices tend to be less synchronous in the presence of greater institutional trading. Consistent with the information role of II, Ferreira and Laux (2007) further document that a good corporate governance policy increases idiosyncratic risk, making stock prices more informative. This relationship is more pronounced in the presence of II trading, especially in arbitrage-oriented ones. Brockman and Yan (2009) report that large ownership stakes held by insider and outsider blockholders reduces synchronicity and increases idiosyncratic volatility. Thus, insider and outsider blockholders have an information advantage and improve the amount of firm-specific information incorporated into stock prices. Similarly, Ding, Hou, Kuo, and Lee (2013) document a negative relationship between mutual fund ownership and stock price synchronicity, suggesting that mutual funds can act as an external governance mechanism to improve corporate transparency. Examining Chinese firms, Gul et al. (2010) argue that different types of market participants possess a different information advantage for market-wide, industry-wide, and firm-specific information. The authors find that among II, foreign investors impound a greater amount of firm-specific information into stock prices, resulting in lower stock price synchronicity. Shen et al. (2021) find that II reinforce the negative effect of Economic policy uncertainty on stock price synchronicity. Fu et al. (2022) show that the negative relationship between managerial ability and stock price synchronicity is more pronounced for firms with higher II's ownership.

Although II share some commonality, they are far from homogeneous. For example, Dang, Vo, Vo, and Nguyen (2023) provide evidence that stock price synchronicity decreases with foreign II through improved information environment. Vo (2017) find that foreign investors improve stock price informativeness, leading to lower synchronous stock returns. Furthermore, II with different horizons may have diverse objectives and strategies that may translate into various corporate and market outcomes (Attig, Cleary, El Ghouli, & Guedhami, 2012; Döring, Drobotz, El Ghouli, Guedhami, & Schröder, 2021; Ghaly, Dang, & Stathopoulos, 2020; Harford et al., 2018).

Existing empirical research provides evidence that long-term II are effective monitors, they may encourage then managers to shift their focus toward long-term performance, whereas short-term investors are less motivated to do so (Bushee, 1998; Harford et al., 2018). Instead of selling their positions, long-term II strive to establish more durable relationships with portfolio firm managers and to generate positive corporate governance externalities for all firm stakeholders (Chen et al., 2007; Döring et al., 2021; Gaspar et al., 2005). The main channel for achieving these goals is active intervention through monitoring, shareholder proposals, and discussions with management (McCahery, Sautner, & Starks, 2016).

Based on U.S. data, An and Zhang (2013) deduce a negative (positive) impact of dedicated (transient) II on stock price synchronicity. In line with Jin and Myers' (2006) prediction, the authors confirm that long-term II deter managers from withholding information and

extracting a firm's cash flow. Alternatively, however, due to their small positions and short holding periods, transient II have little incentive to collect value-enhancing information and tend to trade more frequently to maximize short-term gains. Callen and Fang (2013) further assert that II stability activities reduce the risk of future stock price crashes by curbing managerial bad news hoarding activities. Moreover, Kim et al. (2018) suggest that stronger shareholder coordination among II has a negative impact on stock price synchronicity, as measured by idiosyncratic volatility. They argue that the incorporation of firm-specific information into stock prices is attributed to dedicated and independent II due to their well-coordinated monitoring efficacy. Taken together, our main hypothesis holds that:

Hypothesis 1. Dedicated (transient) II are negatively (positively) related to stock price synchronicity.

2.2. II horizon, stock price synchronicity, and product market competition

The role of competitive pressure in determining managerial decision making has received significant empirical attention in the literature. Previous researchers have shown that the product market environment affects corporate investments, analysts' earnings forecasts, corporate governance quality and corporate earnings management (Akdoğan & MacKay, 2012; Datta, Iskandar-Datta, & Singh, 2013).

There are two competing theoretical views on the effect of competitive pressure on firms' information asymmetry. According to the first view, competition in the product market acts as an important external disciplinary mechanism that can reduce managerial slack and promote economic efficiency, leading managers to operate efficiently in the best interests of shareholders (Hart, 1983). Schmidt (1997) shows that competitive pressures increase managerial career concerns, resulting in less opportunistic managerial behavior. The rationale behind this finding is that intense competition can lead managers to work harder in order to retain their jobs and ward off the threat of liquidation or the likelihood of takeovers. Similarly, Bertrand and Mullainathan (2003) show that managers of weakly governed firms operating in concentrated industries and without proper incentives tend to avoid cognitively difficult decisions or costly efforts and seek quiet lives, while those in competitive industries are constantly under pressure and tend to improve efficiency. The disciplinary force of competition in mitigating agency conflicts is supported by extensive empirical evidence (Baggs & De Bettignies, 2007; Giroud & Mueller, 2011). The literature on information disclosure by competing firms also argues that highly competitive industries disclose more information than concentrated sectors do (Harris, 1998). In line with this strand of research, previous studies have documented that when the competitive threat is high, firms competing for limited funds from the public capital markets are more inclined to reduce information asymmetry and disclose more proprietary information as a way of lowering the firm's cost of capital (Diamond & Verrecchia, 1991) and obtaining financing at more favorable rates (Hoberg & Phillips, 2016). Andreou, Antoniou, Horton, and Louca (2016) show that competition in the product market prevents hoarding of bad news and subsequently reduces stock price crashes.

However, the positive effect of product market competition on corporate disclosure is not unanimous. According to "the proprietary cost theory" developed by Verrecchia (1983), the likelihood of revealing proprietary information is considered low in competitive settings. A number of theoretical models and empirical evidence predict that firms facing higher competitive pressures prefer to disclose less firm-specific information and keep proprietary information confidential as a way to reduce predatory threats from current and potential competitors and protect their competitive position (Dedman & Lennox, 2009; Verrecchia, 1983). In addition, some researchers argue that increased competition provides managers with greater incentives to deviate from appropriate accounting practices and to engage in more earnings manipulation. For example, Shleifer (2004) reports that pressure from an intense

competitive environment may induce managers to manipulate earnings more aggressively to influence stock prices. In a related study, Bagnoli and Watts (2010) show that firms facing greater competitive pressure from product markets are more inclined to mislead their rivals by engaging in misreporting in order to maintain their competitive advantage. The informational environment of a firm can also be influenced by industry-level information.

Overall, the effect of product market competition on the relationship between II horizon and stock price synchronicity is a priori ambiguous. This leads to the following hypothesis:

Hypothesis 2. The negative (positive) relationship between dedicated (transient) II and stock price synchronicity is affected by the level of product market competition.

2.3. II horizon, stock price synchronicity, and analyst coverage

The impact of dedicated and transient II on stock price synchronicity may vary across firms with different informational environments. Therefore, to shed further light on our findings, we investigate the role of analysts as information intermediaries in the relationship between institutional investment horizons and synchronicity.

There is ample evidence of the positive role of analyst coverage in reducing the information asymmetry between corporations and investors (Amiram, Owens, & Rozenbaum, 2016; Frankel & Li, 2004). Financial analysts as information intermediaries produce information for small investors based on their timely access to information, private knowledge, and analytical skills. Considering the heterogeneous nature of analysts, Hou, Zhao, and Yang (2020) further show that analysts with the title of star analyst, the education level of master's degree, higher stock coverage and employed by large brokerage firms improves the efficiency of individual analysts.

Nonetheless, the nature of the information produced by securities analysts continues to be an active area of debate. Several studies argue that financial analysts facilitate dissemination of more reliable firm-specific information to the market through their earnings forecasts, revisions, and stock recommendations (Healy & Palepu, 2001; Lang & Lundholm, 1996; Xu, Chan, Jiang, & Yi, 2013). Analyst coverage is related to more future earnings information contained in prices (Ayers & Freeman, 2003) and less stock mispricing (Hong, Lim, & Stein, 2000).

