

Institutional Ownership and Firms' Thrust to Compete

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This paper provides evidence on the impact of transient (short-term) institutional investors on a firm's thrust to compete. A firm's thrust to compete, as an attribute of corporate culture, captures the relative importance of corporate values that push a firm to achieve shareholder value in the short term by emphasizing goal achievement, fast response to external information and enhanced competitiveness. We find that greater ownership by transient investors results in firms intensifying their future thrust to compete, suggesting that firms respond to these investors' preferences and competitive pressures for achieving short-term value creation. In line with our expectations, this effect is not observed for firms with greater ownership by long-horizon institutional investors, who are incentivized to place their emphasis on long-term firm value over short-term gains. Our findings reveal that the composition of institutional ownership influences the organizational culture of firms in a non-homogeneous way. As such, we provide significant empirical insights for the ongoing debate on the implications arising from the behind-the-scenes engagement of institutional investors with management.

Introduction

A growing body of literature emphasizes the importance of shared organizational beliefs, principles, social norms and other intangible structures for a firm's ability to improve its corporate policies and performance (e.g. Andreou, Harris and Philip, 2020; Fiordelisi and Ricci, 2014; Graham *et al.*, 2019; Guiso, Sapienza and Zingales, 2015; Jiang *et al.*, 2019; Zingales, 2015). These studies suggest that such organizational attributes shape the corporate culture that influences firms' operating phi-

losophy and guides their managements' decision-making. Another burgeoning literature documents empirical evidence linking the investment horizon of institutional investors to various economic outcomes (e.g. Appel, Gormley and Keim, 2016; Bushee, 2001; Dyck *et al.*, 2019; Edmans, 2009; Giannetti and Yu, 2020). While these studies provide insights relating to firm policies, whether institutional investors also influence a firm's operating philosophy – which governs a firm's decision-making as a whole – remains unexplored.

In this study, the central focus of investigation is a firm's *thrust to compete*, a notable attribute of corporate culture that we hypothesize to be influenced by diverse institutional ownership horizons. When firms have a larger proportion of transient (short-term) investors, as opposed to non-transient (long-term) investors, it exposes the firm's operations to undue pressure for short-term performance (Bushee, 1998, 2001; Dikolli, Kulp

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and Sedatole, 2009). Therefore, the management of firms will emphasize short-term performance and spurs the firm to compete to deliver fast results and boost current earnings. These actions will extend to the organizational culture, which becomes more focused around competition, placing emphasis on goals, success and achieving results right now.¹ In contrast, the thrust-to-compete effect will be unobserved for firms with a larger proportion of non-transient institutional investors, such as dedicated investors and quasi-indexers, who place their emphasis on maximizing long-term value and demand transparency (Boone and White, 2015; Bushee, 1998, 2001). Thus, the study contributes towards answering the wider question of *whether institutional investors influence an organization's culture*. This question is meaningful to explore since the recent literature highlights that institutional investors regularly engage with management and boards of directors to impact firms' economic decision-making, such as investments, mergers and acquisitions, payouts, debt financing costs, earnings management practices, governance, information environment, stock price pressures, credit risk, etc. (e.g. Brav, Jiang and Kim, 2015; Callen and Fang, 2013; Cella, Ellul and Giannetti, 2013; Chen, Harford and Li, 2007; Crane, Michenaud and Weston, 2015; Edmans and Manso, 2011; Gaspar, Massa and Matos, 2005; Switzer and Wang, 2017). Interestingly, and related to the above, a recent paper by Dyck *et al.* (2019) provides strong causal evidence that institutional investors drive environmental and social (E&S) performance changes in the firms they own. The paper identifies private (i.e. behind the scenes) engagement as the most likely channel through which institutional investors push firms for a change that reflects their own financial return preferences.²

To identify a firm's thrust to compete, we rely on the competing values framework (CVF), named as one of the 40 most important frameworks in

the history of business (Ten Have, Ten Have and Stevens, 2003). The CVF is a conceptual framework synthesizing various organizational theories to identify criteria for organizational effectiveness (Quinn and Rohrbaugh, 1983). It posits that every organization has a blend of four types of organizational culture, namely the results-oriented *compete culture*, the innovation and entrepreneurial *create culture*, the process-oriented *control culture* and the people-oriented *collaborate culture*. The criteria that differentiate the four are the competing domains of internal versus external focus and stability versus flexibility (Cameron *et al.*, 2014). Based on this framework, we measure *thrust to compete* as the relative importance of corporate values surrounding the compete culture, which propels a firm to achieve superior financial performance by emphasizing customer focus, fast response to external information and enhanced competitiveness.

We measure a firm's thrust to compete by exploiting textual information from a large corpus of firms' annual 10-K filings describing their current and future operating environment. This measurement technique follows the growing literature that utilizes natural language processing techniques on corporate reports and filings to measure important information about firms' activities and management (e.g. Andreou, Harris and Philip, 2020; Bushman, Hendricks and Williams, 2016; Fiordelisi and Ricci, 2014; Hoberg and Phillips, 2016; Li, Lundholm and Minnis, 2013; Loughran and McDonald, 2011). To measure a firm's thrust to compete, we use the following steps. First, we estimate the four corporate cultures, as theorized under the CVF, namely *compete*, *create*, *control* and *collaborate*, by parsing 10-K filings using the Organizational Culture Assessment Instrument (OCAI) bag of words developed to capture aspects underpinning each culture. Our textual measure of culture using the OCAI bag of words and its construct validation is discussed in Andreou *et al.* (2020a). Second, firms' thrust to compete is computed as the frequency of words describing the compete culture scaled by the total number of words describing all four CVF cultures. The scaling enables us to measure the relative importance a firm places on corporate values underpinning the compete culture vis-à-vis other corporate cultures at a given point in time.

Our empirical results provide robust evidence that transient institutional ownership has a strong positive impact on firms' thrust to compete. The

¹A recent survey of C-suite executives and directors, conducted by the McKinsey Global Institute, suggests that 87% of executives and directors indeed feel under pressure to demonstrate strong financial performance in the short term (Barton, Bailey and Zoffer, 2016).

²For example, Dyck *et al.* (2019) discuss how investors with short investment horizons, such as hedge funds, are unlikely to support firms' E&S strategies, whereas investors with long investment horizons, such as pension funds, are more likely to push firms to pursue E&S strategies right now for benefits potentially far in the future.

result is in line with evidence showing that transient institutions focus their investments on the likelihood of reaping short-term trading profits (Bushee, 1998, 2001). Therefore, transient investors are likely to create pressure on managers to intensify firms' thrust to compete and to adopt an operating philosophy that emphasizes *results right now* (aiming for short-term superior performance). The management of firms with higher proportions of transient institutional ownership may succumb to the pressures and threats of these investors to exit and sell off their stakes. This is in keeping with previous studies documenting that institutional investors can affect a firm's governance and operations through exits or the threat to exit (Admati and Pfleiderer, 2009; Edmans and Manso, 2011; Giannetti and Yu, 2020; Parrino, Sias and Starks, 2003). Further, this aligns with the survey evidence of McCahery, Sautner and Starks (2016), reporting that 63% of the 143 large institutional investor respondents stated that they have recently engaged in direct discussions with management, while a large proportion of them view exit as a viable strategy, with 49% stating that they had exited a portfolio firm because of dissatisfaction with the firm's performance. Accordingly, our results indicate that the dominant cultural perception of success for firms with a high proportion of transient investors will be to focus more externally on delivering superior (short-term) performance.

In contrast to the above findings, we observe that firms with high proportions of non-transient institutional investors (dedicated investors and quasi-indexers) have a negative or insignificant relationship with firms' future thrust to compete. Non-transient institutional investors hold diversified portfolios, engage in long-term investment relationships with firms and have different expectations about performance (Appel, Gormley and Keim, 2016; Bushee, 2001; Cella, Ellul and Giannetti, 2013; Chen, Harford and Li, 2007; Crane, Michenaud and Weston, 2015). More specifically, dedicated institutional investors are active in monitoring managers against agency issues and have incentives to reduce myopic investment behaviour, mostly by relying on information beyond current earnings to appraise managers' performance (Callen and Fang, 2013; Chen, Harford and Li, 2007; Gaspar, Massa and Matos, 2005; Harford, Kecskes and Mansi, 2018). In a similar vein, quasi-indexers are motivated to demand firms'

transparency, which can enhance monitoring and lead managers to disclose more information to investors (Appel, Gormley and Keim, 2016; Boone and White, 2015). Collectively, our results suggest that managers of firms with large proportions of non-transient investors do not significantly increase their thrust to compete in the pursuit of short-term gains. Because of the obvious divergence in the performance preferences that exist between transient and non-transient institutional investors, the lack of a positive relationship between thrust to compete and firms with high proportions of non-transient institutional investors supports the validity of the main hypothesis in the study surrounding the impact of transient investors on the firms' operating philosophy.

In terms of identification and research design, we employ several econometric approaches to mitigate endogeneity concerns arising from either unobservable heterogeneity or reverse causality running from thrust to compete to institutional ownership. First, we implement a random effects model to account for unobserved firm heterogeneity, wherein we include a large set of controls for firm characteristics and also control for non-transient institutions, which present the highest stickiness in time (emanating from their low-turnover, buy-and-hold trading behaviour). When identifying the effects of different institutional investor types, random effects models provide valid estimates of parameters that appear to change sluggishly in time (Clark and Linzer, 2015), particularly in the case of dedicated investors and quasi-indexers, due to their persistent nature and little within-firm variation. However, since our main interest is to examine the impact of transient investors, we augment the identification strategy by also implementing firm fixed effects models. The estimation of firm fixed effects models provides complementary evidence by controlling for unobserved time-invariant heterogeneity. Second, prior research finds that institutional ownership is endogenously determined by certain firm characteristics (Gompers and Metrick, 2001). Accordingly, following the approach of Ramalingegowda and Yu (2012), we treat such omitted variable concerns by estimating the main relationships using residual ownership, taken from an expected ownership model that expresses ownership as a function of economic determinants. Third, we employ an instrumental variable approach, following Bushee (2001) and Callen and Fang (2013), where

we instrument for institutional ownership. Fourth, considering the time persistency of thrust to compete and institutional ownership variables, we also report time-dynamic regressions, where we allow for a 3-year period between the measurement of institutional ownership and thrust to compete. In this way, we mitigate potential endogeneity concerns ascribable to potential reverse-causality explanations. Fifth, we estimate a dynamic panel generalized method of moments (GMM) model, since it is plausible that the relationship between thrust to compete and institutional ownership is dynamically endogenous and thus the causation may run both ways. Therefore, to control for potential dynamic endogeneity of this kind, we follow Wintoki, Linck and Netter (2012) by adopting the dynamic panel GMM approach (as proposed by Arellano and Bover, 1995 and Blundell and Bond, 1998).

Our study contributes to the literature in at least two distinct ways. First, our main finding that institutional ownership affects organizations' cultural orientations that spur firms to compete adds to our understanding of the important implications of institutional investors' behind-the-scenes engagement with management. In this regard, our findings complement a burgeoning literature that provides evidence that institutional investors' preferences and actions affect the operating environment of organizations (e.g. Brav, Jiang and Kim, 2015; Crane, Michenaud and Weston, 2015; Dyck *et al.*, 2019; Giannetti and Yu, 2020; Harford, Kecskes and Mansi, 2018; McCahery, Sautner and Starks, 2016; Switzer and Wang, 2017). Second, we introduce a richer text-based firm-level competition measure, which captures firms' internal operating philosophy governing their competitive actions. Previous studies (e.g. Bushman, Hendricks and Williams, 2016; Li, Lundholm and Minnis, 2013) rely on the usage frequency of a small set of competition words (i.e. competition(s), competitor(s), competitive, compete(s) and competing) from firms' 10-K filings to measure managers' perceptions of competitiveness. In contrast, our text-based thrust-to-compete measure is founded on theory delineated in the CVF and captures internal corporate values that spur firms to cater to the external environment (i.e. to increase competitiveness) with the objective of achieving superior shareholder value. Thus, our measure not only captures the firms' competitive environment, but also the actions firms undertake

to adapt to the competitive environment to achieve the desired goals.

