THE EFFECT OF INSTITUTIONAL OWNERSHIP ON FIRMS' COMPETITION ORIENTATION: THE IMPLICATIONS FOR CRASH RISK

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ABSTRACT

This paper develops a measure of competition orientation based on textual analysis of managements' disclosures in their 10-K filings. Using this measure, we provide evidence regarding institutional investors' preferences and behind-the-scenes interventions. In particular, we show that transient institutional ownership intensifies firms' competition orientation, while dedicated institutional ownership lessens it. Further, we demonstrate that as firms intensify competition orientation, they also become more susceptible to stock price crash risk, a phenomenon observed among such firms with a high proportion of transient, and a low proportion of dedicated, institutional ownership. These findings have policy implications, since they identify firms' competition orientation as a channel through which transient institutional investors influence firms' decision-making and economic outcomes, albeit at the expense of shareholder value creation.

Keywords: Competition orientation; Institutional ownership; Transient investors; Crash risk; Firm value.

JEL classification numbers: G20, G32, G34, G38, M48.

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1 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 (see, for example, Loughran et al., 2009; Fiordelisi and Ricci, 2014; Callen and Fang, 2015; Guiso et al., 2006, 2015a, 2015b; Popadak, 2014; Zingales, 2015; Erhard et al., 2016; Graham et al., 2017). These studies suggest that such firm attributes inform the organizational culture that guide the top management teams' decision-making and influence firms' economic outcomes. A separate strand of literature documents the strong influence of institutional ownership structure on organizational outcomes such as earnings manipulation, R&D investments, M&As, and financing (see, for example, Gaspar et al., 2005; Chen et al., 2007; Elyasiani et al., 2010; Harford et al., 2017), as well as on financial performance (see, for example, Gompers and Metric, 1998; Nofsinger and Sias, 1999; Cai and Zheng, 2004; Giannetti and Yu, 2017). This paper contributes by examining how these two influencing factors for organizational outcomes – firms' corporate values and institutional ownership structures – are linked. In particular, we propose *competition orientation* as a corporate value and a channel through which institutional investors influence firms' decision-making and economic outcomes.

This study relies on the competing values framework (CVF) of Quinn and Rohrbaugh (1983) and Cameron et al. (2014) to define the competition orientation of a firm as a type of corporate culture that focus on achieving superior financial performance by assimilating and responding to external environmental information. The competing values framework for effective organizational performance has been named as one of the forty most important frameworks in the history of business (Ten Have et al., 2003). This framework identifies competition orientation as an important corporate value that impacts corporate decision-making. Within this framework, the competition orientation of a firm is concerned with value-creating activities that are empowered by forceful pursuit of competitiveness and achievements. Hence, speed of action, driving through barriers to deliver results, and building competition-focused decision-making, all typify firms which place great emphasis towards the competition orientation (Cameron et al., 2014). In this vein, firms with an intensified competition orientation have a proclivity towards being aggressive and moving fast, while assessing success based on indicators such as increased sales growth, profitability, and market share. Conversely, when a firm's competition orientation is excessively intensified, for instance by over-exertion and high levels of external pressure to deliver sustained revenue growth and superior performance, the management can become highly susceptible to making suboptimal decisions and taking actions with negative consequences that potentially harm shareholder value creation.

Following the growing literature that applies textual analysis in accounting and finance research (see, for instance, Tetlock, 2007; Loughran and McDonald, 2009; Hoberg and Phillips, 2010, 2016; Li,

2010a, 2010b, Li et al., 2013; Hoberg et al., 2014; Popadak, 2014; Fiordelisi and Ricci, 2014; Bushman et al., 2016), we develop a measure of a firm's competition orientation by exploiting a large corpus of archival data from the 10-K filings describing current and future operations of US listed firms. We adopt this measurement approach as it provides an efficient and objective way of capturing the intensity that a firm is placing towards the competition orientation via the management's disclosures in the firm's annual financial statements (please see Fiordelisi and Ricci, 2014; Nguyen et al. 2017). We operationalize our measure by parsing 10-K reports to identify a set of lexical items relating to attributes that shape firms' competition orientation. In particular, we focus on lexical items that reflect external effectiveness criteria such as the aggressive pursuit of enhanced competitiveness, the achievement of organizational goals and results, the drive for rapid sales growth and superior financial performance, etc. For instance, it is reasonable to expect that firms using in their 10-K reports a relatively high frequency of word variants pertaining to "achievement", "aggressive", "compete", "goal", "growth" "profits", and "performance", among others, to be highly driven by corporate attributes steered towards the competition orientation.

Based on the theoretical foundations underpinning the competing values framework, firms exhibiting a more intensified competition orientation should consistently achieve increased revenue growth. We take advantage of this premise to empirically assess the construct validity of our competition orientation measure by exploring its relation to a measure of firms' sales growth. In this regard, we provide evidence that firms with greater competition orientation according to our measure do indeed realize sustained revenue growth as predicted by the CVF (Cameron et al., 2014).

Having developed our text based measure of competition orientation, we proceed with investigating the overarching question, *what is the influence of institutional investor base composition on firms' competition orientation?* This question is interesting to explore since recent literature documents that institutional investors regularly engage with management and the board of directors in behind-the-scene interventions that can shape corporate culture and climate (Edmans, 2014; Bebchuk et al., 2015; Brav et al., 2015; McCahery et al., 2016), and that the composition of a firm's institutional investor base can create (or mitigate) implicit incentives for managers to over-allocate effort towards improving current performance, potentially at the expense of shareholder value creation (e.g., Bushee, 1998; Dikolli et al., 2009; Popadak, 2014). Recent surveys of C-suite executives and directors conducted by researchers at the McKinsey Global Institute (MGI) (i.e. the business and economics research arm of the management consulting firm McKinsey & Company) suggest that 87% of executives and directors indeed feel under pressure to demonstrate strong financial performance within two or less years (Barton et al., 2016). In this vein, our investigation provides robust evidence that transient institutional ownership has a strong positive casual relation with a firm's competition orientation. As transient institutional investors invest based on the likelihood of reaping short-term trading profits (Bushee, 1998, 2001), this evidence supports the notion that they intervene and exert

pressure on managers to intensify their firms' competition orientation, perhaps aiming for a corporate culture that emphasizes *results-right-now* and immediate superior financial performance. As such, the management of a firm with more transient institutional investors would succumb to such pressures under the threat that if these institutional investors become unhappy they will forcefully exit by selling shares, thereby suppressing the firm's stock price (Bernardo and Welch, 2004; Fos and Kahn, 2015). Indeed, Graham et al. (2005) report that the majority of managers would avoid initiating a positive NPV project and sacrifice long-term shareholder value creation for short-term profits, in exchange for being able to cater to investors' expectations. Moreover, Barton et al., (2016) note that 55% of executives and directors at companies that do not have a long-term oriented corporate culture say that their company would delay a new project in order to hit quarterly targets even if it is at the expense of value.