In contrast, other researchers show that financial analysts are company outsiders and rely more on market and industry-wide information in determining their forecasts (Chan & Hameed, 2006; Piotroski & Roulstone, 2004). Piotroski and Roulstone (2004) argue that in the U.S., analyst activities lead to greater price synchronization. In fact, as analysts follow more than one company at a time, their industry affiliation and expertise allow them to gather information at the firm and industry levels and therefore, to improve the efficiency of all prices in that industry. This conjecture is supported by the empirical evidence in Chan and Hameed (2006) who find that high analyst coverage leads to more firm-specific information in emerging markets. Gao et al. (2020) further show that stock price synchronicity tends to be higher in emerging markets when there is high analyst coverage.

The preceding discussion shows that due to difficulties in collecting firm-specific information, financial analysts tend to produce market-wide information, and thus firms that are followed by more analysts exhibit higher stock return synchronicity. This leads to our third hypothesis:

Hypothesis 3. The negative (positive) relationship between dedicated (transient) II and stock price synchronicity is more prevalent in the presence of high analyst coverage.

3. Data and variable construction

The sample consists of all French listed firms appearing in the Worldscope database over the period 2004–2016. Accounting and

financial data were extracted from the Worldscope database. II's ownership data are collected from the Thomson Financial Institutional Holdings (13f) database, which reports all holdings of U.S. II that have more than \$100 million in assets under management. Finally, analysts' earnings forecasts are from I/B/E/S. Following previous studies, we remove financial firms (SIC codes between 6000 and 6999) and firms with missing data for the main variables used in the regressions. The final sample includes 224 French listed firms over the 2004–2016 period.

3.1. Stock price synchronicity

The main dependent variable of the analysis is stock price synchronicity $SYNCH_{it}$. We estimate stock price synchronicity for each firm in a particular year using R-squared from the following Fama–French (1993) three-factor model.¹

$$R_{it} = \alpha + \beta_1 R_{mt} + \beta_2 SMB_t + \beta_3 HML_t + \varepsilon_{it}, \quad (1)$$

where R_{it} is the monthly return of firm i in year t , and R_{mt} is the monthly market return.² SMB_t and HML_t represent the size and value risk premium. Then, consistent with previous studies (Jin & Myers, 2006; Morck et al., 2000), we apply the logistic transformation as the dependent variable, which we label $SYNCH$:

$$SYNCH_{it} = \log\left(\frac{R_{it}^2}{1 - R_{it}^2}\right), \quad (2)$$

where R_{it}^2 is the R-squared value from regression (1) for firm i in year t . According to Eq. (2), when the return of a stock is more closely related to market returns, the R-squared value and $SYNCH$ of the stock will be higher. A higher R-squared value indicates that the stock price of a firm is more synchronous with market returns (Durnev, Morck, & Yeung, 2004; Durnev, Morck, Yeung, & Zarowin, 2003; Ferreira & Laux, 2007; Jin & Myers, 2006).

3.2. II horizon

We use the Bushee (1998) classification to break down the II into dedicated and transient types based on two fundamental investor characteristics, portfolio turnover and holdings concentration. “Dedicated” II are those with low portfolio turnover and more concentrated portfolio holdings. Dedicated blockholders³ do not trade frequently and hold large stakes in a limited number of firms. Such ownership creates incentives to invest for the long run and gather costly firm-specific information to assess managers' performance (Chen et al., 2007; Gaspar et al., 2005). Analogously, “transient” investors are those who take small positions in the firms they hold and have high portfolio turnover. Due to a short investment horizon and a lack of focus on particular firms, these investors tend to be myopic traders looking for short-term trading profits (Bushee, 1998). In this paper, we measure longer investment horizons with IO_DED and shorter investment horizons with IO_TRA . The long-term (short-term) institutional investor ownership of a firm is defined as the percentage of dedicated (transient) institutional investor owners relative to the total shares outstanding, denoted IO_DED (IO_TRA).

¹ According to Chan and Hameed (2006), when the markets tend to be concentrated in a few industries, it would be inappropriate to include industry returns. Thus, we do not include industry returns in our model.

² To ensure results are not driven by the way the R squared is estimated, the sample stock's return R squared is also calculated using the market model (Boubaker et al., 2014; Chen et al., 2007; Durnev et al., 2004). The results (untabulated) are checked and found to be qualitatively similar to those presented here.

³ Dedicated institutional blockholders are those that hold 5% or more of shares outstanding and have lower portfolio turnover.

Table 1
Descriptive statistics.

Variable	Mean	Standard deviation	Min	Max
SYNCH_FF	-0.174	0.350	-2.551	0.604
IO_DED	2.401	5.150	0.000	35.07
IO_TRA	0.187	0.987	0.000	19.65
IO_TOTAL	11.15	10.581	0.000	80.52
HHI	0.110	0.108	0.045	0.630
ANALYSTS	8.430	7.611	1	39
LEVERAGE_RATIO	0.201	0.134	0.001	0.461
MTB	1.800	1.093	0.469	4.504
SIZE	6.483	1.966	3.322	10.305
SDROA	0.023	0.023	0.002	0.087
SDSALES	0.108	0.084	0.016	0.332
INDNUM	4.343	0.977	0.000	4.969
INDSIZE	12.845	0.941	6.560	13.775

Notes: This table provides summary statistics of all variables used. The sample period from 2004 to 2016. SYNCH is our measure of stock price synchronicity and is defined as a logistic transformation of R-squared obtained from the Fama French 1993 model regression. IO_DED and IO_TRA defined as the firm's percentage of ownership held by long-term II and short-term II, respectively. HHI is the Herfindahl–Hirschman index. ANALYST is the number of analysts covering company i in year t . LEV is the financial leverage defined as book value of total liabilities divided by total assets. Market to book ratio is the ratio of market value of equity to book value of equity. SDROA is the standard deviation of ROA calculated over the preceding three years including the current year. SDSALES is the standard deviation of sales (calculated over the preceding three years including the current year) scaled by total assets. SIZE is computed as the natural logarithm of total assets. INDNUM is the natural log of number of firms in the industry in which a firm belongs. INDSIZE is the natural log value of total asset of all sample firms in the industry to which firm belongs.

3.3. Product market competition

We proxy for the intensity of competition in product markets using the Herfindahl–Hirschman index (HHI; the inverse of competitiveness) based on the two-digit SIC industry code that is widely used in previous studies (Giroud & Mueller, 2011; Hou & Robinson, 2006). HHI is computed as the sum of the squared market shares of firms competing in each industry using firm sales:

$$HHI_{jt} = \sum_{i=1}^N MS_{ijt}^2, \quad (3)$$

where MS_{ijt} is the market share of firm i in industry j in year t . Market shares are calculated as the net sales of each firm divided by the sum of the net sales of all firms competing in the same industry. N is the number of firms in each industry. A lower HHI value indicates a more competitive product market.

3.4. Analyst coverage

We measure the intensity of analyst coverage (ANALYST) as the number of analysts covering company i in year t . We gather data on the number of unique analysts issuing forecasts from the I/B/E/S database (IBES FY1 estimates). Firms with zero analyst coverage are excluded from the analysis of the firms.

3.5. Control variables

Following previous literature (Chan & Hameed, 2006; Ferreira & Laux, 2007; Gul et al., 2010; Piotroski & Roulstone, 2004), we control for several firm characteristics that are known to influence stock price synchronicity. These firm-level control variables include the leverage ratio (LEVERAGE_RATIO), the market-to-book ratio (MTB), the natural logarithm of total assets (SIZE), the standard deviation of the return on assets as a proxy for earnings volatility (SDROA), the standard deviation of sales divided by total assets that captures the volatility of firm fundamentals (SDSALES), the natural log of the number of firms in the industry in which a firm belongs (INDNUM), and the natural log value of

Table 2
Correlation matrix.