The remainder of this paper is organized as follows: details of the data and summary statistics are reported in the next section. The third section presents the main empirical findings and additional analyses, while the fourth section concludes.

Data, measures and variables

We build our dataset by merging information from various data sources for the period 1994–2018. We obtain annual firm-level data of US publicly traded firms from Compustat, excluding financials (SIC 6000–6999) and utilities (SIC 4900–4999), stock price data from CRSP, the firms' 10-K filings from SEC's Edgar database and institutional ownership information from the Thomson Reuters Institutional Holdings Database. The final sample consists of 52,882 observations for 6,867 unique firms. Table 1 reports detailed variable definitions.

Measurement of thrust to compete

We measure thrust to compete from the organizational culture classifications of the CVF. The CVF classifies firms' corporate values into four cultures by differentiating between those values of the firm that emphasize an external orientation and those that focus on internal capabilities – the so-called *external–internal domain*. Further, it distinguishes corporate values concerned with effectiveness that focus on flexibility and discretion from those that are centred on stability and internal control – the *flexibility–stability domain*. As illustrated in Figure 1, these two dimensions intersect to define four distinct types of corporate culture that comprise the CVF, namely compete, create, control and collaborate.

Organizations characterized by the compete culture (bottom-right corner of Figure 1) are externally focused and market-driven, and hence are more likely to encourage organization-wide generation, dissemination and integration of external environmental information (Cameron *et al.*, 2014; Hartnell, Ou and Kinicki, 2011; Quinn and Rohrbaugh, 1983). Success for such firms is assessed based on indicators such as increased sales growth, profitability and market share. An important ingredient of their corporate operating philosophy is *results right now*, hence doing things

Table 1. Variable definitions

	Abbreviation	Definition
<i>Dependent variables</i>		
Thrust to compete	<i>TC</i>	= Decile rank of thrust to compete computed each fiscal year based on the Fama and French (1997) 48-industry classification. Thrust to compete is estimated as the number of lexical items spanning the compete culture divided by the total number of lexical items spanning all four CVPF corporate cultures as per Eq. (1). The lexical items spanning the CVPF corporate cultures are shown in Table 3. [Source: Annual 10-K filings in the SEC Edgar database]
Product market competition	<i>PROC_COMP</i>	= Decile rank of Li <i>et al.</i> 's (2013) textual product market competition measure computed each fiscal year based on the Fama and French (1997) 48-industry classification. The measure is computed by counting the number of times the words 'competition(s)', 'competitor(s)', 'competitive', 'compete(s)', 'competing' appear in a firm's 10-K filing (minus those occasions when these words are preceded by 'not', 'less', 'few' or 'limited', with a gap of three or fewer words), divided by the number of words in the filing. [Source: Annual 10-K filings in the SEC Edgar database]
<i>Institutional ownership variables</i>		
Transient institutional investors' stock ownership	<i>TRA</i>	= Percentage of stock ownership in the firm owned by transient institutional investors, where, following Bushee (2001) and Bushee and Noe (2000), transient investors are denoted as those with high portfolio turnover and diversified portfolios. [Source: Thomson Reuters Institutional (13F) Holdings and Professor Brian Bushee's personal website]
Dedicated institutional investors' stock ownership	<i>DED</i>	= Percentage of stock ownership in the firm owned by dedicated institutional investors, where, following Bushee (2001) and Bushee and Noe (2000), dedicated investors are denoted as those with low turnover and more concentrated holdings. [Source: Thomson Reuters Institutional (13F) Holdings and Professor Brian Bushee's personal website]
Quasi-indexer institutional investors' stock ownership	<i>QIX</i>	= Percentage of stock ownership in the firm owned by quasi-indexers, where, following Bushee (2001) and Bushee and Noe (2000), quasi-indexers are denoted as those investors with low turnover and diversified holdings. [Source: Thomson Reuters Institutional (13F) Holdings and Professor Brian Bushee's personal website]
Residual transient institutional investors' stock ownership	<i>TRA_RESID</i>	= Residual transient institutional investors' stock ownership, defined as the residual from an expected ownership model that expresses transient ownership (<i>TRA</i>) as a function of its economic determinants: firm age, dividend yield, S&P membership, stock price volatility, firm size, stock price, share turnover, book-to-market ratio, momentum, Tobin's Q and bid-ask spread. Estimation of the residual ownership follows the approach in Ramalingegowda and Yu (2012), as modelled by Eq. (A1) in their appendix. [Source: Compustat, CRSP]
Residual dedicated institutional investors' stock ownership	<i>DED_RESID</i>	= Residual dedicated institutional investors' stock ownership, defined as the residual from an expected ownership model that expresses dedicated ownership (<i>DED</i>) as a function of its economic determinants: firm age, dividend yield, S&P membership, stock price volatility, firm size, stock price, share turnover, book-to-market ratio, momentum, Tobin's Q and bid-ask spread. Estimation of the residual ownership follows the approach in Ramalingegowda and Yu (2012), as modelled by Eq. (A1) in their appendix. [Source: Compustat, CRSP]
Residual quasi-indexer institutional investors' stock ownership	<i>QIX_RESID</i>	= Residual quasi-indexer institutional investors' stock ownership, defined as the residual from an expected ownership model that expresses quasi-indexer ownership (<i>QIX</i>) as a function of its economic determinants: firm age, dividend yield, S&P membership, stock price volatility, firm size, stock price, share turnover, book-to-market ratio, momentum, Tobin's Q and bid-ask spread. Estimation of the residual ownership follows the approach in Ramalingegowda and Yu (2012), as modelled by Eq. (A1) in their appendix. [Source: Compustat, CRSP]

Table 1. (Continued)

	Abbreviation	Definition
<i>Main control variables</i>		
Firm age	<i>AGE</i>	= Number of years since the firm first appears in Compustat. [Source: Compustat]
Leverage	<i>LEV</i>	= Long-term debt (<i>DLTT</i>) divided by total assets (<i>AT</i>). [Source: Compustat]
Market-to-book ratio	<i>MTB</i>	= Market-to-book value of equity ($CSHO \times PRCC_F$) / ($PSTK + CSTK$). [Source: Compustat]
Research and development (R&D) intensity	<i>RD_INTENSITY</i>	= R&D expenditure (<i>XRD</i>) divided by total revenue (<i>REV</i>). [Source: Compustat]
Research and development (R&D) cuts	<i>RD_CUT</i>	= Equal to one if the firm's research and development expenditure in fiscal year <i>t</i> (<i>XRD</i>) is less than that in fiscal year <i>t</i> −1, and zero otherwise. [Source: Compustat]
Return on assets	<i>ROA</i>	= Income before extraordinary items (<i>IB</i>) divided by total assets (<i>AT</i>). [Source: Compustat]
Firm size	<i>SIZE</i>	= Natural logarithm of market value of equity ($CSHO \times PRCC_F$). [Source: Compustat]
Gunning FOG index for the readability of the 10-K filing	<i>FOG</i>	= $0.4 \times$ (average number of words per sentence + percentage of complex words), where complex words consist of three or more syllables. [Source: annual 10-K filings in the SEC Edgar database]
10-K filing size in kilobytes	<i>FILESIZE</i>	= Natural logarithm of the file size in kilobytes of the 10-K filing. [Source: annual 10-K filings in the SEC Edgar database]
10-K filing language tone	<i>NETTONE</i>	= Difference between the positive and negative language tone measures of Loughran and McDonald (2011). [Source: Professor Bill McDonald's personal website]

This table presents definitions for the variables used in the study's empirical analyses.

fast and effectively is an essential element in maintaining a competitive edge. Corporate values of this kind are strongly associated with enhanced operating effectiveness and high achievements, which are important determinants of the firms' shareholder value creation process. Overall, such firms naturally have a thrust to compete as they strive to accomplish superior financial performance by engendering enhanced competitiveness and emphasizing organizational effectiveness, fast response and customer focus.

In comparison, corporate values associated with the create culture (upper-right corner of Figure 1) are focused externally and centre on creating future opportunity through innovation and cutting-edge output. These elements within the firms are supported by a flexible organizational structure which fosters freedom of thought and action among employees and allows the firm to effectively handle discontinuity, change and risk (Cameron *et al.*, 2014; Hartnell, Ou and Kinicki, 2011). Conversely, the control and collaborate cultures are internally focused, placing emphasis on integration. However, while the collaborate culture stresses employee development and consensus building, which is facilitated by a flexible

organizational structure aimed at long-term development, the control culture focuses on creating value through internal improvements in efficiency, supported by a stable organizational structure that is driven by strong internal control mechanisms (Cameron *et al.*, 2014; Quinn and Rohrbaugh, 1983; Hartnell, Ou and Kinicki, 2011).

While the CVF framework is a renowned taxonomy of organizational cultures, the identification of an organization's culture requires a valid assessment instrument. Cameron and Quinn (2011) propose theOCAI, a questionnaire developed to measure organizational culture through the responses of firms' employees (see Table A1 in the online supporting information). It evaluates organizational culture along six dimensions, including dominant characteristics, organizational leadership, management of employees, organization glue, strategic emphases and criteria of success. TheOCAI questionnaire enables firms' management to periodically review their cultural profile from the perspective of their own employees at all levels (Cameron *et al.*, 2014).

To measure a firm's thrust to compete, we rely on the methodology outlined by Andreou *et al.* (2020a), who use theOCAI questionnaire to

develop a lexicon of culture-related words. The words are selected from the OCAI questionnaire itself, and therefore the resulting lexicon encompasses the multiple dimensions that firms consider to be important in measuring their organizational culture. The development of the lexicon is achieved by a four-step procedure. First, select the culture-related words from the OCAI questionnaire. Second, include all corresponding synonyms from the thesaurus and the Harvard IV-4 psychosocial dictionary with the same meaning as in the OCAI. Third, include all grammatical and other derivational variants from the same root word with the same meaning as in the OCAI. Finally, refine the wordlist by assessing the context in which each word appears in all 10-K filings (see Andreou *et al.*, 2020a for more details on the measure construction). This procedure yields the OCAI lexicon, containing a total of 89 unique lexical entries related to the four CVF cultures listed in Table 2.³ Andreou *et al.* (2020a) conduct a battery of construct validation tests and find strong evidence that the textual measure accurately represents the various cultural dimensions, as theorized by the CVF.

Using the OCAI textual measure of organizational culture, a firm's thrust to compete is defined as:

external information and enhanced competitiveness. In the empirical analyses, we use the variable *TC*, which is the per year industry decile-ranked value of *TC_SCORE*. This transformation follows the rationale in previous studies using textual measures (e.g. Li, Lundholm and Minnis, 2013), and enables the thrust-to-compete score to be more comparable across time and industries, and to mitigate any measurement errors.⁵

The main ingredient of *TC* is the bag of words associated with the compete culture. In this regard, Figure 2 presents some interesting properties of *TC* by highlighting the frequency of the compete culture-related lexical items used per 10-K filing. We observe that the lexical stems *compete**, *succeed** and *achieve** rank highest in terms of frequency of occurrence in the 10-K filings. This occurrence pattern is consistent with prominent corporate traits that should emerge for the compete culture within the CVF and corroborates that the measurement of *TC* encompasses the relevant information as extracted from the firms' 10-K filings.