Conversely, we demonstrate that dedicated institutional ownership has a negative relation with a firm's competition orientation. This evidence supports the notion that dedicated institutional investors also intervene and influence managers by lessening firms' competition orientation, perhaps following their incentives to monitor and offset managerial myopia, and by relying on information beyond current earnings to appraise managers' performance (Gaspar et al., 2005; Chen et al., 2007; Harford et al., 2017). Likewise, this evidence might reveal that the managers of firms with a higher proportion of dedicated institutional ownership feel less pressure to consistently meet short-term performance expectations. In this vein, they might ease their thrust of being aggressive and forceful in the pursuit of competitiveness and performance, as they have less reason to expect large price drops spurred by the exit/selling strategies of these investors.[1]

Overall, the above findings lend further credence to the view that institutional investors are far from homogeneous, whereby their investment horizon and performance-related objectives and preferences incentivize them to exert very different governance on firms' operating philosophy, priorities and decision-making processes.

Subsequently, we investigate the relation between competition orientation and a firm's proclivity to engage in bad news hoarding. In general, managers have financial incentives and other career motives to overstate performance by strategically withholding bad news and accelerating the release of good news, hoping that poor current performance will be camouflaged by strong future performance. However, such practices make firms vulnerable to adverse economic outcomes in the form of large idiosyncratic stock price declines, known as crash risk (Hutton et al., 2009; Kim et al., 2011a, 2011b; An and Zhang, 2013; Callen and Fang, 2013, 2015; Kim and Zhang, 2016; Andreou et

[1] This is reasonable since the majority of dedicated investors are in fact passive investors who simply invest in firms based on an index. These investors are therefore usually unable or unwilling to directly sell the stock of specific firms that comprise the index. As a result, managers at firms where dedicated institutional investors hold a great proportion of their firms are increasingly less likely to be concerned by selling pressure brought about by initial signals of underperformance (Cella et al., 2013; Giannetti and Yu, 2017).

al., 2017; Chen et al., 2017). With firms that place great emphasis on competition orientation, managerial incentives to conceal negative information regarding poor operating performance would be naturally intensified, since such firms need to consistently deliver sustained sales growth and superior financial performance. Thus, after controlling for known crash risk determinants and indicators of managerial myopia, we empirically test this proposition and find a strong positive relation between competition orientation and one-year-ahead crash risk. As crash risk associates with devastating stock price drops, this evidence corroborates that, on average, competition orientation appears to be harmful for firms' shareholder value creation.

Combining the result that transient institutional ownership intensifies firms' competition orientation with the evidence that competition orientation increases the propensity for crash risk, we postulate that competition orientation might be a channel through which transient institutional ownership exerts direct intervention within firms to influence corporate policies and economic outcomes. To investigate this, we conduct subsample analyses, the results of which are consistent with our expectations. Specifically, we find that the strong positive relation between competition orientation and future crash risk is present *only* within the subsample of firms that is dominated by a high proportion of transient institutional ownership and a low proportion of dedicated institutional ownership. Hence, consistent with the theoretical underpinnings in the competing values framework, the analysis shows that competition orientation does not cause any adverse effects on shareholder value creation; rather, the striking result is that competition orientation of a firm becomes harmful only when it is associated with a high proportion of transient and a low proportion of dedicated ownership structure. By and large this finding qualifies institutional investors as key corporate governance agents who can (either curb or) exacerbate firms' competition orientation, as their preferences and interventions can lead the management to become highly susceptible to making suboptimal decisions and prioritize activities that harm shareholder value creation.

In terms of econometric methods, our regression approaches are carefully implemented to tackle any identification issues that may cloud the interpretation of the results. In particular, to mitigate potential endogeneity concerns when investigating the relationship between competition orientation and institutional ownership we adopt an instrumental variables approach by using a firm's inclusion or exclusion in the Russell 1000/2000 indexes as a source of exogenous variation in institutional ownership (Crane et al., 2015; Appel et al., 2016). In addition, we estimate empirical models for this relationship using two-stage least squares (2SLS) analysis and dynamic panel generalized methods of moments (GMM) estimation. Further, to examine the relationship between competition orientation and crash risk, we present generalized least squared (GLS) random effects (RE) estimates since competition orientation is a slow moving variable. We prefer this estimator as it is able to provide valid parameter estimates for slow-moving covariates. We also present 2SLS estimates of this relation. Irrespective of the approach,

all econometric estimates confirm the robustness of our main findings and lend credence to the idea that the composition of the institutional investor base influences the firms' competition orientation.[2]

Our study contributes to the literature as follows. Firstly, our main finding that the composition of the institutional ownership base influences managers' operating philosophy and decision-making as detailed by their firms' competition orientation, adds direct knowledge to our understanding of how institutional investors engage with managers in behind-the-scenes interventions that leave an indelible mark on firms. As such, our findings complement other recent studies (for example, Edmans, 2014; Popadak, 2014; Bebchuk et al., 2015; Brav et al., 2015; McCahary et al., 2016) that endeavor to provide evidence of institutional investors' preferences and actions as regards their portfolio of firms. Secondly, it contributes to the ongoing debate regarding the benefits and costs of institutional investors on corporate decision making (see, for example, Massa et al., 2015; Giannetti and Yu, 2017; Harford et al., 2017) by investigating the impact of transient and dedicated investors on firms' competition orientation, which is argued to affect managers' decision-making. Finally, we also contribute to the burgeoning literature that focuses on the impact of corporate culture, organizational norms and principles to policies and economic outcomes (see, for example, Loughran et al., 2009; Guiso et al., 2006, 2015a, 2015b; Fiordelisi and Ricci, 2014; Popadak, 2014; Callen and Fang, 2015; Zingales, 2015; Erhard et al., 2016; Graham et al., 2017) by introducing competition orientation as another organizational effectiveness factor that links to shareholder value creation. As it is frequently very hard to measure the intangible corporate characteristics that reflect a specific corporate culture, we show how to operationalize such an empirical construct using textual analysis of the 10-K filings for all firms with such reports in the SEC Edgar database. In this regard, we also complement other recent studies, as in our analysis we demonstrate that firms' competition orientation remains distinct from other conceptualizations of market competitiveness behaviors pertaining to product market competition (for example, Li et al., 2013; Bushman et al., 2016).

The remainder of this paper is presented as follows: details of the data and summary statistics are presented in Section 2; Sections 3 and 4 present the empirical results and the additional analyses respectively; and Section 5 concludes.