	SYNCH_FF	IO_DED	IO_TRA	LEVERAGE	MTB	SIZE	SDROA	SDSALES	INDNUM	INDSIZE
SYNCH_FF	1									
IO_DED	-0.032	1								
SHORT_IO	0.034*	0.027	1							
LEVERAGE	0.065***	0.074***	0.049**	1						
MTB	-0.143***	-0.095***	-0.009	-0.107***	1					
SIZE	0.374***	-0.065***	-0.024	0.355***	0.057***	1				
SDROA	-0.114***	0.010	-0.025	-0.140***	-0.009	-0.268***	1			
SDSALES	-0.145***	-0.062**	-0.041**	-0.078***	0.086***	-0.201***	0.190***	1		
INDNUM	-0.044**	0.009	0.028	-0.127***	0.003	-0.159***	0.057***	-0.066***	1	
INDSIZE	0.020	-0.010	0.026	0.037	-0.084***	-0.009	-0.006	-0.108***	0.683***	1
VIF_TEST		1.06	1.04	1.29	1.30	1.37	1.19	1.31	2.59	2.61

Notes: This table provides the correlation coefficients between variables used. The sample period from 2004 to 2016. SYNCH is our measure of stock price synchronicity and is defined as a logistic transformation of R-squared obtained from the Fama French 1993 model regression. IO_DED and IO_TRA defined as the firm's percentage of ownership held by long-term II and short-term II, respectively LEV is the financial leverage defined as book value of total liabilities divided by total assets. Market to book ratio is the ratio of market value of equity to book value of equity. SDROA is the standard deviation of ROA calculated over the preceding three years including the current year. SDSALES is the standard deviation of sales (calculated over the preceding three years including the current year) scaled by total assets. SIZE is computed as the natural logarithm of total assets. INDNUM is the natural log of number of firms in the industry in which a firm belongs. INDSIZE is the natural log value of total asset of all sample firms in the industry to which firm belongs.

the total assets of all sample firms in the industry to which a firm belongs (*INDSIZE*).

3.6. Summary statistics and correlation matrix

Table 1 reports descriptive statistics of all variables, including stock price synchronicity, institutional investor ownership, product market competition, and firm characteristics. The dependent variable *SYNCH_FF* has a mean value of -0.174. The low *SYNCH_FF* is consistent with Morck et al. (2000) and Boubaker et al. (2014), who argue that a large amount of the stock price movement of French firms is driven by market-wide information rather than firm-specific information. The statistics regarding II reveal that the average total institutional investor ownership (*Total_IO*) is 11% over the sample period. Additionally, on average, approximately 2% of the firms' total shares outstanding are held by dedicated II with a long-term horizon. In terms of product market competition, the average *HHI* value reaches 0.110. This proportion imply that firms in the sample face relatively high product market threats from rivals.

Table 1 also shows that the average number of analysts following the stocks in the sample is 8.43. Additionally, the descriptive statistics for the control variables show that the sample includes low- and high-leveraged firms, as reflected in the mean leverage value of 0.20. The market-to-book ratio exhibits an average value of 1.800, indicating that the sample firms have valuable growth opportunities. The mean of *SDROA* and *SDSALES* is 0.023 and 0.108, respectively. The average number of firms for *INDNUM* and *INDSIZE* is 4.343 and 12.845, respectively.

Table 2 presents the Pearson correlations. We find that *IO_DED* (*IO_TRA*) is negatively (positively) correlated with stock price synchronicity (*SYNCH_FF*). This preliminary evidence is consistent with the monitoring role of dedicated II. We note that the correlations between the independent variables are moderately low, and the highest variance inflation factor value is 2.61. This implies that multicollinearity is not a concern that could affect the regression results.

4. Regression results

In this section, we first present the regression model and then report our main findings.

4.1. Empirical model

To test the effect of II horizon on stock price synchronicity (hypothesis 1), we estimate the following model:

Table 3
Institutional investor horizon and stock price synchronicity (*SYNCH_FF*): main evidence.

Variable	GLS		
	(1)	(2)	(3)
IO_DED	-0.002*** (-2.74)		-0.002*** (-2.78)
IO_TRA		0.011** (2.15)	0.008* (1.66)
LEVERAGE	-0.021 (-0.52)	-0.072* (-1.84)	-0.024 (-0.61)
MTB	-0.018*** (-3.56)	-0.016*** (-3.51)	-0.018*** (-3.57)
SIZE	0.053*** (18.04)	0.062*** (22.48)	0.053*** (18.12)
LNSDROA	-0.012** (-2.46)	-0.013*** (-2.74)	-0.012** (-2.47)
LNSDSALES	0.008 (1.30)	0.002 (0.34)	0.009 (1.33)
INDNUM	0.008 (1.11)	0.003 (0.48)	0.007 (1.02)
INDSIZE	-0.018** (-2.27)	-0.008 (-1.14)	-0.018** (-2.23)
Intercept	-0.536*** (-5.95)	-0.700*** (-7.93)	-0.538*** (-5.98)
Sample Size	2181	2436	2181
Chi2	1601.35***	1809.42***	1606.12***
Year_FE	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes

Notes: This table presents the panel data regression results of the impact of institutional investment horizon on stock price synchronicity and other control variables. The dependent variable is *SYNCH_FF*. The sample includes 224 French listed firms over the period from 2004 to 2016. *, **, *** denote significance at 10%, 5% and 1% level respectively. The Z-statistics are given in brackets.

$$\begin{aligned}
 SYNCH_{it} = & \beta_0 + \beta_1 IO_DED_{it} \text{ or } IO_TRA_{it} + \beta_2 LEVERAGE_{it} + \beta_3 MTB_{it} + \beta_4 SIZE_{it} + \beta_5 SDROA_{it} + \beta_6 SDSALES_{it} \\
 & + \beta_7 INDNUM_{it} + \beta_8 INDSIZE_{it} + Year_{FE} + Industry_{FE} + \epsilon_{it},
 \end{aligned}
 \tag{4}$$

where the dependent variable is *SYNCH_{it}*, the stock price synchronicity of firm *i* in year *t*. The variables of interest are *IO_DED* and *IO_TRA*, defined as the firm's percentage of ownership held by long-term II and short-term II, respectively. The control variables are *LEVERAGE*, *MTB*, *SIZE*, *SDROA*, *SDSALES*, *INDNUM*, and *INDSIZE*. We also include industry and year dummies.

To assess the moderating effect of product market competition and analyst coverage on the relationship between II horizon and stock price

Table 4
Institutional investor horizon, stock price synchronicity and product market competition.

VARIABLES	(1)	(2)
HHI	0.739** (2.53)	0.637** (2.24)
IO_DED	-0.000 (-0.11)	
DED*HHI	-0.024* (-1.86)	
IO_TRA		0.022** (2.33)
TRA*HHI		-0.127 (-1.33)
LEVERAGE	-0.024 (-0.61)	-0.073* (-1.87)
MTB	-0.019*** (-3.79)	-0.017*** (-3.54)
SIZE	0.054*** (18.28)	0.062*** (22.60)
LNSDROA	-0.012** (-2.35)	-0.013*** (-2.66)
LNSDSALES	0.007 (1.05)	0.001 (0.29)
INDNUM	0.051** (2.57)	0.043** (2.21)
INDSIZE	-0.017** (-2.12)	-0.007 (-0.88)
Intercept	-0.828*** (-5.50)	-0.965*** (-6.47)
Sample Size	2181	2436
Chi-sq	1617.62***	1820.47***
Year_FE	Yes	Yes
Industry_FE	Yes	Yes

Notes: This table summarizes the results of the moderating effect of competition on the relationship between institutional investment horizon and stock price informativeness measured by stock price synchronicity. We gauge product market competition using the sales-based Herfindahl-Hirschman index of industry-level concentration based on two-digit SIC code industrial. The sample covers the period from 2004 to 2016. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. The Z-statistics are given in brackets.

synchronicity, we introduce interaction variables between the main variables (*DED_IO* and *TRA_IO*) and *HHI* and (*ANALYSTS*) in the models. All continuous variables are winsorized at the 1% and 99% levels to mitigate potential outliers. We use generalized least squares (GLS) regressions to correct the heteroscedasticity and autocorrelation of the residuals within the panel data.