Further, we examine the possibility that compete culture words may proxy for tone or sentiment reported by prior studies (e.g. Bodnaruk, Loughran and McDonald, 2015; Ferguson *et al.*, 2015;

$$TC_SCORE = \frac{\text{Number of occurrences of words describing the compete culture}}{\text{Total number of occurrences of words for all CVF cultures}} \quad (1)$$

Scaling the frequency of words associated with the compete culture by the frequency of words for all the corporate cultures enables us to construct a measure capturing the *relative emphasis* (or *intensity*) that a firm places on corporate values underpinning the compete culture vis-à-vis other corporate cultures.⁴ In this regard, *TC_SCORE* reflects the relative importance of corporate values featured in the 10-K filings that propel a firm to achieve superior financial performance by emphasizing organizational effectiveness, fast response to

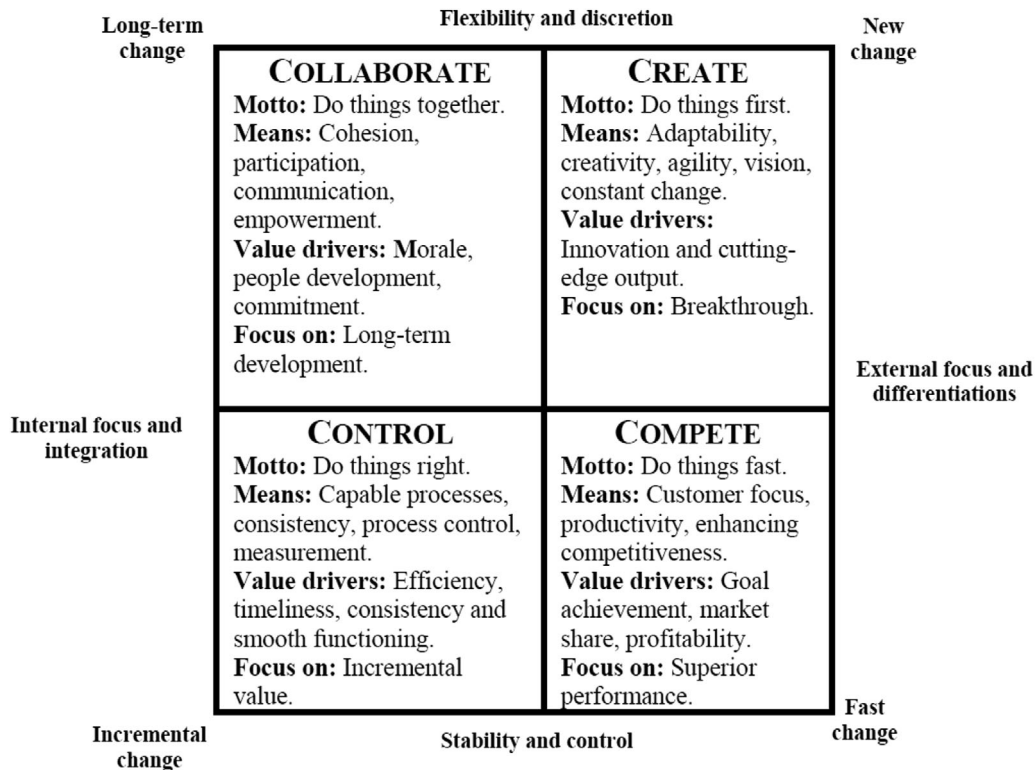
Loughran and McDonald, 2011) or correlate with specific categories of business dictionary words. Figure 3 classifies the compete culture words into various word categories provided in the Loughran–McDonald Master Dictionary.⁶ The dictionary classifies business words as they appear in the 10-K filings into the following categories: negative, positive, uncertainty, litigious, constraining, superfluous, interesting context, modal and irregular verbs. Interestingly, the overlap between the compete culture words and the various word

³The full OCAI lexicon of culture words associated with the lexical entries is listed in Table A2 in the online supporting information.

⁴In the frequency count, we exclude instances of negation (i.e. when a keyword is preceded by 'no', 'non', 'not', 'less', 'few' or 'limited' within plus or minus three words).

⁵In Tables A3 and A4 in the online supporting information we provide several tests suggesting that the same inferences hold true when using *TC_SCORE* as the measure of a firm's thrust to compete.

⁶The Loughran–McDonald Master Dictionary is available at <https://sraf.nd.edu/textual-analysis/resources/>.



Source: Cameron et al. (2014)

Figure 1. Types of corporate culture

Schematic representation of the four corporate cultures associated with the competing values framework.

Source: Cameron et al. (2014).

categories is minimal – the highest is 23% with positive words, a small proportion overlaps with words describing interesting context and irregular verbs, while the majority of words (71%) are unclassified. This evidence builds confidence that the compete culture bag of words does not overlap with other renowned business word dictionaries that are widely applied in finance and accounting research.

Measurement of institutional ownership

To calculate the total institutional ownership level for each firm, we sum the shares owned by institutional investors per firm per quarter and divide by the total number of shares outstanding. The level of institutional ownership of a firm over a given fiscal year is then the average total institutional ownership over the four quarters in the fiscal year. Next, following Bushee (1998, 2001), we classify institutional investors into three types, namely

transient, dedicated and quasi-indexers, based on factors including portfolio turnover, diversification and momentum trading.⁷ Based on these seminal studies (see also Chen, Harford and Li, 2007; Gaspar, Massa and Matos, 2005; Harford, Keckes and Mansi, 2018), transient institutional investors have highly diversified portfolios with a high portfolio turnover rate. Non-transient institutional investors include dedicated and quasi-indexers. Dedicated investors are characterized as those with concentrated portfolios and low turnover rates,

⁷The classification is obtained following the scheme provided on Brian Bushee's website (<https://accounting-faculty.wharton.upenn.edu/bushee/>). While we employ this classification methodology to determine investor types, we note that the literature also contains alternative classification schemes to identify short-term and long-term investors based on their holding information (e.g. Gaspar et al., 2005; Switzer and Wang, 2017; Yan and Zhang, 2009).

Table 2. The OCAI lexicon

Compete	Collaborate	Control	Create
succeed*, accomplish*, achieve*, compete*, strive*, vying, ambitious*, cut-throat*, rival*, aggressive*, energetically, vigorously, zealously, goal*, target*, win*, dominant*, surpass*, outdo, outshine*	mentor*, coaching, counsel*, nurture*, foster*, train*, teamwork, cooperatively, consensus*, participate*, integrity, trustworthy, commitment, openness, impartial*, transparent*	controllable*, oversee*, supervise*, superintend*, orderly, structure*, methodical*, systematic*, protocol*, rigidly, unbending, curb, coordinate*, organize*, efficient*, competency, obey*, stability, solidity, steadfast*, policy*, dependable*, reliable*	dynamic*, progression*, entrepreneurial*, talent*, innovate*, invent*, modernize*, avant-garde, ground-breaking*, trend-setter*, flexible*, opportunity*, unique*, breakthrough, pioneered*, originally, develop*, advancements, cutting-edge, forefront, leading-edge, spearheaded*, brand-new, contemporary*, state-of-the-art, novel, ultra-modern, create*, designer*, launch*

This table exhibits the bag of words featuring lexical items that span each of the four CVF corporate cultures. The full list of 261 unique words associated with lexical items annotated with * is featured in Table 2 of Andreou *et al.* (2020a).

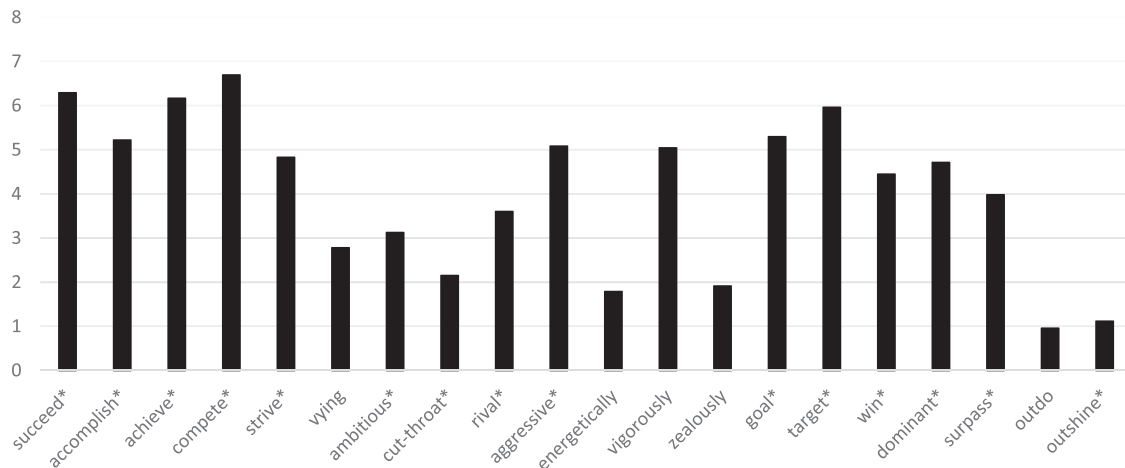


Figure 2. Frequency of the compete culture lexical items

This figure presents the frequency (in logs) of the total number of compete culture lexical items occurring in 10-K filings for the sample period 1994–2018.

while quasi-indexer investors are those institutional investors characterized by low turnover, high levels of portfolio diversity and long-term investment horizons. Quasi-indexer investors mainly consist of indexing institutions and those with portfolios that closely track a benchmark index. On the whole, transient investors have a relatively short-term investment horizon and in principle trade heavily based on current earnings news, placing excessive emphasis on short-term performance (Callen and Fang, 2013; Cella, Ellul and Giannetti, 2013; Giannetti and Yu, 2020). Such investors invest based on the likelihood of earning short-term

trading profits. Conversely, non-transient investors are those that hold larger stakes in few firms and have strong incentives to monitor firms to ensure that their objective is to maximize long-term value rather than meeting short-term earnings goals.

Accordingly, we define transient institutional ownership, *TRA*, as the percentage of stock ownership in the firm held by institutional investors that are classified as transient investors relative to total shares outstanding. Dedicated institutional ownership, *DED*, is defined as the percentage of stock ownership in the firm held by institutional investors that are classified as dedicated investors,

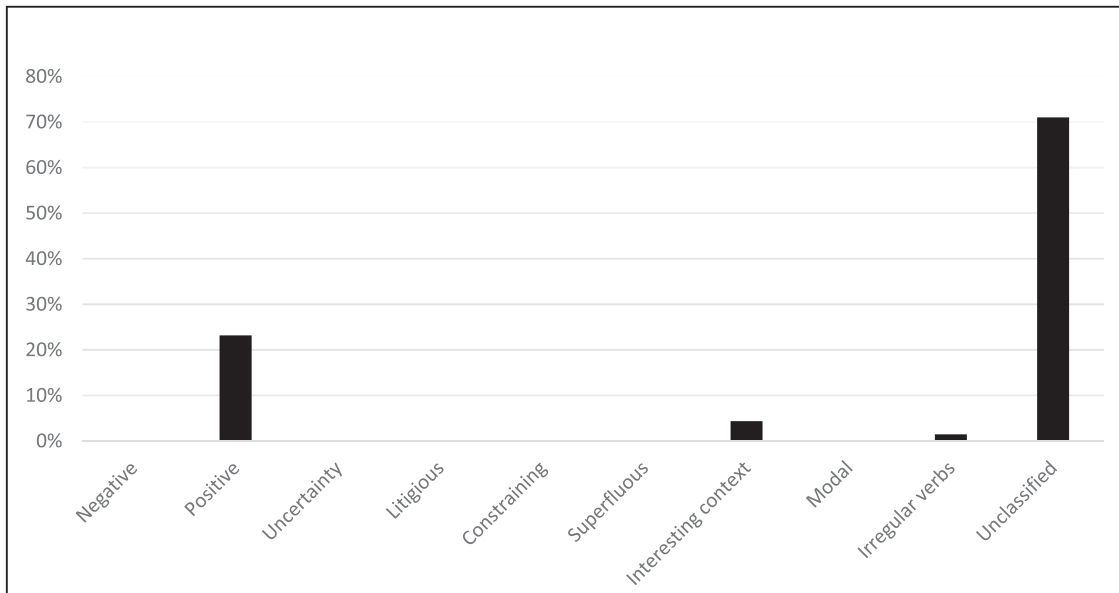


Figure 3. Classifications for compete culture words

This figure shows the percentage of the compete culture lexical items classified in the tonal categories identified by Bodnaruk, Loughran and McDonald (2015) and Loughran and McDonald (2011). Loughran and McDonald (2011) develop a dictionary of words from all 10-K filings and classify each word according to its most likely usage and sentiment in the financial documents. Those words classified as 'negative' are indicative of some adverse implication. Conversely, 'positive' words are those that carry a favourable connotation in the business world. Those words classified as 'uncertainty' are indicative of imprecision and/or risk, while those that reflect the potential for legal contestation are denoted as 'litigious'. Those words that express either strong or weak levels of confidence (i.e. strong and weak modal words) are grouped and classified here as 'modal'. Adopting a similar methodology to that used by Loughran and McDonald (2011), Bodnaruk, Loughran and McDonald (2015) classify 'constraining' words as those that suggest financial constraints. Any lexical items of the compete culture not classified in the previous categories appear in the final category, termed 'unclassified'.

relative to total shares outstanding. Quasi-indexer institutional ownership, *QIX*, is defined as the percentage of stock ownership in the firm held by institutional investors that are classified as quasi-indexer investors, relative to total shares outstanding.