[2] For our analysis, we refrain from relying on firm fixed-effect estimations, which depend solely on within-firm variations and are thus inapplicable in our case due to the slow-changing behavior of some of our main variables. Such behaviors resemble, for example, the well-known stickiness nature of the corporate governance attributes, in which, following the intuition in Wintoki et al. (2012), the firm fixed-effects approach is also not the optimal choice. However, for the sake of completeness, we report firm fixed-effects in a supplementary online appendix, which show similar conclusions, lending in this way more credence to the overall conclusions of our study.

2 DATA, MEASURES AND VARIABLES

2.1 Data

To conduct our empirical analysis, we build our dataset by merging information from various data sources. We obtain annual firm-level data of US publicly traded firms for the period 1994 to 2014 from Compustat. To measure competition orientation through textual analysis, we obtain firms' 10-K reports from SEC's Edgar database. For the institutional ownership variables, we employ data from the Thomson Reuters Institutional Holdings Database. We obtain analyst forecast data from the Institutional Brokers Estimate System (I/B/E/S) database provided by the Thomson Reuters Corporation. Finally, we acquire Russell 1000 and Russell 2000 index constituents from the Russell Corporation.

Our analysis is carried out on all firms included in the Compustat database excluding financials (SIC 6000-6999) and utilities (SIC 4900-4999). To limit survivorship bias, firms that are inactive and/or acquired by another firm during the period of study are retained in the sample. We delete from our sample all firm-year observations with missing data on the variables of interest. This results in a final main sample consisting of 31,223 firm-year observations. Table 1 reports the definition of all the variables used in the empirical analysis.

[Insert Table 1 here]

2.2 Measurement of Competition Orientation

Corporations can be thought of as micro-societies that have the ability to shape distinct norms and values (Guiso et al., 2015a, 2015b; Zingales, 2015). These principles are the essence of a company's identity as defined by beliefs, priorities and operating philosophy. In measuring such firm attributes, a strand of the literature relies on the Competing Values Framework (CVF) which originated in the work of Quinn and Rohrbaugh (1983) and was extended by Cameron et al. (2014) (e.g., Hartnell et al., 2011; Schneider et al., 2013; Fiordelisi and Ricci, 2014). The CVF classifies firms' culture into four quadrants by first differentiating between those competing attributes of the firm that emphasize an external orientation from those that focus on internal capabilities – the so-called *external-internal domain*. Further, it distinguishes between corporate attributes that emphasize effectiveness criteria that focus on flexibility and discretion from those that are centered on stability and internal control – i.e. the so-called *flexibility-stability domain*. These two dimensions intersect to define four distinct types of cultural orientations that comprise the CVF, namely the; compete (i.e. market), create (i.e. adhocracy), control (i.e. hierarchical) and collaborate (i.e. clan) orientations. Schematic representations of the attributes that characterize the competing values of the CVF are depicted in Figure 1.

[Insert Figure 1 here]

Organizations characterized by the competition orientation (as shown in the bottom-right corner of Figure 1) are externally focused and market-driven, and are therefore more likely to encourage organization-wide generation, dissemination, and integration of external environmental information (Kohli and Jaworski, 1990; Narver and Slater, 1990). Success is assessed on the basis of indicators such as increased sales growth, profitability, and market share. As a result, corporate attributes of this kind are strongly associated with operating effectiveness and are important determinants of reported financial performance (Jaworski and Kohli, 1993; Harris and Ogbonna, 2001). Overall, speed is an essential element in maintaining a competitive edge, so *results-right-now* is a typical demand; hence, firms with heightened compete culture place greater emphasis on achievement, engendering competitiveness and aggressiveness aimed at producing superior shareholder value creation (Quinn and Cameron, 1983; Quinn and Rohrbaugh, 1983; Hartnel et al., 2011; Cameron et al., 2014).

In comparison, corporate attributes associated with the creation orientation (as shown in the upper-right corner of Figure 1) are focused externally and center on creating future opportunity through innovation and cutting-edge output. These elements within the firms are supported by a flexible organizational structure which stipulates freedom of thought and action among employees and allows the firm to effectively handle discontinuity, change and risk (Hartnell et al., 2011; Cameron et al., 2014). Conversely, the control and collaboration orientations are internally focused, placing emphasis on integration. However, while the collaboration orientation stresses employee development and consensus building that is facilitated by a flexible organizational structure aiming at long-term development, corporate attributes that pertain to the control orientation focus on creating value through internal improvements in efficiency supported by a stable organizational structure that is driven by strong internal control mechanisms (Quinn and Cameron, 1983; Quinn and Rohrbaugh, 1983; Hartnell et al., 2011; Cameron et al., 2014).

In this study, we measure corporate attributes relating to a firm's relative competition orientation using a textual analysis of 10-K filings obtained from SEC's Edgar database. Textual analysis permits the systematic and objective quantification of semantic content contained in a specific body of text.[3] In doing so, we argue that the expressions and words chosen by management in producing firms' 10-Ks are representative of firms' orientation. This assumption is reasonable as recent literature has used firms' corporate disclosures to discover distinctive firm features such as organizational culture (Fiordelisi and Ricci, 2014; Guiso et al., 2015a; Guiso et al., 2015b). Furthermore, studies demonstrate that textual analysis represents one of the main strategies used by researchers to discover core firm attributes values and norms (e.g., Tetlock, 2007; Loughran and McDonald, 2009, 2011, 2016; Hoberg and Phillips, 2010, 2016; Li, 2010a, 2010b; Li et al., 2013; Popadak, 2014; Bushman et al., 2016;

[3] There are numerous empirical studies to suggest that textual analysis of the 10-K filings is a source of semantics with useful information for finance and accounting research (refer to the review study by Loughran and McDonald (2016) and references therein).

Graham et al., 2017;). In this vein, we assume that the 10-K filings encapsulate useful information regarding the corporate values that firms have developed over time that are not easy to observe using secondary data sources. Thus, parsing 10-K filings for specific lexical items allows us to quantify corporate attributes associated with the four orientations of the CVF.