4.2. Institutional investment horizons and stock price informativeness

Table 3 presents the baseline regression results for the effect of II horizon on stock price synchronicity. Columns (1) and (2) report the results using the GLS regression. We find that stock price synchronicity decreases for firms with larger ownership stakes held by dedicated II, as the coefficient for *IO_DED* is -0.002 and is significant at the 1% level, whereas the coefficient of *IO_TRA* is significant at the 5% level, with a positive sign. These results are consistent with hypothesis 1, in which firms with more dedicated (transient) II incorporate more (less) firm-specific information into their stock prices, thus reducing (increasing) stock price synchronicity.

In column (3), we include *IO_DED* and *IO_TRA* to test the incremental impact of each variable. We find results that are virtually similar to those in columns (1) and (2). The estimated coefficient on *IO_DED* is negative and statistically significant, indicating that firms with larger long-term II contribute to lower synchronicity. At the same time, the estimated coefficient for transient II remains positive and statistically significant.

Turning to control variables, we find that firms with high leverage and high growth potential tend to have more firm-specific information incorporated into their stock prices (Gul et al., 2010; Piotroski & Roulstone, 2004). Second, consistent with Piotroski and Roulstone (2004) U.

Table 5
Institutional investor horizon, stock price synchronicity and analyst coverage.

VARIABLES	IO_DED		IO_TRA	
	(1)	(2)	(1)	(2)
Analysts	0.002** (1.97)		0.002 (1.46)	
IO_DED	-0.000 (0.05)			
DED* Analysts	-0.0003** (-2.00)			
IO_TRA			-0.003 (-0.34)	
TRA* Analysts			0.001 (0.40)	
LEVERAGE	-0.070 (-1.50)		-0.083* (-1.82)	
MTB	-0.026*** (-4.26)		-0.022*** (-3.66)	
SIZE	0.034*** (5.81)		0.034*** (6.12)	
SDROA	-0.018*** (-3.19)		-0.018*** (-3.13)	
SDSALES	0.001 (0.19)		0.002 (0.37)	
INDNUM	0.028*** (3.18)		0.031*** (3.53)	
INDSIZE	-0.031*** (-3.62)		-0.033*** (-3.82)	
Intercept	-0.365*** (-3.68)		-0.354*** (-3.61)	
Sample size	1586		1654	
Chi-sq	1119.39***		1129.39***	
Year_FE	Yes		Yes	
Industry_FE	Yes		Yes	

Notes: This table presents regression results on the effect of analyst coverage on the relationship between institutional investment horizons and stock price informativeness. *IO_DED* (*IO_TRA*) is the firm's percentage of ownership held by long-term (short-term) II, which is defined by Bushee (1998). Analyst coverage is measured by the number of analysts following the firms. The sample covers the period from 2004 to 2016. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. Z-statistics are given in brackets.

S. findings, we find that the coefficient of *SIZE* is statistically significantly positive across all columns, suggesting that large firms have more synchronous prices than small firms (Roll, 1988).

Taken together, these results highlight that long-term II enhance the incorporation of firm-specific information into stock prices through monitoring, whereas short-term II preclude information disclosure to the market, leading to more synchronous stock returns. These opposite effects lend support to the idea that not all II are homogeneous regarding their effect on stock price synchronicity (An & Zhang, 2013; Brockman & Yan, 2009; He, Li, Shen, & Zhang, 2013; Piotroski & Roulstone, 2004).

4.3. The moderating effect of product market competition

We now turn to exploring the moderating effect of product market competition on the relationship between institutional investor horizon and stock price synchronicity. Following previous studies (Giroud & Mueller, 2011; Hou & Robinson, 2006), we employ the *HHI* to proxy for a firm's competitive position in the product market.

Table 4 reports the regression results of the impact of competitive pressure on the relationship between II horizon and synchronicity. In these regressions, we include our proxy for competition exposure, as well as an interaction term between *HHI* and *IO_DED* / *IO_TRA*. As shown in column (1), the coefficient of *HHI* is positive (0.739) and significant at the 5% level, implying that firms in highly competitive markets are more subject to rivals' competitive threats, which encourage managers to disclose more information about future prospects due to career concerns. This is consistent with the idea that product market competition as a governance device fosters the incorporation of firm-specific

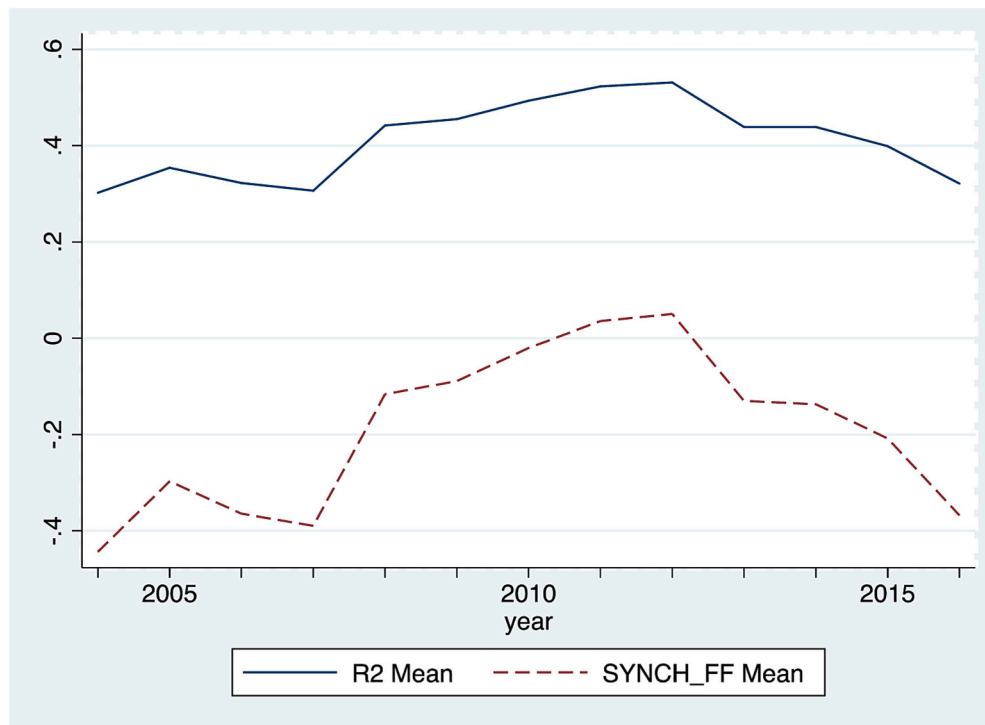


Fig. 1. Trends of stock return synchronicity and R^2 .

Notes: Fig. 1 plots the annual average R^2 and stock return synchronicity from 2004 to 2016 for French listed firms.

Table 6
The effect of financial crisis.