Control variables, sample statistics and correlations

We include a large set of controls that capture several firm-specific characteristics, including number of years since the firm was first included in the Compustat database, *AGE*; financial leverage as indicated by long-term debt to total assets, *LEV*; market to book value of equity, *MTB*; research and development (R&D) intensity, *RD_INTENSITY*; cuts on R&D expenditures, *RD_CUT*; return on assets, *ROA*; and the natural logarithm of market value of equity, *SIZE*. Furthermore, to account for characteristics relating to the 10-K filings, we include as controls the Gunning FOG index, *FOG*, and the filing size in

kilobytes, *FILESIZE*, to account for the 10-K readability, and the difference between the positive and negative word frequencies to account for language tone, *NETTONE*.

Table 3 presents descriptive statistics of the variables constructed for our empirical investigation. The mean and median values of thrust to compete are 5.434 and 5, respectively, depicting some positive skewness in thrust to compete score distribution. For an average firm, the institutional holdings by transient investors account for 13%, dedicated investors account for 5.3% and quasi-indexers account for 29.6%. Interestingly, Pearson correlations exhibited in Table 4 show a positive and statistically significant correlation between *TC* and *TRA* (0.0103), consistent with our expectations that transient institutional ownership intensifies a firm's thrust to compete. Additionally, there is a negative and statistically significant correlation between *TC*, *DED* (−0.0532) and *QIX* (−0.0893), suggesting that non-transient institutional ownership diminishes a firm's thrust to compete.

Table 3. Descriptive statistics

Variable	Obs.	Mean	Std dev.	Q1	Median	Q3
<i>TC</i>	52,882	5.434	2.871	3.000	5.000	8.000
<i>TRA</i>	52,882	0.130	0.121	0.032	0.102	0.196
<i>DED</i>	52,882	0.053	0.081	0.000	0.009	0.077
<i>QIX</i>	52,882	0.296	0.233	0.091	0.251	0.474
<i>AGE</i>	52,882	24.573	15.297	13.000	21.000	33.000
<i>LEV</i>	52,882	0.445	1.005	0.006	0.131	0.426
<i>MTB</i>	52,882	3.091	5.033	1.219	2.095	3.687
<i>RD_INTENSITY</i>	52,882	0.063	0.122	0.000	0.008	0.076
<i>RD_CUT</i>	52,882	0.269	0.443	0.000	0.000	1.000
<i>ROA</i>	52,882	−0.039	0.254	−0.039	0.034	0.077
<i>SIZE</i>	52,882	5.938	1.990	4.510	5.892	7.259
<i>FOG</i>	52,882	19.852	1.157	19.122	19.794	20.487
<i>FILESIZE</i>	52,882	14.065	1.569	12.701	13.902	15.155
<i>NETTONE</i>	52,882	−0.008	0.005	−0.012	−0.009	−0.005

This table presents the sample number of observations (Obs.), mean, standard deviation (Std dev), 25th percentile (Q1), median and 75th percentile (Q3) for the main variables in the period 1994 to 2018. All continuous variables are winsorized at the 1% and 99% levels.

Empirical results

Thrust to compete and institutional ownership

We investigate whether firms' thrust to compete is influenced by institutional ownership, placing emphasis on the influence exerted by short-term investors. Transient institutional investors pursue short-term objectives and emphasize results right now. Managers at a firm with a large proportion of transient investors face the threat that these investors may exit the firm by selling shares (Admati and Pfleiderer, 2009; Parrino, Sias and Starks, 2003), thereby undermining, *inter alia*, the management's future ability to raise capital. Thus, transient investors are expected to intensify a firm's thrust to compete as managers succumb to the pressure to deliver immediate superior performance (see also Barton, Bailey and Zoffer, 2016).

To empirically investigate the relationship between institutional ownership and 1-year-ahead thrust to compete, we estimate the following baseline model:

$$\begin{aligned}
 TC_{t+1} = & \alpha_1 + \alpha_2 TRA_t + \alpha_3 DED_t + \alpha_4 QIX_t \\
 & + \alpha_5 AGE_t + \alpha_6 LEV_t + \alpha_7 MTB_t \\
 & + \alpha_8 RD_INTENSITY_t \\
 & + \alpha_9 RD_CUT_t + \alpha_{10} ROA_t \\
 & + \alpha_{11} SIZE_t + \alpha_{12} FOG_t \\
 & + \alpha_{13} FILESIZE_t + \alpha_{14} NETTONE_t \\
 & + \varepsilon_t
 \end{aligned} \quad (2)$$

where the key variable of interest is the proportion of transient investors, denoted by *TRA*. The coefficient of interest is α_2 , whereby transient institutional ownership is expected to be positively related to 1-year-ahead thrust to compete (TC_{t+1}). Simultaneous inclusion of *TRA* with the two types of non-transient institutional ownership (*DED* and *QIX*) enables us to mitigate potential correlated omitted variable problems, since ownership by transient investors can be (positively) correlated with ownership by non-transient investors, based on prior evidence that institutional investors share common preferences (Gompers and Metrick, 2001). To control for omitted unobservable firm characteristics that can simultaneously affect the main explanatory variable (*TRA*) and the dependent variable (*TC*), we incorporate several time-varying controls and fixed effects. In this vein, we include time and industry fixed effects (where 48 industries are defined as in Fama and French, 1997), along with a large array of relevant control variables spanning a wide spectrum of firm-related characteristics. We implement generalized least-squares random effects models to control for unobserved firm heterogeneity, due to the persistence in our non-transient institutional ownership variables.⁸ Additionally, firm fixed

⁸Table A5 in the online supporting information tabulates average transition probabilities from fiscal year *t* to *t*+1 for decile rankings of the three institutional ownership types. The results show that firms in the lowest decile of *DED* have a 78% probability of remaining in that decile

Table 4. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(13)	(14)
(1) <i>TC</i>													
(2) <i>TRA</i>	0.0103												
(3) <i>DED</i>	-0.0532	0.1227											
(4) <i>QIX</i>	-0.0893	0.3273	-0.0254										
(5) <i>AGE</i>	-0.1148	-0.0074	0.0900	0.2408									
(6) <i>LEV</i>	-0.0124	-0.0481	-0.0011	-0.0748	-0.0129								
(7) <i>MTB</i>	-0.0097	0.0314	0.0110	0.0033	-0.0259	-0.1441							
(8) <i>RD_INTENSITY</i>	0.0860	-0.0522	-0.0585	-0.1666	-0.2209	-0.1658	0.1443						
(9) <i>RD_CUT</i>	0.0043	0.0153	-0.0005	-0.0022	0.0314	-0.1153	0.0748	0.1315					
(10) <i>ROA</i>	-0.0732	0.1324	0.0980	0.2510	0.2474	-0.0216	-0.0386	-0.6317	0.0195				
(11) <i>SIZE</i>	-0.1391	0.3701	0.1850	0.5775	0.3408	-0.1322	0.1354	-0.1368	0.0199	0.2545			
(12) <i>FOG</i>	-0.0345	0.0828	0.0030	0.1291	-0.0658	0.0181	0.0452	0.1054	0.0322	-0.0731	0.1650		
(13) <i>FILESIZE</i>	-0.0612	0.1363	-0.1276	0.4001	0.0207	-0.0236	0.0288	-0.0120	0.0107	0.0122	0.3870	0.2959	
(14) <i>NETTONE</i>	-0.0131	-0.0957	0.0933	-0.0848	0.1487	-0.0530	0.0145	-0.0465	-0.0069	0.1418	-0.0334	-0.2073	-0.3747

This table presents Pearson correlation coefficients for the main variables used in the empirical analyses. The bold figures indicate statistical significance at 10% ($p < 0.10$) or better.

effects models are estimated to mitigate concerns that omitted time-invariant firm characteristics may be driving the findings. Other econometric treatments are as follows: standard errors are clustered at the firm level; all continuous variables are winsorized at the 1st and 99th percentiles to mitigate the effect of outliers; and all continuous variables are standardized to have a mean value of zero and a standard deviation of one.

The results when estimating Eq. (2) are shown in Table 5 (Panel A), with models (1) and (2) reporting random effects estimations and models (3) and (4) reporting firm fixed effects estimations. Consistent with our expectations, the coefficients for *TRA* in models (1) and (3) are equal to 0.023 and 0.019, respectively, and both highly statistically significant ($p < 0.01$). The results in models (2) and (4), where all three institutional ownership variables are included, provide additional empirical support that transient institutional ownership increases a firm's thrust to compete. In particular, the results of model (4), which is estimated by including firm fixed effects, provide strong support for the notion that out of the three different types of institutional investors, transient ownership intensifies a firm's operating philosophy related to competition (compete culture).⁹

Prior studies report that the composition of a firm's institutional base can correlate with a series of firm-level characteristics such as size, stock price volatility, firm age and index membership (Gompers and Metrick, 2001). To the extent that these determinants of institutional ownership also explain a firm's thrust to compete, there can be endogeneity confounding our results. To mitigate these concerns, in the spirit of Ramalingegowda and Yu (2012), we re-estimate the above regression using a measure of residual institutional ownership, instead of the ownership variables themselves. The residual is estimated from an

the following year; meanwhile, firms in the highest decile of *DED* remain in that decile the following year with a probability of 58%. Likewise, *TRA* and *QIX* investors exhibit high persistence from year to year, albeit less pronounced compared to *DED*.

⁹In the same vein as these estimations, Table A6 in the online supporting information reports results when estimating Eq. (2) using the other three cultures (i.e. collaborate, control and create) as dependent variables. We observe that *TRA* does not influence the collaborate or create cultures, and is negatively related to the control culture. These patterns show that *TRA* has a distinguishable impact on the compete culture (*TC*).