To estimate competition orientation, we create a list of lexical items that best describe this kind of orientation as theorized by the CVF. Following in spirit the approach by Fiordelisi and Ricci (2014), this is achieved by a two-step procedure that minimizes subjectivity in the selection process. First, we select certain keywords suggested by Cameron et al. (2014) to identify corporate attributes associated with the competition orientation. For instance, a relatively high frequency of keywords in 10-Ks related to *achievement*, *performance*, *competitiveness*, *market*, *growth*, etc, should be associated with the competition orientation. Second, all keywords selected in the first step are looked up in the Harvard IV-4 Psychosocial Dictionary to identify other synonyms. The resulting synonyms comprise the bag of words that convey the firm's competition orientation. We account for suffixes (forming grammatical and derivational variants of the same lexical item) by reducing these words to their stemmed form, for example, *competitiveness* becomes *compet**. This helps to ensure that when we conduct our word search, we count all variants of words that make up our list. We then investigate the items so as to exclude terms consistent with firm names, industries and other words likely to systematically bias our results (e.g. "competence"). We follow similar steps to create the corresponding bag of words for the other three orientations (i.e., create, control, and collaborate) theorized by the CVF. The bags of words with all lexical items used to parse the 10-Ks are listed in the Appendix of the paper.[4]

Specifically, we measure a firm's competition orientation (*CO*) by counting the number of times that the lexical items included in the relevant bag of words are found in the 10-K reports. Since firms' 10-Ks are expected to also reflect corporate attributes associated with the create, control, and collaborate orientations, we likewise apply our word count algorithm to also estimate frequencies on these alternative orientations and define our measure of competition orientation as follows:

$$CO = \frac{Number\ of\ lexical\ items\ describing\ the\ competition\ orientation}{Total\ number\ of\ lexical\ items\ for\ all\ CVF\ orientations}. \quad (1)$$

Scaling the frequency of lexical items describing a firm's competition orientation by the total number of lexical items in the bag of words for all four orientations–*compete*, *create*, *collaborate* and *control*–allows us to construct a measure of intensity to capture the emphasis that a firm is placing on the competition orientation compared to all the corporate orientations that exist within firms. As such, this scaling approach allows us to account for the competing nature of firms' corporate orientations as

[4] While conducting our count we exclude negation of the lexical items by ignoring occasions when the word is preceded by "no", "non", "not", "less", "few" or "limited" by three or fewer words.

theorized by the CVF, and helps to mitigate potential bias in our analysis that could otherwise be caused by the omission of the other three competing orientations.

Figure 2 presents some interesting properties of our measure. In particular, it highlights the frequency of the competition orientation related words used per 10-K report. We observe lexical items such as *customer**, *market**, and *performanc** ranking highest, with 10 to 15 occurrences on average per 10-K report. This distribution across words is consistent with the theoretical underpinnings in the CVF and is suggestive that our empirical measure is able to capture important facets of the competition orientation.

[Insert Figure 2 here]

Further, we consider the relation between our measure of competition orientation and Loughran and McDonald's (2011) sentiment classifications. In particular, we carefully compare our lexical items to the words found in the classification taxonomy reported in Loughran and McDonald (2011) and Bodnaruk et al. (2015) so as to investigate the possibility that *CO* may proxy for some persistent tone and sentiment in corporate 10-K reports.[5] Figure 3 presents the competition orientation words classified into the main sentiment/tone classifications found in Loughran and McDonald (2011) and Bodnaruk et al. (2015). We note that the overlap between the lexical items for *CO* and the tone classifications is minimal, as the majority of words that comprise our lexical items are not classified. More importantly, however, *CO* does not present any important correlation with the Loughran and McDonald (2011) tone measures; for instance, the correlation of *CO* with the "Negative" (*Fin-Neg*) list is 0.04 and with the "Positive" (*Fin-Pos*) is 0.02. Thus, we are confident that *CO* does not overlap with other renowned business word lists which are widely applied in finance and accounting research.

[Insert Figure 3 here]

In introducing our measure we do not claim our method or chosen framework represents the one best approach to assess core firm attributes, values and norms. To do so would be of course unreasonable, as other authors have proposed alternative approaches to measuring organizational culture (see, for example, Hofstede, 1998; Hofstede et al., 1990; Li, 2010a, 2010b, Li et al., 2013; Popadak, 2014; Guiso et al., 2015a; Guiso et al., 2015b; Bushman et al., 2016). However, we argue that our approach is practical, as it allows us to quantify the key dimensions of organizational philosophy that should matter under the CVF, and to do so in a manageable way for a large sample of firms that is unlikely to be influenced by subjective biases. Further, our measure and the CVF upon which it is built have a verified scholarly foundation (Quinn and Rohrbaugh, 1983). In addition, our measurement approach is largely taken from Fiordelisi and Ricci (2014), who operationalized the four dimensions of the CVF by conducting a textual analysis of firms' 10-K filings. Beyond this, we provide evidence that

[5]The Loughran and McDonald (2011) word list is available at http://www3.nd.edu/~mcdonald/Word_Lists.html.

our measure is valid by demonstrating that it has persistent qualities and that it is positively related to firms' sales growth; two phenomena that are predicted by the CVF. What is more, we show that our measure does not overlap with conceptualizations of product-market competition developed using textual analysis in the spirit of studies such as those of Li et al. (2013) and Bushman et al. (2016).

2.3 Measurement of Institutional Ownership

We adopt two measures of institutional ownership, namely transient and dedicated institutional ownership, as in Bushee (1998) and subsequently studied in numerous works.[6] To develop these measures, we first use a cluster analysis to categorize institutional investors as either transient or dedicated institutional investors based on their past investment behavior. Transient institutional investors are those firms with a relative short-term investment horizon, while dedicated institutional investors have greater long-term investment behavior. To be clear, transient investors focus on short-term performance and invest based on the likelihood of earning short-term trading profits (Bushee, 1998, 2001; An and Zhang, 2013; Callen and Fang, 2013). Conversely, dedicated investors are defined as those that hold large stakes in a limited number of firms and have strong incentives to monitor the long-term performance of management (Bushee, 1998, 2001; Chen et al. 2001; An and Zhang, 2013). As a result, we define transient institutional ownership, *TRA*, as the percentage of stock ownership in the firm by short investment horizon institutional investors relative to total shares outstanding. Dedicated institutional ownership, *DED*, is defined as the percentage of stock ownership in the firm by long investment horizon institutional investors relative to total shares outstanding.

2.4 Measurement of Stock Price Crash Risk

We estimate the following three firm-specific measures of stock price crash risk, namely *DUVOL*, *ESIGMA*, and *NCSKEW*. Each of these measures reflects different aspects of the distribution of returns (Chen et al., 2001; Hutton et al., 2009; An and Zhang, 2013; Callen and Fang, 2013; Andreou et al., 2016; Chen et al., 2017) and is computed by estimating firm-specific weekly returns using the following expanded index model regression:

$$r_{j,w} = \alpha_j + \beta_{1,j} r_{m,w-2} + \beta_{2,j} r_{m,w-1} + \beta_{3,j} r_{m,w} + \beta_{4,j} r_{m,w+1} + \beta_{5,j} r_{m,w+2} + \varepsilon_{j,w}, \quad (2)$$

where $r_{j,w}$ is the return on stock *j* in week *w* and $r_{m,w}$ is the CRSP value-weighted market index in week *w*. We allow for non-synchronous trading by including lead and lag terms for the market index (Dimson,

[6] A non-exhaustive list of studies includes Shleifer and Vishny (1986), Gompers and Metrick (1998), Bushee (2001), Cai and Zheng (2004), Gaspar et al. (2005), Chen et al. (2007), Yan and Zhang (2009), Elyasiani and Jia (2010), Elyasiani et al. (2010), Callen and Fang (2013) and Andreou et al. (2016).