VARIABLES	IO_DED			IO_TRA		
	Entire sample(1)	Financial crisis (2)	Non-crisis period (3)	Entire sample(4)	Financial crisis (5)	Non-crisis period (6)
IO_DED	-0.002** (-2.02)	-0.003** (-2.49)	-0.002** (-1.74)			
Crisis	0.440*** (16.50)			0.400*** (15.79)		
DED* Crisis	-0.000 (-0.33)					
IO_TRA				0.003 (0.50)	0.034*** (4.00)	0.004 (0.72)
TRA* Crisis				0.032*** (2.69)		
LEVERAGE	-0.020 (-0.51)	0.160*** (2.83)	-0.121** (-2.26)	-0.071* (-1.83)	0.054 (1.00)	-0.146*** (-2.84)
MTB	-0.018*** (-3.55)	-0.032*** (-4.04)	-0.013** (-2.18)	-0.016*** (-3.52)	-0.039*** (-5.31)	-0.009 (-1.52)
SIZE	0.053*** (18.02)	0.050*** (12.15)	0.054*** (14.26)	0.062*** (22.52)	0.059*** (15.51)	0.063*** (17.42)
SDROA	-0.012** (-2.46)	-0.031*** (-4.28)	-0.003 (-0.55)	-0.013*** (-2.80)	-0.036*** (-5.09)	-0.003 (-0.55)
SDSALES	0.008 (1.28)	0.017* (1.95)	0.005 (0.60)	0.002 (0.42)	0.008 (1.00)	0.000 (0.08)
INDNUM	0.008 (1.10)	0.004 (0.41)	0.010 (1.05)	0.003 (0.45)	-0.000 (-0.05)	0.005 (0.52)
INDSIZE	-0.018** (-2.26)	-0.013 (-1.09)	-0.021** (-2.04)	-0.008 (-1.10)	0.037 (0.37)	-0.014 (-1.42)
Intercept	-0.536*** (-5.95)	-0.420*** (-3.13)	-0.466*** (-4.07)	-0.702*** (-7.96)	-0.703*** (-5.38)	-0.594*** (-5.28)
Sample size	2181	711	1470	2436	804	1632
Chi-sq	1601.53***	486.21***	794.50***	1822.04***	608.87***	892.90***
Year_FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table presents regression results on the effect of the financial crisis. IO_DED (IO_TRA) is the firm's percentage of ownership held by long-term (short-term) II, which is defined by Bushee (1998). Global financial crisis is defined as dummy variable that equals 1 for the financial crisis period and 0 otherwise. The sample covers the period from 2004 to 2016. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. Z-statistics are given in brackets.

information into stock prices. More interestingly, the coefficient of the interaction term ($IO_DED \times HHI$) is negative (-0.024) and statistically significant, indicating that a negative relationship between dedicated II and synchronicity exists when the competition is low. However, unlike dedicated II, the interaction effect with IO_TRA and HHI is insignificant (column (2)).

The results are consistent with [hypothesis 2](#) assuming that dedicated II promote less stock price synchronicity in presence of weakly competitive markets. These results suggest that external governance pressure from the product market acts as a substitute governance mechanism for II monitoring ([Giroud & Mueller, 2011](#); [Tian & Twite, 2011](#)).

4.4. The moderating effect of analyst coverage

Our previous findings suggest that long-term II incorporate more firm-specific information into their stock prices. Transient investors have a positive association with synchronicity. Here, we test whether the association between II horizon and synchronicity varies with the level of analyst coverage. Evidence suggests that financial analysts facilitate the dissemination of more reliable firm-specific information to the market through their earnings forecasts, revisions, and stock recommendations ([Lang & Lundholm, 1996](#)).

[Table 5](#) presents the regression results for interacting institutional investor variables with *ANALYSTS*. Similar to [Chan and Hameed \(2006\)](#), we find that the coefficient on *ANALYSTS* is positive and statistically significant (column 1). This evidence suggests that analyst coverage improves a firm's information environment by contributing to industry or market-level expertise to the price formation process. Moreover, the results in [Table 5](#) show that the coefficient on the interaction term $IO_DED \times ANALYSTS$ is negative and significant at the 5% level, indicating that the contribution of dedicated II to the incorporation of firm-specific information into stock prices is statistically significant for firms covered by a higher number of analysts. However, the coefficient of the interaction term for IO_TRA with *ANALYSTS* is positive but insignificant. These results support our third hypothesis about a negative (positive) relationship between dedicated (transient) II and stock price synchronicity in presence of a high number of financial analysts following the company.

4.5. Further evidence

The effect of the global financial crisis: [Morck et al. \(2000\)](#) and [Durnev et al. \(2003\)](#) argue that, during the Global Crisis, firms face a higher level of uncertainty in predicting their future earnings. Accordingly, stock returns tend to move together with market. [Fig. 1](#) shows the time series averages of R^2 and synchronicity. There is an increase in average R^2 -squared and synchronicity during the Global Crisis from the 2008–2009 financial crisis to the European sovereign debt crisis of 2011–2012. The mean R^2 is around 0.441–0.531 during the financial crisis, compared to 0.302–0.321 during the rest of the sample period. Thus, there may be a concern that our main results are driven by unusual price movements during the years of financial downturn.

To investigate the effect of financial crisis on the relation between institutional investor horizon and stock price synchronicity, we use a dummy variable *CRISIS* that equals to 1 for 2008, 2009, 2011 and 2012 and 0 otherwise and interact it with II horizon variable (IO_DED/IO_TRA). [Table 6](#) shows that the results remain consistent with those reported in our main analysis. The coefficients of IO_DED in column (1) is significantly negative at the 1% level. Moreover, we notice that the coefficients of the *CRISIS* dummy variable are positive and significant suggesting that stock prices are more synchronous in time of crisis. More interestingly, we find that the coefficient of the interaction term ($IO_DED \times Crisis$) is not significant at the conventional level, confirming that our main conclusion is not affected by the financial crisis.

We further test whether stock price synchronicity is significantly different during financial crisis and the non-crisis periods, using

Table 7
Institutional trading and stock price synchronicity: Alternative Explanation.

VARIABLES	IO_DED (1)	IO_TRA (2)
IO_DED	-0.003*** (2.98)	
ΔIO_DED	-0.002 (-1.44)	
ΔIO_TRA		0.012** (2.16)
IO_TRA		0.009 (1.38)
LEVERAGE	0.007 (0.17)	-0.069* (-1.79)
MTB	-0.025*** (-4.71)	-0.020*** (-4.30)
SIZE	0.056*** (18.43)	0.066*** (24.41)
SDROA	-0.016*** (-3.12)	-0.017*** (-3.54)
SDSALES	0.013** (1.97)	0.004 (0.70)
INDNUM	0.013* (1.64)	0.005 (0.79)
INDSIZE	-0.020** (-2.45)	-0.009 (-1.27)
Intercept	-0.425*** (-4.63)	-0.636*** (-7.23)
Sample size	1918	2288
Chi-sq	1489.69***	1900.33***
Year_FE	Yes	Yes
Industry_FE	Yes	Yes

Notes: This table reports the results of regressions of stock price synchronicity on institutional trading and control variables. The sample covers the period from 2004 to 2016. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. Z-statistics are given in brackets.

subsample analysis. The results in Columns (2) and (3) of [Table 6](#) show that the impact of dedicated II on stock price synchronicity is still significantly negative for both subsamples. In contrast, the results reported in Columns (4–6) reveal that the positive effect of transient II on firms' stock price synchronicity is more pronounced during the crisis period.

The effect of II trading: Our main findings show that dedicated II with long term horizon improves the firm's informational environment and facilitates the dissemination of firm-specific information into stock prices through effective monitoring whereas, short-term II significantly increase stock price synchronicity. These findings suggest that monitoring by long-term II is an important channel through which firm-specific information is incorporated into stock prices.

A natural question that arises is whether the trading of II will also affects stock price synchronicity. Previous research suggests that II, known as “elite information processors” ([Kim & Verrecchia, 1994](#)) prefer to actively trade on their superior information rather than do monitoring. [Nofsinger and Sias \(1999\)](#) argue that institutional trading is positively related to future stock returns. In another related study, [Sias, Starks, and Titman \(2006\)](#) find that institutional trading have a greater impact on stock returns and this impact is associated with information flow. [Piotroski and Roulstone \(2004\)](#), document positive association between institutional trading and firm-specific return variation. Furthermore, [Ferreira and Laux \(2007\)](#) provide evidence that stock price informativeness of firms with greater openness to takeovers increases with the trading of II. This strand of literature argues that II' buying and selling decisions are driven by the private information they gather and interpret. Thus, consistent with these arguments, the trading activities of II is expected to facilitate the price formation process by improving the incorporation of private information into the stock prices, which in turn reduces stock price synchronicity.

To test if stock price synchronicity is related to the trading of II, we decompose long-term and short-term ownership IO_DED (IO_TRA t),

Table 8
Endogeneity concerns.