Table 5. Regressions of institutional ownership on thrust to compete

	(1)	(2)	(3)	(4)
Panel A: Institutional ownership (in year t) and 1-year-ahead thrust to compete (TC_{t+1})				
TRA_t	0.023*** (3.81)	0.024*** (3.90)	0.019*** (2.90)	0.018*** (2.79)
DED_t		-0.015** (2.39)		-0.006 (0.82)
QIX_t		-0.018** (2.06)		-0.014 (1.45)
AGE_t	-0.093*** (9.16)	-0.091*** (8.91)	-0.62 (0.66)	-0.614 (0.66)
LEV_t	0.001 (0.08)	0.001 (0.01)	0.009 (1.47)	0.009 (1.52)
MTB_t	0.002 (0.40)	0.001 (0.25)	0.002 (0.35)	0.001 (0.27)
$RD_INTENSITY_t$	0.054*** (5.76)	0.054*** (5.73)	0.029** (2.37)	0.028** (2.33)
RD_CUT_t	0.006 (0.61)	0.005 (0.59)	-0.003 (0.29)	-0.003 (0.31)
ROA_t	-0.008 (1.24)	-0.008 (1.20)	-0.011 (1.54)	-0.012 (1.59)
$SIZE_t$	-0.086*** (7.94)	-0.075*** (6.53)	-0.065*** (4.02)	-0.058*** (3.52)
FOG_t	-0.005 (0.75)	-0.004 (0.68)	0.001 (0.19)	0.001 (0.22)
$FILESIZE_t$	-0.062*** (4.45)	-0.063*** (4.52)	-0.028* (1.87)	-0.028* (1.91)
$NETTONE_t$	-0.014** (2.22)	-0.014** (2.28)	-0.012* (1.80)	-0.013* (1.84)
R^2	0.03	0.03	0.49	0.49
N	52,882	52,882	52,882	52,882
Panel B: Residual institutional ownership (year t) and 1-year-ahead thrust to compete (TC_{t+1})				
TRA_RESID_t	0.021*** (3.28)	0.021*** (3.31)	0.017** (2.46)	0.016** (2.34)
DED_RESID_t		-0.016** (2.40)		-0.009 (1.24)
QIX_RESID_t		-0.019** (2.12)		-0.014 (1.48)
AGE_t	-0.087*** (8.28)	-0.089*** (8.40)	-0.663 (0.57)	-0.653 (0.57)
LEV_t	0.001 (0.05)	0.001 (0.22)	0.011 (1.54)	0.011 (1.63)
MTB_t	0.003 (0.73)	0.004 (0.81)	0.004 (0.75)	0.004 (0.80)
$RD_INTENSITY_t$	0.055*** (5.32)	0.054*** (5.25)	0.021 (1.53)	0.02 (1.48)
RD_CUT_t	0.007 (0.75)	0.007 (0.71)	-0.003 (0.31)	-0.003 (0.34)
ROA_t	-0.004 (0.57)	-0.005 (0.61)	-0.012 (1.40)	-0.013 (1.48)
$SIZE_t$	-0.080*** (7.27)	-0.078*** (7.06)	-0.061*** (3.56)	-0.060*** (3.54)
FOG_t	-0.004 (0.70)	-0.004 (0.65)	0.002 (0.22)	0.002 (0.24)
$FILESIZE_t$	-0.063*** (4.36)	-0.064*** (4.40)	-0.027* (1.76)	-0.028* (1.81)

Table 5. (Continued)

	(1)	(2)	(3)	(4)
Panel B: Residual institutional ownership (year t) and 1-year-ahead thrust to compete (TC_{t+1})				
$NETTONE_t$	-0.013* (1.94)	-0.013** (2.02)	-0.011 (1.57)	-0.012 (1.62)
R^2	0.03	0.03	0.49	0.49
N	48,599	48,599	48,599	48,599
Panel C: Second-stage results from instrumented institutional ownership (year t) and 1-year-ahead thrust to compete (TC_{t+1})				
TRA_t	0.030*** (3.31)	0.029*** (3.34)	0.032*** (3.41)	0.030*** (3.47)
DED_t		-0.008 (0.89)		-0.008 (0.87)
QIX_t		0.012 (1.01)		0.011 (0.90)
AGE_t	-0.042*** (3.26)	-0.042*** (3.26)		
LEV_t	-0.019** (2.04)	-0.019** (2.04)	-0.017* (1.74)	-0.017* (1.75)
MTB_t	-0.015* (1.87)	-0.015* (1.87)	-0.013 (1.61)	-0.013 (1.61)
$RD_INTENSITY_t$	0.107*** (7.85)	0.107*** (7.85)	0.116*** (8.26)	0.116*** (8.26)
RD_CUT_t	0.015 (0.99)	0.015 (0.99)	0.009 (0.61)	0.009 (0.61)
ROA_t	0.030*** (2.71)	0.030*** (2.72)	0.034*** (2.96)	0.034*** (2.95)
$SIZE_t$	-0.045*** (3.58)	-0.045*** (3.58)	-0.061*** (5.03)	-0.061*** (5.03)
FOG_t	-0.025*** (2.65)	-0.025*** (2.65)	-0.025** (2.58)	-0.025** (2.57)
$FILESIZE_t$	-0.175*** (8.82)	-0.175*** (8.82)	-0.170*** (8.37)	-0.170*** (8.37)
$NETTONE_t$	-0.014 (1.50)	-0.014 (1.50)	-0.017* (1.82)	-0.017* (1.82)
R^2	0.09	0.09	0.11	0.11
N	39,590	39,590	39,590	39,590

This table presents results from random effects regressions [models (1) and (2)] and firm fixed effects regressions [models (3) and (4)] examining the impact of different types of institutional ownership on firms' 1-year-ahead thrust to compete (TC_{t+1}). Panel A shows the results of transient investors (TRA_t), dedicated investors (DED_t) and quasi-indexers (QIX_t). Panel B shows the results of residual percentage ownership by transient investors (TRA_RESID_t), dedicated investors (DED_RESID_t) and quasi-indexers (QIX_RESID_t), following the approach of Ramalingegowda and Yu (2012). Panel C presents the second-stage results from the instrumental variable approach, where TRA_t , DED_t and QIX_t are fitted values from a first-stage regression of these institutional ownership variables on a set of instruments based on Bushee (2001) and Callen and Fang (2013). All regressions include year and industry fixed effects. The standard errors are clustered at the firm level and the resulting t-statistics appear in parentheses. The continuous variables are standardized to have a mean value of zero and variance of one. Definitions of all key variables are provided in Table 1. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

expected ownership model, which expresses ownership as a function of its economic determinants, including firm age, dividend yield, S&P membership, stock price volatility, firm size, stock price, share turnover, book-to-market ratio, momentum, Tobin's Q and bid-ask spread. Accordingly, TRA_RESID , DED_RESID and QIX_RESID

represent the residuals of our institutional ownership measures TRA , DED and QIX , respectively. This approach precludes the possibility that potential drivers of institutional ownership also explain variations in a firm's thrust to compete, thus making a correction for time-varying omitted variables and avoiding spurious results.

In Table 5 (Panel B), we report the results when the model in Eq. (2) is estimated by replacing TRA , DED and QIX with TRA_RESID , DED_RESID and QIX_RESID , respectively. Interestingly, both the sign and statistical significance of residual transient ownership (TRA_RESID) in all the models are comparable to those reported in Panel A. In particular, the results in model (4) show that transient is the only institutional ownership type that significantly increases the 1-year-ahead thrust to compete.

In further support of the above results, Table 5 (Panel C) reports the instrumental variable results following a two-stage least squares (2SLS) estimation of Eq. (2). A valid instrument induces changes in the explanatory variable but has an independent effect on the dependent variable. Thus, we use the natural logarithm of a firm's market value of equity, share turnover, whether the firm is a member of the S&P 500 index, the firm's market model beta estimated using up to 36 prior monthly returns, the firm's debt-to-asset ratio and the standard deviation of the firm's daily market model residuals over the year as instruments for a firm's institutional ownership, since, consistent with prior work in this area (see e.g. Bushee, 2001; Callen and Fang, 2013), these have been observed to satisfy the relevance condition. As such, these factors are shown to be correlated with the distribution of firm value and thus unlikely to influence the firm's thrust to compete directly; hence, all the instruments should also satisfy the exclusion condition. To implement the instrumental approach, we follow two stages: in the first stage, we separately regress institutional ownership on the instruments and all baseline control variables; in the second stage, we estimate Eq. (2) using the instrumented institutional ownership variables, which are the fitted values from the first-stage regression. The results for the first-stage regressions (not reported for brevity) show that all the instruments are significantly related ($p < 0.01$) to institutional ownership, whereas the resulting adjusted R^2 ($\cong 0.30$) and F-statistic ($p \cong 0$) suggest that the model does not suffer from the issue of weak instruments. Further, the results of Stock and Yogo's (2005) test for weak instruments indicate that these instruments are statistically relevant for our analysis.

The second-stage results from the instrumental variable approach are shown in Table 5 (Panel C), where we observe a positive and statistically significant relationship between the instrumented

TRA_t and TC_{t+1} across all the different model specifications. Larecker and Rusticus (2010) point out that when the instruments have low explanatory power in the first stage, it is common that the estimated coefficients on the instrumented variable in the second stage will become either unreasonably large or small. The similarity in coefficient magnitudes of the instrumented TRA variable in Panel C and of TRA in Panel A is an indication that our models are well specified and point to a causal relationship between transient institutional ownership and 1-year-ahead thrust to compete.

Collectively, the results of Table 5 provide strong evidence in support of our argument that transient institutional investors have a positive causal effect on a firm's 1-year-ahead thrust to compete. Our inferences regarding this positive relationship gain more merit in light of the fact that the effects of non-transient institutional investors (DED and QIX) on thrust to compete appear to be either negative or have no effect in models where we impose firm fixed effects. Non-transient investors, contrary to transient ones, in general hold diversified portfolios, engage in long-term investment relationships with firms and have different expectations about performance (Appel, Gormley and Keim, 2016; Bushee, 2001; Chen, Harford and Li, 2007; Crane, Michenaud and Weston, 2015). Therefore, while we expect transient investors to intensify a firm's thrust to compete, the same should not hold true for non-transient investors.

Robustness evidence for the causal effects of transient institutional ownership

In the model specifications so far, we safeguard our analyses from potential simultaneous causality problems by relying on a lead-lagged relationship between TC and TRA . Nevertheless, one could suggest that because of some level of persistency in the variables of interest, as shown in Table A5 in the online supporting information, the 1-year time span between the key variables may still be mechanically correlated. This can lead to concerns that the results are still plagued by reverse causality. To alleviate this possibility, we estimate a time-dynamic model, with the intention of further supporting the causal effect of institutional ownership on thrust to compete. Accordingly, we investigate the relationship between thrust to compete and lagged differences and levels in transient institutional ownership, at time spans

greater than 1 year, using the following models:

$$\begin{aligned}
 TC_{t+1} = & \gamma_1 + \gamma_2 \Delta TRA_t + \gamma_3 TRA_{t-1} + \gamma_4 DED_t \\
 & + \gamma_5 QIX_t + \gamma_6 AGE_t + \gamma_7 LEV_t \\
 & + \gamma_8 MTB_t + \gamma_9 RD_INTENSITY_t \\
 & + \gamma_{10} RD_CUT_t + \gamma_{11} ROA_t \\
 & + \gamma_{12} SIZE_t + \gamma_{13} FOG_t \\
 & + \gamma_{14} FILESIZE_t + \gamma_{15} NETTONE_t \\
 & + u_t
 \end{aligned} \quad (3a)$$

$$\begin{aligned}
 TC_{t+1} = & \gamma_1 + \gamma_2 \Delta TRA_t + \gamma_3 \Delta TRA_{t-1} \\
 & + \gamma_4 TRA_{t-2} + \gamma_5 DED_t + \gamma_6 QIX_t \\
 & + \gamma_7 AGE_t + \gamma_8 LEV_t + \gamma_9 MTB_t \\
 & + \gamma_{10} RD_INTENSITY_t \\
 & + \gamma_{11} RD_CUT_t + \gamma_{12} ROA_t \\
 & + \gamma_{13} SIZE_t + \gamma_{14} FOG_t \\
 & + \gamma_{15} FILESIZE_t + \gamma_{16} NETTONE_t \\
 & + u_t
 \end{aligned} \quad (3b)$$

Table 6 reports the regression results for Eqs (3a) and (3b). Random effects regression estimates are provided in models (1) and (2), while models (3) and (4) show the estimates from firm fixed effects regressions. We focus our discussion on the estimation results of Eq. (3b), where we consider the influence of ΔTRA_t , ΔTRA_{t-1} and TRA_{t-2} on future thrust to compete. In this regard, we are examining the long-run relationship between the variables of interest, since the time distance between TC_{t+1} and TRA_{t-2} spans a 3-year period. This distant lead-lagged relationship allows for more reliable inferences because it makes model estimates resilient to the presence of potential simultaneity issues. It also sheds light on the (true) direction of the association between transient institutional ownership and future thrust to compete. To support our previous findings, the emphasis is on coefficient γ_4 in Eq. (3b), which we expect to be positive and significant. To complement the analysis, we also report the estimates of Eq. (3a) in models (1) and (3), where the time distance between TC_{t+1} and TRA_{t-1} spans a 2-year period.