1979). This regression removes market-wide return movements from firm returns, and thus the residuals of this model capture weekly firm-specific returns. Since the residuals from Eq. (2) are skewed, we define the firm-specific weekly return for firm *j* in week *t* as the natural logarithm of one plus the residual, namely $R_{j,w} = \ln(1 + \varepsilon_{j,w})$.

The *DUVOL* stock price crash risk measure is computed for each firm *j* over a fiscal year *t*, where all weeks with firm-specific returns below the annual mean are separated from those above the annual mean. *DUVOL* is the log of the ratio of the standard deviations of the weeks below the mean (DOWN) over the weeks above the mean (UP), and is computed as follows:

$$DUVOL_{j,t} = \log\{(n_u - 1)\sum_{\text{DOWN}} R_{j,w}^2 / (n_d - 1)\sum_{\text{UP}} R_{j,w}^2\}, \quad (3)$$

where n_u and n_d are the number of UP and DOWN weeks of the fiscal year *t*.

The *ESIGMA* stock price crash risk measure is the negative of the minimum difference between the firm-specific weekly returns and the average firm-specific weekly return, divided by the standard deviation of firm-specific weekly returns. We compute *ESIGMA* for a given firm in a fiscal year as follows:

$$ESIGMA_{j,t} = -\min \frac{R_{j,w} - \bar{R}_j}{\sigma_{R_j}}, \quad (4)$$

where $\bar{R}_j$ and σ_{R_j} are the mean and standard deviation of the firm-specific weekly returns $R_{j,w}$ for firm *j* over the fiscal year *t*.

The *NCSKEW* stock price crash risk measure is defined as the negative of the third moment of firm-specific weekly returns for each firm-year divided by the standard deviation of firm-specific weekly returns raised to the third power, and is computed as follows:

$$NCSKEW_{j,t} = -\left(n(n-1)^{\frac{3}{2}} \sum R_{j,w}^3\right) / \left((n-1)(n-2)\left(\sum R_{j,w}^2\right)^{3/2}\right), \quad (5)$$

where *n* is the number of observations of firm-specific weekly returns during the fiscal year *t*. The denominator in Eq. (5) is a normalization factor.

Following the definitions in Eq.'s (3)-(5), larger values of *DUVOL*, *ESIGMA*, and *NCSKEW* signify greater crash risk.

2.5 Control Variables

We carefully select control variables for our empirical analyses based on the extant literature that considers similar relationships to those explored here (see, for example, Bushee, 2001; Chen et al.,

2001; Cheng and Warfield, 2005; Elyasiani and Jia, 2010; Hutton et al., 2011; Callen and Fang, 2013; Fiordelisi and Ricci, 2014; Crane et al., 2015). To begin with, we include in all specifications controls that capture firm-specific characteristics. In particular, we include the following: the number of years since the firm was first included in the CRSP database, *AGE*; financial leverage as indicated by total liabilities to total assets, *LEV*; market value of equity to book value of equity, *MTB*; return on total assets, *ROA*; and the natural logarithm of market value of equity, *SIZE*.

Further, in our specifications that include either competition orientation or crash risk as dependent variables, we control for investor heterogeneity since it is argued that this construct influences both variables. We control for investor heterogeneity by including the de-trended average weekly stock trading volume, *DTURN*, average weekly returns, *RET*, and volatility of weekly returns, *STDEV*, over the fiscal year (Hong and Stein, 2003; Bushman et al., 2016).

2.6 Descriptive Statistics and Correlations

Table 2 presents descriptive statistics of the variables used in our empirical analysis.[7] In particular, the mean value of our competition orientation measure, *CO*, is 0.49. The institutional ownership variables *TRA* and *DED* and *TRA* have respective mean values of 0.15 and 0.06. Our stock price crash risk measures *DUVOL*, *ESIGMA*, and *NCSKEW* have mean values of –0.04, 2.61, and 0.04, respectively. We observe that the summary statistics on the variables are largely comparable to the values reported in previous studies using these data (e.g., Bushee, 2001; Callen and Fang, 2013; Andreou et al., 2016).

[Insert Table 2 here]

Further, Table 3 offers average annual transition probabilities by deciles of competition orientation (*CO*) (Panel A), transient institutional ownership (*TRA*) (Panel B), and dedicated institutional ownership (*DED*) (Panel C). We present these since the competing values framework suggests that a firm's orientation persists over time because such organizational attributes form the core traits of the firm (Cameron et al., 2014). As a result, based on the extant literature (Guiso et al., 2006, 2015a, 2015b; Hartnell et al., 2011; Cameron et al., 2014; Popadak 2014), we would expect competition orientation to be a slow moving "sluggish" variable, and if our measure is valid it should reflect this. Furthermore, previous works suggest that transient (dedicated) institutional ownership should change rather slowly from year to year (Bushee, 1998, 2001).

In Table 3 we observe that firms in the lowest (1st) decile of *CO*, in any one year, have a 67% chance of remaining in the lowest *CO* decile the following year, while firms in the highest (10th) decile

[7] To mitigate the effects of outliers, all continuous variables are winsorized at the 1% and 99% levels.

remain in that decile in the following year with a probability of 66%. Similarly, firms in the lowest decile of *TRA* have a 49% probability of remaining in that decile the following year; meanwhile, firms in the highest decile of *TRA* remain in that decile the following year with a probability of 47%. In addition, those firms in the lowest decile of *DED* have a 45% likelihood of remaining in the lowest decile the following year, and firms in the highest decile of *DED* remain in that decile the next year with a probability of 58%. High persistence is also observed for the other diagonal deciles in each case. These results suggest that observed *CO*, *TRA* and *DED* are rather persistent over time.

[Insert Table 3 here]

We compute Pearson correlation coefficients for the variables used in our empirical analysis and report these in Table 4. Some of the more interesting correlations include the relation between *CO* and *TRA* (*DED*), where we find a positive and significant correlation between *CO* and *TRA* (correlation = 0.0858) and a negative and significant correlation between *CO* and *DED* (correlation = –0.0621). These results are consistent with our expectations that transient institutional ownership intensifies competition orientation, while dedicated institutional ownership diminishes it.