Variable	Lagged regression		Heckman Procedure		GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
DED_D	-0.002** (-2.24)		-0.005*** (-3.13)		-0.026*** (-5.11)	
TRA_D		0.009* (1.81)		0.004 (0.64)		0.032* (1.66)
LEVERAGE	0.012 (0.30)	-0.063* (-1.64)	-0.077 (-0.52)	0.009 (0.14)	0.066 (0.78)	0.029 (0.31)
MTB	-0.015*** (-3.02)	-0.011** (-2.45)	-0.020* (-1.71)	-0.044*** (-6.05)	-0.076*** (-3.57)	-0.023 (-1.57)
SIZE	0.054 (18.09)	0.061*** (22.24)	0.055*** (5.15)	0.012 (0.71)	0.056*** (5.82)	0.069*** (12.81)
LNSDROA	-0.041*** (3.43)	-0.045*** (-3.98)	-0.471 (-0.98)	-0.790** (-2.18)	-0.016 (-1.13)	0.002 (0.24)
LNSDSALES	0.042*** (2.65)	0.016 (1.13)	0.203 (1.28)	0.256** (2.39)	0.029 (1.88)	-0.002 (-0.16)
INDNUM	0.010 (1.36)	0.005 (0.70)	0.022 (1.33)	0.015 (1.32)	0.116* (1.73)	0.160** (2.42)
INDSIZE	-0.018** (2.25)	-0.009 (-1.18)	0.002 (0.17)	-0.000 (-0.06)	-0.069 (-1.14)	-0.112** (-2.09)
Lambda			0.094 (0.68)	-0.116* (-0.72)		
Intercept	-0.566*** (-6.27)	-0.727*** (-8.41)	-0.933*** (-3.45)	-0.293 (-1.53)	-0.648 (-0.80)	-0.534 (-0.90)
Sample size	2072	2436	1994	2223	1994	2221
Chi-sq	1516.40***	1822.15***	403.21***	574.46***	1879.19***	4133.18***
Year_FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes	Yes	Yes	Yes
AR (3) test (p - value)					-0.25 (0.806)	-2.29 (0.022)
Hansen test (p - value)					99.58 (0.327)	130.74 (0.029)

Notes: This table reports the results of regression analysis to address endogeneity concerns. The sample includes 224 French listed firms over the period from 2004 to 2016. *, **, *** denote significance at 10%, 5% and 1% level, respectively. The Z-statistics are given in brackets.

into its lagged value, IO_DED_{t-1} (IO_TRA_{t-1}), and the change of II holdings, ΔIO_DED (ΔIO_TRA). This decomposition will allow us to examine the impacts from both the levels and the changes of different ownership classifications on a firm's stock price synchronicity.

Table 7 reports the results. Column (1) shows that the estimated coefficient of IO_DED is negative and significant at the 1% level. However, the estimated coefficient of ΔIO_DED is negative and insignificant, which implies that stock price synchronicity is not related to the trading of dedicated II. Although we cannot completely exclude the trading-based explanation, our results support the monitoring explanation. With respect to short-term ownership in column 2, we also find that stock price synchronicity is positively related to the holding of transient II.

5. Robustness checks

In this section, we perform several sensitivity tests to check the robustness of our key findings and further address potential endogeneity problems.

5.1. Endogeneity concern

Although the main results provide many interesting insights, they are subject to criticism of potential endogeneity bias. To alleviate this concern, we conduct several tests.

First, we apply a lagged independent variable structure in the regression that can mitigate concerns about reverse causality between stock price synchronicity and institutional investor horizon. All independent variables are lagged by 1 year. The results are presented in columns (1) and (2) of Table 8. We still report a statistically significantly negative relationship between lagged long-term II and stock price synchronicity. Consistent with the main results, we also find that the coefficients on IO_TRA_{t-1} are statistically significantly positive, corroborating the finding that short-term II have a strong short-term focus and, thus, are less

likely to engage in firm-specific information production.

Second, we address endogeneity concerns by using the Heckman (1979) self-selection approach, which corrects for self-selection bias. This procedure is performed in two steps. In the first step, we estimate the probability of being owned by one or more dedicated or transient II (i.e., the propensity score) through a probit regression that separately regresses each of the institutional investor horizon variables of DED_D and TRA_D against a set of firm characteristics shown in the literature to be determinants of the presence of II, including *LEVERAGE*, *SIZE*, *DIVIDEND YIELD*, *ROA*, *TANGIBILITY*, and *GROWTH SALES* (Bushee, 1998). We also include industry- and year-fixed effects. In the second step, we estimate the main regression; we also control the self-selection parameter (*LAMBDA*), the inverse Mills ratio estimated from the selection equation. The results are presented in columns (3) and (4) of Table 8. The estimates on IO_DED are negative and statistically significant, consistent with our previous results. In addition, the coefficient on *LAMBDA* (i.e., the correction for self-selection) is insignificant, suggesting that the main results are not affected by this bias.

Finally, we run the generalized method of moments (GMM) to further alleviate the endogeneity issue due to omitted variable concerns. The results obtained from the GMM are reported in Table 8 (columns (5) and (6)). As expected, the coefficient of IO_DED is negative and highly statistically significant. Therefore, the GMM results confirm our main evidence that the presence of long-term II reduces stock price synchronicity. We also test the estimation quality using the Sargan test for instrument validity and the Arellano–Bond test for autocorrelation. The results of these tests, presented in Table 6, confirm the validity of the approach.

5.2. Alternative estimation method

We perform additional tests to assess the robustness of the results to alternative estimation methods. First, we re-estimate eq. (4) using the Fama and MacBeth (1973) method to compute standard errors and

Table 9
Other additional robustness tests.

VARIABLES	Fama and MacBeth (1973)		Cluster Effects		Newey-West	
	(1)	(2)	(3)	(4)	(5)	(6)
IO_DED	-0.003** (-2.51)		-0.002** (-2.49)		-0.002** (-1.97)	
IO_TRA		0.022*** (3.45)		0.011 (1.56)		0.011 (1.34)
LEVERAGE	-0.059 (-0.75)	-0.101 (-1.76)	-0.021 (-0.50)	-0.072* (-1.77)	-0.021 (-0.40)	-0.072 (-1.41)
MTB	-0.025** (-2.47)	-0.023** (-2.31)	-0.018*** (-3.40)	-0.016*** (-3.24)	-0.018*** (-2.78)	-0.016*** (-2.63)
SIZE	0.052*** (9.67)	0.061*** (8.79)	0.053*** (17.47)	0.062*** (21.78)	0.053*** (14.17)	0.062*** (17.34)
LNSDROA	-0.014 (-1.16)	-0.016 (-1.25)	-0.012** (-2.42)	-0.013*** (-2.69)	-0.012** (-2.10)	-0.013** (-2.31)
LNSDSALES	0.015** (2.31)	0.016* (2.17)	0.008 (1.33)	0.002 (0.34)	0.008 (1.14)	0.002 (0.29)
INDNUM	0.018 (1.53)	0.018 (1.50)	0.008 (1.05)	0.003 (0.44)	0.008 (0.84)	0.003 (0.35)
INDSIZE	-0.029** (-3.02)	-0.019 (-1.32)	-0.018** (-2.20)	-0.008 (-1.10)	-0.018* (-1.78)	-0.008 (-0.88)
Intercept	-0.171* (-1.96)	-0.392** (-2.44)	-0.312*** (-3.27)	-0.500*** (-5.36)	-0.536*** (-4.53)	-0.700*** (-6.04)
Sample Size	2181	2436	2181	2436	2181	2436
Chi-sq (F-value)	15.57***	13.48***	37.24***	58.90***	55.68***	61.73***
Adj Rsq	0.207	0.243	0.416	0.419		
Year_FE	No	No	Yes	Yes	Yes	Yes
Industry_FE	No	No	Yes	Yes	Yes	Yes

Notes: This table presents the results of robustness checks with the alternative estimation. The sample covers the period from 2004 to 2016. ***, ** and * denote significance at 1%, 5%, and 10%, respectively. The Z-statistics are given in brackets.

mitigate cross-sectional dependence concerns. Specifically, the Fama and MacBeth (1973) regression is a two-step procedure that consists of, first, estimating the cross-sectional regression for each time period and then reporting the average of the first step coefficient estimates. We apply this regression method to *IO_DED* and *IO_TRA*. The results are shown in columns (1) and (2) of Table 9. As before, the estimated coefficient on *IO_DED* is negative and statistically significant, and that on *IO_TRA* is positive and statistically significant. These results further support our main hypothesis that dedicated (transient) II are negatively (positively) related to stock price synchronicity.