Interestingly, the coefficient on TRA_{t-2} is 0.027 ($p < 0.01$) in model (2) and 0.018 ($p < 0.10$) in model (4), thereby buttressing the claim for a causal positive relationship between transient in-

stitutional ownership and firms' thrust to compete. Since TRA_{t-2} is positively related to thrust to compete as far as 3 years into the future, it is more likely that transient ownership increases future thrust to compete, rather than firms with higher thrust to compete are attracting more transient investors. All in all, reverse causality is a highly unlikely explanation for our findings. Further, the coefficients of ΔTRA_t and ΔTRA_{t-1} are also strongly positive, with coefficients of 0.019 ($p < 0.01$) and 0.021 ($p < 0.01$), respectively for model (2), while in model (4) these are 0.015 ($p < 0.01$) and 0.015 ($p < 0.05$), respectively. These results provide further supporting evidence that (within-firm) increases in transient investors' stockholdings further intensify the firm's future thrust to compete.¹⁰

Further, we estimate a dynamic panel GMM model, since it is plausible that the relationship between thrust to compete (TC) and transient ownership is in fact dynamically endogenous. Thus, it is possible that causation may run both ways and that current levels of TC could affect both future ownership levels and TC . Hence, to control for potential dynamic endogeneity of this kind, we follow Wintoki, Linck and Netter (2012) by adopting the dynamic panel GMM approach (as proposed by Arellano and Bover, 1995 and Blundell and Bond, 1998). More specifically, we conduct GMM estimations, whereby two lags of thrust to compete are included in the dynamic model, and lags of independent variables up to four periods are employed as instruments. One of the advantages of this approach is that it allows us to explicitly control for lagged values of TC . Further, we are able to use the firms' information within our dataset as instruments. The empirical

¹⁰ Another interpretation of these positive and highly statistically significant coefficients is the following: despite all the endogeneity treatments we have performed and having attested the contrary, let us suppose that the cross-sectional variation in the level of institutional ownership is endogenously determined by the cross-sectional variation in the level of some other omitted variables that we cannot observe and thus we do not include in our regression models. It would be highly unlikely that the same endogenous relationship would still confound the information when using the time differences in institutional ownership. Therefore, after controlling for TRA_{t-2} , the significance in the coefficients of ΔTRA_t and ΔTRA_{t-1} lends further credence to a causal positive relationship between transient investors and a firm's future thrust to compete, especially considering model (4), where we also impose firm fixed effects.

Table 6. Time-dynamic regressions of institutional ownership on thrust to compete

	(1)	(2)	(3)	(4)
ΔTRA_t	0.017*** (3.73)	0.019*** (3.93)	0.014*** (2.87)	0.015*** (2.88)
TRA_{t-1}	0.025*** (3.28)		0.018** (2.16)	
ΔTRA_{t-1}		0.021*** (3.36)		0.015** (2.15)
TRA_{t-2}		0.027*** (3.00)		0.018* (1.81)
DED_t	-0.015** (2.43)	-0.013** (2.05)	-0.006 (0.85)	-0.005 (0.69)
QIX_t	-0.018** (2.03)	-0.012 (1.30)	-0.013 (1.35)	-0.009 (0.90)
AGE_t	-0.091*** (8.86)	-0.086*** (7.96)	-0.433 (0.46)	-1.29 (0.54)
LEV_t	0.001 (0.01)	0.001 (0.14)	0.01 (1.56)	0.011* (1.72)
MTB_t	0.001 (0.24)	0.001 (0.17)	0.001 (0.30)	0.001 (0.18)
$RD_INTENSITY_t$	0.053*** (5.64)	0.053*** (5.30)	0.027** (2.20)	0.024* (1.81)
RD_CUT_t	0.007 (0.70)	0.007 (0.74)	-0.003 (0.33)	-0.005 (0.49)
ROA_t	-0.007 (1.09)	-0.006 (0.89)	-0.011 (1.47)	-0.008 (1.03)
$SIZE_t$	-0.075*** (6.54)	-0.082*** (6.77)	-0.058*** (3.49)	-0.062*** (3.53)
FOG_t	-0.004 (0.67)	-0.004 (0.59)	0.002 (0.27)	0.002 (0.31)
$FILESIZE_t$	-0.062*** (4.46)	-0.061*** (4.26)	-0.028* (1.87)	-0.028* (1.84)
$NETTONE_t$	-0.015** (2.37)	-0.015** (2.36)	-0.013* (1.93)	-0.015** (2.09)
R^2	0.03	0.03	0.49	0.48
N	52,569	49,607	52,569	49,607

This table presents results from random effects regressions [models (1) and (2)] and firm fixed effects regressions [models (3) and (4)] examining, by using time-dynamic model specifications, the impact of transient (TRA) ownership on firms' 1-year-ahead thrust to compete (TC_{t+1}). We control for the percentage ownership by dedicated investors (DED) and quasi-indexers (QIX), along with a series of other control variables. Definitions of all key variables are provided in Table 1. All regressions include year and industry fixed effects. The standard errors are clustered at the firm level and the resulting t-statistics appear in parentheses. The continuous variables are standardized to have a mean value of zero and variance of one. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

model specification is as follows:

$$\begin{aligned}
 TC_{t+1} = & \beta_1 + \beta_2 TRA_t + \beta_3 DED_t + \beta_4 QIX_t \\
 & + \beta_5 AGE_t + \beta_6 LEV_t + \beta_7 MTB_t \\
 & + \beta_8 RD_INTENSITY_t \\
 & + \beta_9 RD_CUT_t + \beta_{10} ROA_t \\
 & + \beta_{11} SIZE_t + \beta_{12} FOG_t \\
 & + \beta_{13} FILESIZE_t + \beta_{14} NETTONE_t \\
 & + \beta_{15} TC_t + \beta_{16} TC_{t-1} + \eta + \varepsilon_t
 \end{aligned}
 \tag{4}$$

where η is the unobserved individual firm effect. In the estimation, we first-difference Eq. (4) to eliminate unobserved heterogeneity and potential omitted variable bias. Next, we estimate the first-differenced model by GMM using lagged values (and differences) of TC and other firm characteristics as instruments. The assumption underlying such a choice of instruments is that all the regressors, except firm age, year dummies and industry dummies, are endogenous. Because our dependent variable is 1-year-ahead thrust to compete, the dynamic GMM model controls for the

Table 7. Dynamic system GMM regressions of institutional ownership on thrust to compete

	(1)	(2)
TRA_t	0.024*** (2.68)	0.022** (2.19)
DED_t		−0.014 (0.83)
QIX_t		−0.006* (1.72)
AGE_t	0.19 (0.19)	0.396 (0.78)
LEV_t	0.008 (0.11)	0.013 (0.22)
MTB_t	0.075** (1.99)	0.074** (2.17)
$RD_INTENSITY_t$	−0.041 (0.46)	−0.033 (0.35)
RD_CUT_t	−0.028 (0.22)	−0.089 (0.73)
ROA_t	−0.156** (2.19)	−0.185*** (2.70)
$SIZE_t$	0.052 (0.36)	0.043 (0.35)
FOG_t	−0.018 (0.49)	−0.013 (0.34)
$FILESIZE_t$	0.062 (0.58)	−0.038 (0.35)
$NETTONE_t$	−0.027 (0.64)	−0.021 (0.50)
TC_t	0.254*** (2.79)	0.263*** (2.64)
TC_{t-1}	0.087*** (4.82)	0.090*** (4.98)
AR(1) test p-value	0.00	0.00
AR(2) test p-value	0.45	0.47
Hansen test for over-identification p-value	0.72	0.73
Difference-in-Hansen tests of exogeneity p-value	0.83	0.87
N	52,826	52,826

This table presents dynamic panel GMM estimates of the relationship between institutional ownership – transient (TRA_t), dedicated (DED_t) and quasi-indexers (QIX_t) – on firms' 1-year-ahead thrust to compete (TC_{t+1}). AR(1) and AR(2) are tests for first-order and second-order serial correlation in the first-differenced residuals, under the null hypothesis of no serial correlation. The Hansen test for over-identification is under the null hypothesis that all instruments are valid. The difference-in-Hansen test of exogeneity is under the null hypothesis that instruments used for the equations in levels are exogenous. Definitions of all key variables are provided in Table 1. All regressions include year and industry fixed effects. The standard errors are clustered at the firm level and the resulting t-statistics appear in parentheses. The continuous variables are standardized to have a mean value of zero and variance of one. ***, ** and * indicate statistical significance at 1%, 5% and 10% levels, respectively.

influences of current and 1-year lagged values. All regressions include year and industry fixed effects.

The GMM results are presented in Table 7. Consistent with the results previously reported, we provide evidence of a positive relationship between transient ownership and 1-year-ahead thrust to compete. To ensure the included lags to control for dynamic endogeneity, we employ Arellano and Bond (1991) (AR) tests of first-

order and second-order serial correlations. By construction, there should be serial correlations among the residuals in the first differences, namely AR(1), but not in the second differences, namely AR(2). Accordingly, we expect to reject the null hypothesis in AR(1), but not in AR(2), which is supported by the AR test p-values reported at the bottom of Table 7. Given that we use multiple lags as instruments, we also conduct Hansen's (1982)

Table 8. Regressions of thrust to compete on firm performance

	(1)	(2)	(3)
TC_t	0.011** (2.36)	0.011*** (2.64)	0.012** (2.30)
$HIGH_TRA_t$			-0.018*** (2.81)
$TC_t \times HIGH_TRA_t$			0.003** (2.32)
AGE_t		0.028*** (6.94)	0.029*** (7.23)
LEV_t		0.142*** (4.93)	0.142*** (4.94)
MTB_t		-0.009* (1.79)	-0.009* (1.76)
ROA_t		-0.041*** (2.93)	-0.041*** (2.93)
$SIZE_t$		-0.033*** (5.17)	-0.035*** (6.36)
R^2	0.05	0.07	0.07
N	52,617	52,617	52,617

This table reports ordinary least squares regression results investigating the impact of thrust to compete (TC_t) on the dependent variable, firms' short-term performance as measured by stock returns ($RETURNS_{t+1}$). $High_TRA$ is an indicator variable for firms with high levels of transient ownership, defined as those in the top tercile of TRA each year. Definitions of all key variables are provided in Table 1. All regressions include year and industry fixed effects. The standard errors are clustered at the firm level and the resulting t-statistics appear in parentheses. The continuous variables are standardized to have a mean value of zero and variance of one. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

test for over-identification to assess the validity of our instruments. In addition, we conduct the difference-in-Hansen test of exogeneity to determine whether the subset of instruments used in the level equation is exogenous. Based on the p-values reported in Table 7 for these specification tests, we conclude that our dynamic GMM regressions provide valid estimates.