Pearson correlation results consistent with our expectations are also found for the relationship between *CO* and the crash risk measures *DUVOL*, *ESIGMA*, and *NCSKEW*. Specifically, we find positive and significant correlations between *CO* and the various measures of crash risk, with 0.0179 correlation coefficient for *DUVOL*, 0.0278 correlation coefficient for *ESIGMA* and 0.0250 correlation coefficient for *NCSKEW*, all indicating that higher intensity of *CO* is associated with higher crash risk.

Finally, since a central tenet of the competition orientation is that such firms should achieve increased revenue growth, the Pearson correlation results provide us with an opportunity to investigate the validity of our measure of competition orientation by examining whether our measure loads on an important factor predicted by the Cameron et al.'s (2014) CVF. Consistent with the CVF and our expectations, we find positive and significant correlation (correlation = 0.0278) between *CO* and *SGROWTH*.

[Insert Table 4 here]

3 EMPIRICAL RESULTS

In this section, we report our main multivariate results based on empirical approaches adopted to deal with the practical challenges associated with our research design. In particular, to diminish potential endogeneity concerns we utilize instrumental variables, two-stage least squares (2SLS) analysis and dynamic panel generalized methods of moments (GMM) estimation to investigate the relation between competition orientation and transient (dedicated) institutional ownership. In addition, to examine the relationship between competition orientation and crash risk, we estimate generalized

least squared (GLS) random effects (RE) regressions since this estimator is able to provide valid estimates of parameters for slow-moving variables such as competition orientation. We also present 2SLS estimates of this relation.

3.1 Competition Orientation and Institutional Investors Ownership

First, we investigate whether transient and dedicated institutional ownership are related to firms' competition orientation. We expect that since transient institutional owners emphasize short-term performance and demand *results-right-now* (see for example, Bushee, 1998, 2001), these investors should intensify firms' competition orientation as managers might succumb to their pressures for immediate superior performance (see Barton et al. 2016). For instance, managers at a firm with a large proportion of transient investors will be wary that these investors could forcefully exit the firm by selling shares, thereby suppressing the firm's stock price and undermining management's ability to raise capital (Bernardo and Welch, 2004; Fos and Kahn, 2015). Meanwhile, since dedicated institutional investors are more likely to stress long-term performance (Gaspar et al., 2005; Chen et al., 2007; Harford et al., 2017), we expect that these investors will lessen firms' competition orientation. This is likely since managers at such firms are less concerned by investor actions brought about by initial signals of underperformance that can precipitate large stock price drops (Cella et al., 2013; Giannetti and Yu, 2017).

To empirically investigate whether transient (dedicated) institutional ownership is positively (negatively) related to competition orientation, we adopt an IV approach to identify the causal effect of transient (dedicated) institutional ownership on the firms' competition orientation based on the composition of the popular Russell indexes. To do this, we note that each May 31st, Russell 1000/2000 indexes are formed based on firms' market capitalization rankings, where the largest thousand firms constitute the Russell 1000, while the next two thousand firms comprise the Russell 2000. Since firms are unable to control small variations in their market capitalization, and thus Russell rankings at the cutoff point, assignment to Russell 1000 or Russell 2000 is practically random. This random assignment to Russell 1000 or Russell 2000 near the threshold leads to large differences in index weights for firms around the Russell 1000/2000 cutoff point. Prior literature has noted that the discontinuity in the Russell 1000/2000 indexes drives a substantial difference in institutional ownership, since institutional investors are known to benchmark against the Russell 1000/2000 indexes, and hence are more likely to hold big positions in components that are assigned the largest index weights in order to reduce index-tracking error. Further, these differences in institutional ownership are likely to be unrelated to firm characteristics, since near the cutoff point observed differences in market capitalization are a small proportion of return variance (Crane et al., 2015; Appel et al., 2016).

Thus, our identification strategy is to use inclusion in the Russell 1000 or Russell 2000 as a source of exogenous variation in the institutional ownership structure of the firm. Consistent with prior literature, we posit that our instrument is correlated with variations observed in the transient and dedicated institutional ownership composition and that it meets the exclusion requirement, in that it should only affect the intensity of firms' competition orientation via changes in transient and dedicated institutional ownership. We take advantage of this exogenous variation to test whether transient (dedicated) institutional investors have a positive (negative) influence on a firm's competition orientation. To do this, we estimate the following:

$$CO_t = \alpha_1 + \alpha_2 \hat{T}RA_t(\hat{D}ED_t) + \alpha_3 R2000_t \times RANK_t + \alpha_4 MRKCAP_t + \alpha_5 FLOAT_t + \varepsilon_t, \quad (6a)$$

$$TRA_t(DED_t) = \gamma_1 + \delta_1 R2000_t + \beta_1 R2000_t \times RANK_t + \beta_2 MRKCAP_t + \beta_3 FLOAT_t + \mu_t, \quad (6b)$$

where *R2000* is a dummy variable equal to one if the firm is assigned to the Russell 2000 index and is zero if the firm is assigned to the Russell 1000 index, *RANK* is the firm's ranking order within the Russell index, measuring the distance from the index cutoff each year, which is based on firm's market capitalization, *MRKCAP* is firms' market capitalization on May 31st each year, and *FLOAT* is the difference between rank implied by the observed market capitalization and the rank assigned by Russell in June.

The estimates of the two stage model Eq.'s (6a) and (6b) are presented in Table 5. The coefficient of interest is α_2, of Eq (6a) is expected to be positive (negative) in the case of the relationship between *TRA* (*DED*) institutional ownership and competition orientation. Consistent with our expectations, in Table 5 column (2) and (4) we find that the coefficient term on the TRA_t (DED_t) is 0.039 (–0.064) and significant at the 5 percent level (*p*-values<0.05). Further, the results of Stock and Yogo's (2005) test for weak instruments (see Table 5 Panel B) indicate that *R2000* is a valid instrument and thus we adopt *R2000* as an instrument for transient (dedicated) institutional ownership. Thus, our results are consistent with a causal relationship between transient (dedicated) institutional ownership and firms' competition orientation in the direction that we argue.

[Insert Table 5 here]

In further support of our IV approach, we also estimate the following 2SLS model:

$$CO_{t+1} = \alpha_1 + \alpha_2 \hat{T}RA_t(\hat{D}ED_t) + \alpha_3 AGE_t + \alpha_4 DTURN_t + \alpha_5 LEV_t + \alpha_6 MTB_t + \alpha_7 ROA_t + \alpha_8 SIZE_t + \alpha_9 STDEV_t + \varepsilon_t, \quad (7a)$$

$$TRA_t(DED_t) = \gamma_1 + \delta_1 DYIELD_t + \delta_2 RET_t + \delta_3 SGROWTH_t + \delta_4 SP500_t + \beta_1 AGE_t + \beta_2 DTURN_t + \beta_3 LEV_t + \beta_4 MTB_t + \beta_5 ROA_t + \beta_6 SIZE_t + \beta_7 STDEV_t + \mu_t, \quad (7b)$$

where, consistent with prior work in this area (see, for example, Bushee, 2001; Callen and Fang, 2013), we adopt *DYIELD*, *RET*, *SGROWTH*, and *SP500* as instruments for dedicated and transient institutional ownership (refer to Table 1 for variable definitions). Compared to our prior instrumental variable estimation found in Table 5, where we instrument institutional ownership using inclusion in the Russell 2000 index, this approach allows us to conserve more of the main sample data and thereby increase the power of the analysis. Further, the results of Stock and Yogo's (2005) test for weak instruments indicate that these instruments are appropriate for our analysis.