Second, we use an ordinary least squares regression, with robust standard errors clustered by firm and year to control for cross-sectional and time-series dependence (Petersen, 2009) in models (3) and (4), as well as Newey–West specifications to account for the serial correlation of standard errors in models (5) and (6), and that the baseline results remain unchanged.

Overall, the results support the argument that long-term II reduce information asymmetry and enhance firm-specific information capitalization in stock prices in a more accurate and timely manner (An & Zhang, 2013; Callen & Fang, 2013).

6. Conclusions

This study investigates the effect of institutional investment horizon on stock price synchronicity for a sample of 224 French listed firms from 2004 to 2016. Stock price synchronicity represents the extent to which firm-level returns are explained by industry and market returns; thus, firm prices will have less synchronous movements if II primarily impound firm-specific information. Previous studies agree that investment horizon preference is an important factor that can affect not only II' trading strategies but also their monitoring intensity (An and Zhang, 2013; Ferreira and Matos, 2008). Investors with long-term horizons have more incentives to monitor their firms and reap long-term profits, which might ultimately lead to more firm-specific information incorporation in stock prices. In contrast, short-term II focus on short-term gains and tend to trade more frequently.

Consistent with the monitoring hypothesis, we find that dedicated

(transient) II decrease (increase) stock price synchronicity, suggesting that dedicated II play an important monitoring role in facilitating a firm-specific information flow in the market. These findings are broadly consistent after addressing endogeneity issues. Furthermore, the results demonstrate that the role of dedicated II in reducing stock price synchronicity is more pronounced for firms operating in low-competitive markets and for firms with high analyst coverage. In additional analyses, we find that the negative association between long-term II and stock price synchronicity holds during the global financial crisis, indicating that the main results are not driven by any external shocks caused by the crisis.

This study has several implications for policymakers and investors. First, informative prices help investors identify the quality of managerial decisions about capital investment and reduce the risk for uninformed investors, resulting in a lower cost of capital. Currently, it is widely believed that a more transparent corporate informational environment reveals more private information about firms to outside investors, which, in turn, improves investors' confidence and ability to make better valuation decisions. Moreover, the results of this study are particularly important for policymakers. We provide insights that dedicated II can effectively improve the firm's informational environment, which impacts shareholder's wealth. Thus, policymakers around the world are urged to increase the awareness of II to enhance the level of firm-specific information included into stock prices. In addition, our findings provide a new perspective on how long-term II can adversely affect the synchronicity of stock prices during financial crises. Future research may be extended to investigate the impact of the recent COVID-19 pandemic on stock price synchronicity.

References

- Admati, A. R., & Pfleiderer, P. (2009). The "wall street walk" and shareholder activism: Exit as a form of voice. *The Review of Financial Studies*, 22(7), 2645–2685.
- Akdoğan, E., & MacKay, P. (2012). Product markets and corporate investment: Theory and evidence. *Journal of Banking & Finance*, 36(2), 439–453.
- Amiram, D., Owens, E., & Rozenbaum, O. (2016). Do information releases increase or decrease information asymmetry? New evidence from analyst forecast announcements. *Journal of Accounting and Economics*, 62(1), 121–138.
- An, H., & Zhang, T. (2013). Stock price synchronicity, crash risk, and II. *Journal of Corporate Finance*, 21, 1–15.