Stock market implications of thrust to compete

Collectively, our findings in Tables 4–7 provide robust causal evidence that transient institutional investors *positively* influence, and intensify, a firm's thrust to compete even for periods spanning more than 1 year. These investors appear to engage in interventions with managers to affect firms' culture and operating philosophy according to their appetite for reaping short-term trading profits. In this vein, we also provide evidence to support the working hypothesis, whereby a firm's thrust to compete positively associates with short-term performance, and transient institutional investors exploit a firm's thrust to compete as a channel to influence the firm's financial performance. Specifi-

cally, we estimate the following regression models:

$$\begin{aligned}
 RETURNS_{t+1} = & a_1 + a_2 TC_t + a_3 AGE_t \\
 & + a_4 LEV_t + a_5 MTB_t \\
 & + a_6 ROA_t + a_7 SIZE_t + e_t
 \end{aligned}
 \quad (5a)$$

$$\begin{aligned}
 RETURNS_{t+1} = & a_1 + a_2 TC_t + a_3 HIGH_TRA_t \\
 & + a_4 TC_t \times HIGH_TRA_t \\
 & + a_5 AGE_t + a_6 LEV_t \\
 & + a_7 MTB_t + a_8 ROA_t \\
 & + a_9 SIZE_t + e_t
 \end{aligned}
 \quad (5b)$$

The results of Eqs (5a) and (5b) are presented in Table 8, where the dependent variable $RETURNS_{t+1}$ is the one-period-ahead buy-and-hold stock return. Specifically, models (1) and (2) present the estimates of Eq. (5a), where we find that the coefficients on TC_t are both positive and statistically significant, lending support to our working hypothesis. Further, model (3) presents the results of Eq. (5b), where we interact thrust to compete with a dummy variable capturing high

(i.e. in the top annual tercile) transient institutional ownership, $HIGH_TRA_t$. The results indicate that firms with a high proportion of transient investors indeed increase 1-year-ahead stock performance through such firms' thrust to compete.

The positive effects of thrust to compete on short-term stock return performance as in Table 8 may paint an appealing picture, whereby at first glance one can be tempted to interpret the results as firms benefitting from overly emphasizing corporate values geared towards competition. Notwithstanding this evidence, when a firm's thrust to compete is excessively intensified, the management may become susceptible to making suboptimal decisions and taking actions with negative consequences that potentially harm firm value in the long term (see also Andreou *et al.*, 2020b). With firms placing greater emphasis on the pursuit of competitiveness and high achievements, as dictated by their thrust to compete, managerial incentives to conceal any bad news will naturally be heightened as firms strive to consistently deliver superior financial performance. Such operating environments, however, foster agency problems and make firms vulnerable to adverse economic outcomes in the form of large idiosyncratic stock price declines, known as crash risk (Andreou, Louca and Petrou, 2017; Callen and Fang, 2013, 2015; Hutton, Marcus and Tehranian, 2009). Therefore, to examine whether a greater level of TC is positively related to firm-specific stock price crash risk, we estimate the following empirical model:

$$\begin{aligned} CRASH_RISK_{t+1} = & b_1 + b_2 TC_t + b_3 AGE_t \\ & + b_4 LEV_t + b_5 MTB_t \\ & + b_6 ROA_t + b_7 SIZE_t \\ & + b_8 DTURN_t \\ & + b_9 RETURN_t \\ & + b_{10} STD_RETURN_t \\ & + b_{11} ZSCORE_t \\ & + b_{12} CRASH_RISK_t + e_t \end{aligned} \quad (6)$$

where the variable $CRASH_RISK_{t+1}$ represents three crash risk measures, namely $NCSKEW_{t+1}$, $ESIGMA_{t+1}$ and $DUVOL_{t+1}$. In particular, $NCSKEW$ is the negative of the third moment of firm-specific weekly returns for each firm and year by the standard deviation of firm-specific weekly

returns, raised to the third power; $ESIGMA$ is the negative of the worst deviation of firm-specific weekly returns from the average firm-specific weekly return divided by the standard deviation of firm-specific weekly returns; and $DUVOL$ is the log of the ratio of the standard deviation of 'down weeks' (i.e. below the annual mean returns) over the standard deviation of the 'up weeks' (above the annual mean returns). We also include the following additional controls for our crash risk models: $DTURN_t$, measured as the average monthly turnover for the current fiscal year minus the average monthly share turnover for the previous year; $RETURNS_t$, the average weekly returns over the fiscal year; $STD_RETURNS_t$, capturing the standard deviation of firm-specific weekly returns; and $ZSCORE_t$, which is Altman's (1968) z-score measure of firm's financial stability. We also include $CRASH_RISK_t$ to control for last-period firm-specific stock price crashes.

The estimated coefficients of Eq. (6) are reported in Table 9. We find a positive and significant relationship between thrust to compete and 1-year-ahead crash risk.¹¹ As crash risk relates directly to potentially devastating stock price drops next period, this evidence unveils a dark side of thrust to compete, which is harmful for long-term value creation.

Additional analysis: is thrust to compete different from product market competition?

Our thrust-to-compete (TC) measure is designed to capture firms' culture geared towards competition, as defined under the CVF. It is plausible that it may have some association with other textual measures intended to measure firms' product market competition. In this regard, we explore whether a firm's thrust to compete is indeed distinct from Li *et al.*'s (2013) textually computed product market competition measure, namely $PROD_COMP$. Specifically, we estimate Li *et al.*'s (2013) measure by counting the number of times the words 'competition', 'competitor', 'competitive', 'compete'

¹¹Our results corroborate the findings of Andreou *et al.* (2020b), who elaborate more on the dark side of the compete culture. Specifically, they report that high compete culture firms engage in earnings management practices, which are associated with the hoarding of bad news that is ultimately responsible for the occurrence of stock price crashes.

Table 9. Regressions of thrust to compete on crash risk

	(1)	(2)	(3)
TC_t	0.013*** (2.71)	0.011** (2.42)	0.009** (2.22)
AGE_t	-0.046*** (8.32)	-0.047*** (8.68)	-0.039*** (7.57)
LEV_t	-0.017*** (3.42)	0.005 (1.12)	-0.024*** (5.18)
MTB_t	0.016*** (3.09)	0.010** (2.16)	0.015*** (3.07)
ROA_t	0.055*** (8.62)	0.046*** (8.68)	0.075*** (13.61)
$SIZE_t$	0.109*** (16.86)	0.068*** (11.82)	0.131*** (22.39)
$DTURN_t$	0.029*** (5.93)	0.022*** (4.93)	0.027*** (6.40)
$RETURN_t$	-0.248*** (38.14)	-0.218*** (42.62)	-0.255*** (43.87)
STD_RETURN_t	-0.016** (2.45)	-0.044*** (7.65)	-0.038*** (6.58)
$ZSCORE_t$	0.024*** (4.15)	0.012** (2.28)	0.028*** (5.27)
$NCSKEW_t$	0.024*** (4.83)		
$ESIGMA_t$		0.028*** (6.02)	
$DUVOL_t$			0.020*** (4.55)
R^2	0.10	0.08	0.12
N	52,012	52,012	52,012

This table reports ordinary least squares regression results investigating the impact of thrust to compete (TC_t) on the dependent variable, 1-year-ahead stock price crash risk. In model (1), crash risk is measured using $NCSKEW_{t+1}$, which is the negative of the third moment of firm-specific weekly returns for each firm and year by the standard deviation of firm-specific weekly returns raised to the third power. In model (2), $ESIGMA_{t+1}$ is the crash risk measure, which is the negative of the worst deviation of firm-specific weekly returns from the average firm-specific weekly return divided by the standard deviation of firm-specific weekly returns. In model (3), $DUVOL_{t+1}$ is the crash risk measure, which is the log of the ratio of the standard deviations of 'down weeks' (i.e. below the annual mean returns) over the standard deviation of 'up weeks' (above the annual mean returns). Control variables are those in previous tables and additional crash risk-related controls, including $DTURN_t$, measured as the average monthly turnover for the current fiscal year minus the average monthly share turnover for the previous year; $RETURNS_t$, the average weekly returns over the fiscal year; $STD_RETURNS_t$, the standard deviation of firm-specific weekly returns; and $ZSCORE_t$, Altman's (1968) z-score measure of firms' financial stability; and lagged firm-specific crash risk. All regressions include year and industry fixed effects. The standard errors are clustered at the firm level and the resulting t-statistics appear in parentheses. The continuous variables are standardized to have a mean value of zero and variance of one. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

and 'competing', including those words with an 's' appended, appear in a firm's 10-K filing minus those occasions when these words are preceded by 'not', 'less', 'few' or 'limited', with a gap of three or fewer words. The measure is then scaled by the number of words occurring in the 10-K filing.

In comparing the two measures, unlike $PROD_COMP$, which concerns management's perceptions regarding their firm's strategy for operating in competitive environments, TC is operationalized using a much more comprehensive bag of words under the CVF and spans cultural

traits that pertain to firms' operating philosophy as a whole. Nevertheless, if TC simply reflects variations in product market competition, it is possible that the relations we document between the institutional base composition and thrust to compete are driven by the intensity of firms' product market competition, as opposed to the intensity of firms' thrust to compete.¹²

¹²Univariate analysis of the relationship between institutional ownership, thrust to compete and product market competition is presented in Table A7 in the online

Table 10. Robustness analysis: regressions of institutional ownership on product market competition

	(1)	(2)	(3)	(4)
Panel A: Institutional ownership (in year t) and 1-year-ahead product market competition ($PROD_COMP_{t+1}$)				
TRA_t	-0.003 (0.49)	-0.003 (0.49)	-0.013* (1.81)	-0.013* (1.87)
DED_t		0.001 (0.14)		0.01 (1.35)
QIX_t		-0.016 (1.62)		-0.009 (0.81)
Controls	YES	YES	YES	YES
R^2	0.05	0.05	0.55	0.55
N	52,882	52,882	52,882	52,882
Panel B: Time-dynamic regressions of institutional ownership (in year t) and 1-year-ahead product market competition ($PROD_COMP_{t+1}$)				
ΔTRA_t	-0.001 (0.11)	-0.001 (0.23)	-0.007 (1.26)	-0.008 (1.37)
TRA_{t-1}	-0.005 (0.66)		-0.019** (2.02)	
ΔTRA_{t-1}		-0.002 (0.27)		-0.012* (1.65)
TRA_{t-2}		-0.006 (0.61)		-0.022* (1.95)
DED_t	0.001 (0.13)	0.006 (0.86)	0.011 (1.40)	0.015* (1.93)
QIX_t	-0.014 (1.42)	-0.006 (0.60)	-0.006 (0.50)	0.001 (0.08)
Controls	YES	YES	YES	YES
R^2	0.05	0.05	0.49	0.48
N	52,569	49,607	52,569	49,607

This table presents results from random effects regressions [models (1) and (2)] and firm fixed effects regressions [models (3) and (4)] examining the impact of different types of institutional ownership on firms' 1-year-ahead product market competition ($PROD_COMP_{t+1}$). Panel A reports the results of transient investors (TRA_t), dedicated investors (DED_t) and quasi-indexers (QIX_t). Panel B reports the results from time-dynamic model specifications for the impact of transient (TRA) ownership on firms' 1-year-ahead thrust to compete (TC_{t+1}). All regressions include year and industry fixed effects. The standard errors are clustered at the firm level and the resulting t-statistics appear in parentheses. The continuous variables are standardized to have a mean value of zero and variance of one. Definitions of all key variables are provided in Table 1. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

To exclude such a possibility, we re-estimate Eqs (2) and (3a), (3b) by replacing TC_{t+1} with $PROD_COMP_{t+1}$. The main results are presented in Table 10, where the evidence suggests a weak negative relationship between transient institutional ownership and 1-year-ahead product market competition, as defined by Li, Lundholm and Minnis (2013). Specifically, in Panel A, the random effects results in models (1) and (2) show an insignificant statistical relationship, while the firm fixed effects results in models (3) and (4) point to a marginally negative relationship

supporting information. We find that thrust to compete and product market competition do not correlate similarly with the institutional ownership characteristics.

between TC_{t+1} and $PROD_COMP_{t+1}$. The time-dynamic regression coefficients for product market competition remain insignificant in Panel B. This evidence indicates that transient institutional investors influence firms' cultural traits and values, shaping an operating philosophy that emphasizes competition, and these effects are broader than just focusing on product market competition.