These estimates are provided in Table 6, where the sign and significance of the fitted values of *TRA* and *DED* are presented in columns (2) and (4) respectively. The results are consistent with those presented in our IV analysis, according to which we find a positive (negative) relationship between competition orientation and transient (dedicated) institutional ownership. Thus, these instrumental variable results provide additional evidence in support of the relation between competition orientation and institutional ownership in the manner that we have argued.

[Insert Table 6 here]

Furthermore, we estimate a dynamic panel GMM model, since it is plausible that the relationship between *CO* and *TRA* (*DED*) is dynamically endogenous. It is possible that causation runs both ways and that current values of competition orientation could affect both future institutional ownership and competition orientation. Hence, to control for this kind of endogeneity, we follow Wintoki et al. (2012) by adopting the dynamic panel GMM model as proposed by Arellano and Bover (1995) and Blundell and Bond (1998). This approach allows us to explicitly control for lagged values of *MO*. What is more, we are able to use firm information within our dataset as instruments. We estimate the following empirical model:

$$CO_t = \alpha_1 + \alpha_2 TRA_t(DED_t) + \gamma_1 CO_{t-1} + \gamma_2 CO_{t-2} + \beta_1 AGE_t + \beta_2 DTURN_t + \beta_3 LEV_t + \beta_4 MTB_t + \beta_5 RET_t + \beta_6 ROA_t + \beta_7 SIZE_t + \beta_8 STDEV_t + \eta_t + \varepsilon_t, \quad (8)$$

where we first-difference Eq. (8) to eliminate unobserved heterogeneity and potential omitted variable bias. Next, we estimate the first-differenced model by GMM using lagged values (and differences) of competition orientation and other firm characteristics as instruments. By using lagged variables as instruments, we control for potential simultaneity and reverse causality.

The results of our system GMM estimates are presented in Table 7. Again we find results that are consistent with a positive (negative) relationship between competition orientation and transient (dedicated) institutional ownership. Further to the previous analyses, the GMM approach allows us to treat all independent and control variables as endogenous. In fact, in our empirical analysis we assume that only firm age and the year dummies are exogenous. The *AR*(1) and *AR*(2) serial correlation tests results suggest that we cannot reject the null hypothesis of no serial correlation. Further, we apply

Hansen's (1982) test for overidentification, as in Arellano and Bond (1991) to assess the validity of our instruments, and based on the results we do not reject the null hypothesis that our instruments are valid. In addition, we conduct the difference-in-Hansen test of exogeneity in a manner similar to Bond et al. (2001) to determine whether the subset of instruments used in the level equation are exogeneous. Again we do not reject the null hypothesis that our instruments are exogeneous. All told, the results of these specification tests lead us to conclude that our dynamic GMM regressions are valid.

In summary, we provide robust causal evidence that transient ownership positively influences a firm's competition orientation. This finding suggests that transient institutional owners pressurize managers to propel their firms' corporate culture toward the competition orientation in pursuit of short-term financial objectives that may be harmful to the long-term value of the firm. Furthermore, we demonstrate that dedicated ownership lessens a firm's competition orientation, and this is suggestive of dedicated institutional investors acting as effective monitors of management, thereby pushing managers to adopt a less intensive competition orientation. Additional estimates of these relations provide similar findings and support the main results (included in the supplementary online appendix).

[Insert Table 7 here]

3.2 Competition Orientation and Stock Price Crash Risk

Next, we consider the relation between firms' competition orientation and firm-specific stock price crash risk. Given that our prior results, it is also likely that firms with a heightened competition orientation are more prone to stock price crashes when bad news that was once concealed is released to the market. Thus, to test whether competition orientation is indeed positively related to one-year-ahead firm-specific stock price crash risk, we estimate the following model:

$$CRASH_{t+1} = \alpha_1 + \alpha_2 CO_t + \alpha_3 AGE_t + \alpha_4 DTURN_t + \alpha_5 LEV_t + \alpha_6 MTB_t + \alpha_7 RET_t + \alpha_8 SIZE_t + \alpha_9 STDEV_t + \varepsilon_t, \quad (9)$$

where *CRASH* is used to denote our stock price crash risk measures, *NCSKEW*, *ESIGMA*, and *DUVOL*. We account for the impact of other factors by including control variables that capture relevant firm-specific characteristics known to affect crash risk. The coefficient of interest, α_2, is predicted to be positive and significant.

Table 8 presents the empirical analysis conducted to assess the relationship between competition orientation and crash risk. In particular, we provide GLS-RE estimates of Eq. (9), as this estimator is well-suited to analysis that involves slow moving variables. This is because, unlike fixed effects estimators, this estimator allows for the inclusion of slow-moving covariates without destabilizing the estimates of the effect of these variables.

In Table 8, the coefficient terms 0.018 (p-value<0.05), 0.029 (p-value<0.01), and 0.024 (p-value<0.01) on the *CO* variable in columns (1), (2) and (3) show the nature of the link between competition orientation and firm-specific crash risk. Thus, we find evidence of a positive and significant relation between competition orientation and future crash risk at the 10 percent (column 1) and 1 percent levels (columns 2 and 3). We repeat the estimates of Eq. (9) using the OLS regressions, and by including explicit controls for managers' short-term incentives. We find similar results (included in the supplementary online appendix).

[Insert Table 8 here]

Further, we estimate models to allow for potential endogeneity in the relation between competition orientation and stock price crash risk. To do this, we estimate the following:

$$CRASH_{t+1} = \alpha_1 + \alpha_2 \hat{CO}_t + \alpha_3 AGE_t + \alpha_4 DTURN_t + \alpha_5 LEV_t + \alpha_6 MTB_t + \alpha_7 ROA_t + \alpha_8 SIZE_t + \alpha_9 STDEV_t + \varepsilon_t, \quad (10a)$$

$$CO_t = \gamma_1 + \delta_1 HHI_t + \delta_2 STATE_t + \delta_3 SP500_t + \beta_1 AGE_t + \beta_2 DTURN_t + \beta_3 LEV_t + \beta_4 MTB_t + \beta_5 ROA_t + \beta_6 SIZE_t + \beta_7 STDEV_t + \mu_t, \quad (10b)$$

where *CRASH* denotes our stock price crash risk variables *DUVOL*, *ESIGMA*, and *NCSKEW*, while the variables *HHI*, *STATE*, and *SP500* instrument for competition orientation. The Stock and Yogo's (2005) test suggests that our instruments are appropriate. Our empirical findings presented below in Table 9 support the notion that firms with more intensified competition orientation tend to also be more prone to stock price crashes. Overall, the results are consistent with those presented in the previous analysis, where we argued and found that competition orientation increases firm-specific stock price crash risk.