- Andreou, P. C., Antoniou, C., Horton, J., & Louca, C. (2016). Corporate governance and firm-specific stock price crashes. *European Financial Management*, 22(5), 916–956.
- Attig, N., Cleary, S., El Ghouli, S., & Guedhami, O. (2012). Institutional investment horizon and investment–cash flow sensitivity. *Journal of Banking & Finance*, 36(4), 1164–1180.
- Ayers, B. C., & Freeman, R. N. (2003). Evidence that analyst following and institutional ownership accelerate the pricing of future earnings. *Review of Accounting Studies*, 8(1), 47–67.
- Baggs, J., & De Bettignies, J. E. (2007). Product market competition and agency costs. *The Journal of Industrial Economics*, 55(2), 289–323.
- Bagnoli, M., & Watts, S. G. (2010). Oligopoly, disclosure, and earnings management. *The Accounting Review*, 85(4), 1191–1214.
- Barka, Z., Benkraiem, R., Hamza, T., & Lakhfal, F. (2022). How does family control affect stock price synchronicity? *Finance Research Letters*, 49, Article 103092.
- Bertrand, M., & Mullainathan, S. (2003). Enjoying the quiet life? Corporate governance and managerial preferences. *Journal of Political Economy*, 111(5), 1043–1075.
- Borochin, P., & Yang, J. (2017). The effects of institutional investor objectives on firm valuation and governance. *Journal of Financial Economics*, 126(1), 171–199.
- Boubaker, S., Mansali, H., & Rjiba, H. (2014). Large controlling shareholders and stock price synchronicity. *Journal of Banking & Finance*, 40, 80–96.
- Brockman, P., & Yan, X. S. (2009). Block ownership and firm-specific information. *Journal of Banking & Finance*, 33(2), 308–316.
- Bushee, B. J. (1998). The influence of II on myopic R&D investment behavior. *Accounting Review*, 305–333.
- Callen, J. L., & Fang, X. (2013). Institutional investor stability and crash risk: Monitoring versus short-termism? *Journal of Banking & Finance*, 37(8), 3047–3063.
- Chan, K., & Hameed, A. (2006). Stock price synchronicity and analyst coverage in emerging markets. *Journal of Financial Economics*, 80(1), 115–147.
- Chen, X., Harford, J., & Li, K. (2007). Monitoring: Which institutions matter? *Journal of Financial Economics*, 86(2), 279–305.
- Crawford, S. S., Roulstone, D. T., & So, E. C. (2012). Analyst initiations of coverage and stock return synchronicity. *The Accounting Review*, 87(5), 1527–1553.
- Cremers, M., & Pareek, A. (2015). Short-term trading and stock return anomalies: Momentum, reversal, and share issuance. *Review of Finance*, 19(4), 1649–1701.
- Dang, T. L., Dang, M., Hoang, L., Nguyen, L., & Phan, H. L. (2020). Media coverage and stock price synchronicity. *International Review of Financial Analysis*, 67, Article 101430.
- Dang, T. L., Vo, T. T. A., Vo, X. V., & Nguyen, L. T. M. (2023). Does foreign institutional ownership matter for stock price synchronicity? International evidence. *Journal of Multinational Financial Management*, 100783.
- Datta, S., Iskandar-Datta, M., & Singh, V. (2013). Product market power, industry structure, and corporate earnings management. *Journal of Banking & Finance*, 37(8), 3273–3285.
- Dedman, E., & Lennox, C. (2009). Perceived competition, profitability and the withholding of information about sales and the cost of sales. *Journal of Accounting and Economics*, 48(2–3), 210–230.
- Diamond, D. W., & Verrecchia, R. E. (1991). Disclosure, liquidity, and the cost of capital. *The Journal of Finance*, 46(4), 1325–1359.
- Ding, R., Hou, W., Kuo, J. M., & Lee, E. (2013). Fund ownership and stock price informativeness of Chinese listed firms. *Journal of Multinational Financial Management*, 23(3), 166–185.
- Döring, S., Drobetz, W., El Ghouli, S., Guedhami, O., & Schröder, H. (2021). Institutional investment horizons and firm valuation around the world. *Journal of International Business Studies*, 52(2), 212–244.
- Durnev, A., Morck, R., & Yeung, B. (2004). Value-enhancing capital budgeting and firm-specific stock return variation. *The Journal of Finance*, 59(1), 65–105.
- Durnev, A., Morck, R., Yeung, B., & Zarowin, P. (2003). Does greater firm-specific return variation mean more or less informed stock pricing? *Journal of Accounting Research*, 41(5), 797–836.
- Faccio, M., & Lang, L. H. (2002). The ultimate ownership of Western European corporations. *Journal of Financial Economics*, 65(3), 365–395.
- Fama, E. F., & MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy*, 81(3), 607–636.
- Feng, X., Hu, N., & Johansson, A. C. (2016). Ownership, analyst coverage, and stock synchronicity in China. *International Review of Financial Analysis*, 45, 79–96.
- Ferreira, M. A., & Laux, P. A. (2007). Corporate governance, idiosyncratic risk, and information flow. *The Journal of Finance*, 62(2), 951–989.
- Ferreira, M. A., & Matos, P. (2008). The colors of investors' money: The role of II around the world. *Journal of Financial Economics*, 88(3), 499–533.
- Frankel, R., & Li, X. (2004). Characteristics of a firm's information environment and the information asymmetry between insiders and outsiders. *Journal of Accounting and Economics*, 37(2), 229–259.
- Fu, J., Chen, X., Liu, Y., & Chen, R. (2022). Managerial ability and stock price synchronicity. *Research in International Business and Finance*, 60, Article 101606.
- Gao, K., Lin, W., Yang, L., & Chan, K. C. (2020). The impact of analyst coverage and stock price synchronicity: Evidence from brokerage mergers and closures. *Finance Research Letters*, 33, Article 101190.
- Gaspar, J. M., Massa, M., & Matos, P. (2005). Shareholder investment horizons and the market for corporate control. *Journal of Financial Economics*, 76(1), 135–165.
- Ghaly, M., Dang, V. A., & Stathopoulos, K. (2020). II horizons and corporate employment decisions. *Journal of Corporate Finance*, 64, Article 101634.
- Giroud, X., & Mueller, H. M. (2011). Corporate governance, product market competition, and equity prices. *The Journal of Finance*, 66(2), 563–600.
- Gul, F. A., Kim, J. B., & Qiu, A. A. (2010). Ownership concentration, foreign shareholding, audit quality, and stock price synchronicity: Evidence from China. *Journal of Financial Economics*, 95(3), 425–442.
- Harford, J., Kecskés, A., & Mansi, S. (2018). Do long-term investors improve corporate decision making? *Journal of Corporate Finance*, 50, 424–452.
- Harris, M. S. (1998). The association between competition and managers' business segment reporting decisions. *Journal of Accounting Research*, 36(1), 111–128.
- Hart, O. D. (1983). The market mechanism as an incentive scheme. *The Bell Journal of Economics*, 366–382.
- He, W., Li, D., Shen, J., & Zhang, B. (2013). Large foreign ownership and stock price informativeness around the world. *Journal of International Money and Finance*, 36, 211–230.
- Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1–3), 405–440.
- Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica: Journal of the Econometric Society*, 153–161.
- Hoberg, G., & Phillips, G. (2016). Text-based network industries and endogenous product differentiation. *Journal of Political Economy*, 124(5), 1423–1465.
- Hong, H., Lim, T., & Stein, J. C. (2000). Bad news travels slowly: Size, analyst coverage, and the profitability of momentum strategies. *The Journal of Finance*, 55(1), 265–295.
- Hou, J., Zhao, S., & Yang, H. (2020). Individual analysts, stock return synchronicity and information efficiency. *International Review of Financial Analysis*, 71, Article 101513.
- Hou, K., & Robinson, D. T. (2006). Industry concentration and average stock returns. *The Journal of Finance*, 61(4), 1927–1956.
- Jin, L., & Myers, S. C. (2006). R2 around the world: New theory and new tests. *Journal of Financial Economics*, 79(2), 257–292.
- Kim, I., Pantzalis, C., & Wang, B. (2018). Shareholder coordination and stock price informativeness. *Journal of Business Finance & Accounting*, 45(5–6), 686–713.
- Kim, O., & Verrecchia, R. E. (1994). Market liquidity and volume around earnings announcements. *Journal of Accounting and Economics*, 17(1–2), 41–67.
- Lang, M. H., & Lundholm, R. J. (1996). Corporate disclosure policy and analyst behavior. *Accounting Review*, 467–492.
- Li, Q., Liu, X., Chen, J., & Wang, H. (2022). Does stock market liberalization reduce stock price synchronicity? - evidence from the Shanghai-Hong Kong stock connect. *International Review of Economics and Finance*, 77, 25–38.
- Li, X., Qiao, P., & Zhao, L. (2019). CEO media exposure, political connection and Chinese firms' stock price synchronicity. *International Review of Economics and Finance*, 63, 61–75.
- McCahery, J. A., Sautner, Z., & Starks, L. T. (2016). Behind the scenes: The corporate governance preferences of II. *The Journal of Finance*, 71(6), 2905–2932.
- Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock markets: Why do emerging markets have synchronous stock price movements? *Journal of Financial Economics*, 58(1–2), 215–260.
- Nguyen, P. A., Kecskés, A., & Mansi, S. (2020). Does corporate social responsibility create shareholder value? The importance of long-term investors. *Journal of Banking & Finance*, 112, Article 105217.
- Nofsinger, J. R., & Sias, R. W. (1999). Herding and feedback trading by institutional and individual investors. *The Journal of Finance*, 54(6), 2263–2295.
- Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies*, 22(1), 435–480.
- Piotroski, J. D., & Roulstone, D. T. (2004). The influence of analysts, II, and insiders on the incorporation of market, industry, and firm-specific information into stock prices. *The Accounting Review*, 79(4), 1119–1151.
- Roll, R. (1988). R-squared. *Journal of Finance*, 43(2), 541–566.
- Schmidt, K. M. (1997). Managerial incentives and product market competition. *The Review of Economic Studies*, 64(2), 191–213.
- Shahab, Y., Ntim, C. G., Ullah, F., Yugang, C., & Ye, Z. (2020). CEO power and stock price crash risk in China: Do female directors' critical mass and ownership structure matter? *International Review of Financial Analysis*, 68, Article 101457.
- Shen, H., Liu, R., Xiong, H., Hou, F., & Tang, X. (2021). Economic policy uncertainty and stock price synchronicity: Evidence from China. *Pacific-Basin Finance Journal*, 65, Article 101485.
- Shleifer, A. (2004). Does competition destroy ethical behavior? *American Economic Review*, 94(2), 414–418.
- Shleifer, A., & Vishny, R. W. (1986). Large shareholders and corporate control. *Journal of Political Economy*, 94(3, Part 1), 461–488.
- Sias, R. W., Starks, L. T., & Titman, S. (2006). Changes in institutional ownership and stock returns: Assessment and methodology. *The Journal of Business*, 79(6), 2869–2910.
- Su, K., Zhang, M., & Liu, C. (2022). Financial derivatives, analyst forecasts, and stock price synchronicity: Evidence from an emerging market. *Journal of International Financial Markets Institutions and Money*, 81, Article 101671.
- Tian, G. Y., & Twite, G. (2011). Corporate governance, external market discipline and firm productivity. *Journal of Corporate Finance*, 17(3), 403–417.
- Verrecchia, R. E. (1983). Discretionary disclosure. *Journal of Accounting and Economics*, 5, 179–194.
- Vo, X. V. (2017). Do foreign investors improve stock price informativeness in emerging equity markets? Evidence from Vietnam. *Research in International Business and Finance*, 42, 986–991.
- Xu, N., Chan, K. C., Jiang, X., & Yi, Z. (2013). Do star analysts know more firm-specific information? Evidence from China. *Journal of Banking & Finance*, 37(1), 89–102.