Conclusion

Institutional ownership characteristics and preferences play an important role in firms' economic decision-making. In this respect, recent research shows that institutional investors' investment

horizons influence a firm's governance and policy choices. Our study contributes to this emerging literature by documenting for the first time a strong positive influence of transient (or short-term) institutional investors on a firm's thrust to compete.

We measure a firm's thrust to compete based on the attributes of organizational culture that are geared towards achieving targets, delivering results, competitiveness and market dominance. The measurement relies on the culture taxonomy of the CVF and the culture assessment dimensions underpinning the OCAI. We use textual analysis to measure a firm's thrust to compete as the relative frequency of compete culture-related words used in the firm's annual 10-K filings.

The empirical results demonstrate that a greater presence of transient institutional investors in a firm's capital base has a significantly positive impact on its future thrust to compete. This indicates that transient investors, whose desire is to reap short-term trading profits, influence a firm's operating philosophy to pursue short-run competitiveness and fast returns. By contrast, and as a falsification test for the prior findings, our results show a general tendency for an opposite negative effect among the non-transient institutional investor base, comprised of dedicated investors and quasi-indexers, who focus on long-term value creation.

Overall, our results have important implications of interest to academics and the wider business community because they shed light on how the composition of institutional owners shapes the organizational culture and the operating philosophies within firms.

References

- Admati, A. R. and P. Pfleiderer (2009). 'The "Wall Street walk" and shareholder activism: exit as a form of voice', *Review of Financial Studies*, **22**, pp. 2645–2685.
- Altman, E. I. (1968). 'Financial ratios, discriminant analysis and the prediction of corporate bankruptcy', *The Journal of Finance*, **23**, pp. 589–609.
- Andreou, P. C., T. Harris and D. Philip (2020). 'Measuring firms' market orientation using textual analysis of 10-K filings', *British Journal of Management*, **31**, pp. 872–895.
- Andreou, P. C., C. Louca and A. P. Petrou (2017). 'CEO age and stock price crash risk', *Review of Finance*, **21**, pp. 1287–1325.
- Andreou, P. C., T. Harris, D. Philip and W. Zhang (2020a). 'The OCAI textual measure of organizational culture'. Available at <https://ssrn.com/abstract=3625894> (accessed 12 November 2020).
- Andreou, P. C., T. Harris, D. Philip and W. Zhang (2020b). 'Competitive culture and stock price crash risk'. Available at <https://ssrn.com/abstract=3625892> (accessed 12 November 2020).
- Appel, I. R., T. A. Gormley and D. B. Keim (2016). 'Passive investors not passive owners', *Journal of Financial Economics*, **121**, pp. 111–141.
- Arellano, M. and S. Bond (1991). 'Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations', *The Review of Economic Studies*, **58**, pp. 277–297.
- Arellano, M. and O. Bover (1995). 'Another look at the instrumental variable estimation of error-components models', *Journal of Econometrics*, **68**, pp. 29–51.
- Barton, D., J. Bailey and J. Zoffer (2016). 'Rising to the challenge of short-termism'. Available at <https://www.fcltglobal.org/wp-content/uploads/fclt-global-rising-to-the-challenge.pdf> (accessed 27 March 2019).
- Blundell, R. and S. Bond (1998). 'Initial conditions and moment restrictions in dynamic panel data models', *Journal of Econometrics*, **87**, pp. 115–143.
- Bodnaruk, A., T. Loughran and B. McDonald (2015). 'Using 10-K text to gauge financial constraints', *Journal of Financial and Quantitative Analysis*, **50**, pp. 623–646.
- Boone, A. L. and J. T. White (2015). 'The effect of institutional ownership on firm transparency and information production', *Journal of Financial Economics*, **117**, pp. 508–533.
- Brav, A., W. Jiang and H. Kim (2015). 'The real effects of hedge fund activism: productivity, asset allocation, and labor outcomes', *Review of Financial Studies*, **28**, pp. 2723–2769.
- Bushee, B. J. (1998). 'The influence of institutional investors on myopic R&D investment behavior', *The Accounting Review*, **73**, pp. 305–333.
- Bushee, B. J. (2001). 'Do institutional investors prefer near-term earnings over long-run value?', *Contemporary Accounting Research*, **18**, pp. 207–246.
- Bushee, B. J. and C. F. Noe (2000). 'Corporate disclosure practices, institutional investors, and stock return volatility', *Journal of Accounting Research*, **38**, pp. 171–202.
- Bushman, R. M., B. E. Hendricks and C. D. Williams (2016). 'Bank competition: measurement, decision-making, and risk-taking', *Journal of Accounting Research*, **54**, pp. 777–826.
- Callen, J. L. and X. Fang (2013). 'Institutional investor stability and crash risk: monitoring versus short-termism?', *Journal of Banking and Finance*, **37**, pp. 3047–3063.
- Callen, J. L. and X. Fang (2015). 'Religion and stock price crash risk', *Journal of Financial and Quantitative Analysis*, **50**, pp. 169–195.
- Cameron, K. S. and R. E. Quinn (2011). *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework*. San Francisco, CA: Jossey-Bass.
- Cameron, K., R. Quinn, J. DeGraff and A. Thakor (2014). *Competing Values Leadership*. Northampton, MA: Edward Elgar.
- Cella, C., A. Ellul and M. Giannetti (2013). 'Investors' horizons and the amplification of market shocks', *Review of Financial Studies*, **26**, pp. 1607–1648.
- Chen, X., J. Harford and K. Li (2007). 'Monitoring: which institutions matter?', *Journal of Financial Economics*, **86**, pp. 279–305.
- Clark, T. S. and D. A. Linzer (2015). 'Should I use fixed or random effects?', *Political Science Research and Methods*, **3**, pp. 399–408.
- Crane, A. D., S. Michenaud and J. P. Weston (2015). 'The effect of institutional ownership on payout policy: evidence from index thresholds', *Review of Financial Studies*, **29**, pp. 1377–1408.

- Dikolli, S. S., S. L. Kulp and K. L. Sedatole (2009). 'Transient institutional ownership and CEO contracting', *The Accounting Review*, **84**, pp. 737–770.
- Dyck, A., K. V. Lins, L. Roth and H. F. Wagner (2019). 'Do institutional investors drive corporate social responsibility? International evidence', *Journal of Financial Economics*, **131**, pp. 693–714.
- Edmans, A. (2009). 'Blockholder trading, market efficiency, and managerial myopia', *Journal of Finance*, **64**, pp. 2481–2513.
- Edmans, A. and G. Manso (2011). 'Governance through trading and intervention: a theory of multiple blockholder', *Review of Financial Studies*, **24**, pp. 2395–2428.
- Fama, E. F. and K. R. French (1997). 'Industry costs of equity', *Journal of Financial Economics*, **43**, pp. 153–193.
- Ferguson, N., D. Philip, H. Lam and M. Guo (2015). 'Media content and stock returns: the predictive power of press', *International Finance Journal*, **19**, pp. 1–31.
- Fiordelisi, F. and O. Ricci (2014). 'Corporate culture and CEO turnover', *Journal of Corporate Finance*, **28**, pp. 66–82.
- Gaspar, J. M., M. Massa and P. Matos (2005). 'Shareholder investment horizons and the market for corporate control', *Journal of Financial Economics*, **76**, pp. 135–165.
- Giannetti, M. and X. Yu (2020). 'Adapting to radical change: the benefits of short-horizon investors', *Management Science*, forthcoming. <https://doi.org/10.1287/mnsc.2020.3702>. Available at <https://ssrn.com/abstract=2723357>
- Gompers, P. A. and A. Metrick (2001). 'Institutional investors and equity prices', *The Quarterly Journal of Economics*, **116**, pp. 229–259.
- Graham, J. R., C. R. Harvey, J. Grennan and S. Rajgopal (2019). 'Corporate culture: evidence from the field'. Available at <https://ssrn.com/abstract=2805602> (accessed 27 March 2019).
- Guiso, L., P. Sapienza and L. Zingales (2015). 'The value of corporate culture', *Journal of Financial Economics*, **117**, pp. 60–76.
- Hansen, L. P. (1982). 'Large sample properties of generalized method of moments estimators', *Econometrica: Journal of the Econometric Society*, **50**, pp. 1029–1054.
- Harford, J., A. Kecskes and S. Mansi (2018). 'Do long-term investors improve corporate decision making?', *Journal of Corporate Finance*, **50**, pp. 424–452.
- Hartnell, C. A., A. Y. Ou and A. Kinicki (2011). 'Organizational culture and organizational effectiveness: a meta-analytic investigation of the competing values framework's theoretical suppositions', *Journal of Applied Psychology*, **96**, pp. 677–694.
- Hoberg, G. and G. Phillips (2016). 'Text-based network industries and endogenous product differentiation', *Journal of Political Economy*, **124**, pp. 1423–1465.
- Hutton, A. P., A. J. Marcus and H. Tehranian (2009). 'Opaque financial reports, R², and crash risk', *Journal of Financial Economics*, **94**, pp. 67–86.
- Jiang, F., K. A. Kim, Y. Ma, J. R. Nofsinger and B. Shi (2019). 'Corporate culture and investment – cash flow sensitivity', *Journal of Business Ethics*, **154**, pp. 425–439.
- Larcker, D. F. and T. O. Rusticus (2010). 'On the use of instrumental variables in accounting research', *Journal of Accounting and Economics*, **49**, pp. 186–205.
- Li, F., R. Lundholm and M. Minnis (2013). 'A measure of competition based on 10-K filings', *Journal of Accounting Research*, **51**, pp. 399–436.
- Loughran, T. and B. McDonald (2011). 'When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks', *The Journal of Finance*, **66**, pp. 35–65.
- McCahery, J. A., Z. Sautner and L. T. Starks (2016). 'Behind the scenes: the corporate governance preferences of institutional investors', *The Journal of Finance*, **63**, pp. 1729–1775.
- Parrino, R., R. W. Sias and L. T. Starks (2003). 'Voting with their feet: institutional ownership changes around forced CEO turnover', *Journal of Financial Economics*, **68**, pp. 3–46.
- Quinn, R. E. and J. Rohrbaugh (1983). 'A spatial model of effectiveness criteria: towards a competing values approach to organizational analysis', *Management Science*, **29**, pp. 363–377.
- Ramalingegowda, S. and Y. Yu (2012). 'Institutional ownership and conservatism', *Journal of Accounting and Economics*, **53**, pp. 98–114.
- Stock, J. H. and M. Yogo (2005). *Testing for Weak Instruments in Linear IV Regression. Identification and Inference for Econometric Models. Essays in Honor of Thomas Rothenberg*. New York: Cambridge University Press.
- Switzer, L. N. and J. Wang (2017). 'Institutional investment horizon, the information environment and firm credit risk', *Journal of Financial Stability*, **29**, pp. 57–71.
- Ten Have, S., W. Ten Have and F. Stevens (2003). *Key Management Models: The Management Tools and Practices That Will Improve Your Business*. London: Pearson Education.
- Wintoki, M. B., J. S. Linck and J. M. Netter (2012). 'Endogeneity and the dynamics of internal corporate governance', *Journal of Financial Economics*, **105**, pp. 581–606.
- Yan, X. S. and Z. Zhang (2009). 'Institutional investors and equity returns: are short-term institutions better informed?', *Review of Financial Studies*, **22**, pp. 893–924.
- Zingales, L. (2015). 'The "cultural revolution" in finance', *Journal of Financial Economics*, **117**, pp. 1–4.

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