[Insert Table 9 here]

3.3 Competition Orientation, Institutional Ownership and Stock Price Crash Risk

Finally, we investigate whether firms' competition orientation is the channel through which institutional ownership affects crash risk. Our previous findings suggest that transient (dedicated) institutional ownership intensifies (lessens) firms' competition orientation, and that such firms are more likely to experience stock price crashes. Consistent with these observations and prior work in this area (Bushee, 1998, 2001; An and Zhang, 2013; Callen and Fang, 2013; Andreou et al., 2016; Chen et al., 2017), we argue that since transient institutional owners exert pressures on the firm to achieve short-term performance objectives (at the expense of long-term value), this serves to distort a firm's competition orientation, which in turn increases firm-specific crash risk. Further, since dedicated institutional investors appear to serve as effective monitors of the firm, this scrutiny serves to dampen excessive competition orientation and thereby firm-specific crash risk.

To explore this, we re-estimate Eq. (9) for subsamples of *TRA* and *DED* that are sorted into subsamples of HIGH and LOW transient and dedicated institutional ownership. We define a subsample group as HIGH (LOW) if it is above (below) the yearly median of our institutional ownership measures. Thus, if competition orientation serves the purpose that we describe, we would expect to observe that the relationship between competition orientation and crash risk is stronger for those firms with above yearly median *TRA* and below yearly median *DED* (i.e., HIGH *TRA* and LOW *DED*). We expect this because a significant presence of transient institutional owners is likely to pressurize managers to emphasize short-term performance objectives. This coupled with an absence of dedicated investors, who tend to focus on long-term firm value, creates a less-than-effective counter to managerial myopia and short-termism behavior in firms with greater intensity toward the competition orientation, which in turn triggers higher instances of stock price crashes for such firms.

The results of this subsample analysis are presented in Table 10, where we find that competition orientation increases future firm-specific crash risk *only* for those firm-years where transient institutional ownership is above, and dedicated institutional ownership below, the yearly median (i.e., first quadrant in Table 10 labeled "HIGH *TRA* & LOW *DED*"). This result is exactly as we expect and suggests a strong interrelationship between institutional ownership, competition orientation, and stock price crash risk. In addition to the GLS-RE estimates presented in Table 12, we provide OLS estimates of these relations (included in the supplementary online appendix). These estimates also suggest a statistically significant positive relationship between *CO* and stock price crash risk only when transient institutional ownership is above and dedicated ownership below, the yearly median. We find these results indeed striking, as they show that competition orientation in and of itself is not value destroying; rather, these results suggest that competition orientation becomes harmful only when it is associated with a high proportion of transient and a low proportion of dedicated ownership.

[Insert Table 10 here]

4 ADDITIONAL ANALYSES

In this section we present additional validation tests and further analyses aimed at supplementing the results and findings previously presented.

4.1 Is Our Measure of Market Orientation Valid?

To provide supplemental evidence that our measure actually reflects the intended construct, in the spirit of Cameron et al.' (2014) CVF, we conduct further analyses of the relation between our measure of competition orientation and firms' sales growth where we include dummy variables to control for fixed year and industry effects. As with our Pearson correlation analysis of this relationship, our aim here is not to test whether competition orientation is a primary determinant of sales growth

rather the objective of this calibration test is to confirm that even after controlling of time invariant fixed year and industry effects, our measure of competition orientation still loads on the a factor predicted by the CVF. Thus, we estimate the following equation:

$$SGROWTH_t = \alpha_1 + \alpha_2 CO_t + \varepsilon_t. \quad (11)$$

Further, we estimate the following model in which we specifically include control variables to capture other firm-specific characteristics:

$$SGROWTH_t = \alpha_1 + \alpha_2 CO_t + \alpha_2 AGE_t + \alpha_3 DTURN_t + \alpha_4 LEV_t + \alpha_5 MTB_t + \alpha_{10} ROA_6 + \alpha_7 SIZE_t + \alpha_8 STDEV_t + \varepsilon_t. \quad (12)$$

The GLS-RE estimates of Eq.'s (11) and (12) are presented in Table 11. These additional tests for the validity of our measure are consistent with Cameron et al.'s (2014) CVF and our expectations. Specifically, we find evidence that competition orientation is significantly and positively related to firms' sales growth. The OLS estimates are also consistent with these results (included in the supplementary online appendix).

[Insert Table 11 here]

4.2 Is Competition Orientation Different from Product Market Competition?

Despite the fact that the *CO* measure is designed to capture firms' competition orientation under the CVF it is plausible that it may have an association with measures relating to product market competition. This is because Li et al. (2013) measure the intensity of firms' product market competition in a manner that is seemingly close to our approach. In particular, they count the number of times the words "competition(s)", "competitor(s)", "competitive(s)", "compete(s)", "competing(s)", appear in the firm's 10-K report minus those occasions when these words are proceeded by "not", "less", "few" or "limited" by three or fewer words. They then control for the length of the 10-K by scaling by the number of words in the report.

However, unlike Li et al. (2013) we compute *CO* using a more comprehensive bag of words that capture corporate values relevant to a firm's orientations under the CVF (i.e. *compete*, *create*, *collaborate*, and *control* orientations). We then scale the number of competition orientation words by the total number of the words characterizing all four orientations (as opposed to the total number of words in the 10-K). This approach allows us to construct an intensity measure of a firm's competition orientation which is consistent to the CVF that theorizes a context in which the four different orientations compete to each other. Nevertheless, it is possible the relation that we discover between *TRA* (*DED*) and *CO* is driven by the intensity of firms' product market competition as opposed to the intensity of firms' competition orientation if our measure simply reflects variations in product market competition. To preclude the possibility that our results are driven by product market competition, we

analyze in Table 12 the relations between *TRA* (*DED*), our measure of competition orientation, *CO*, and product market competition, *PCTCOMP*, as computed in Li et al. (2013).[8]

[Insert Table 12 here]

Table 12 Panel A presents mean scores for *TRA* (*DED*) by deciles of *CO* and *PCTCOMP*, respectively, inclusive of the results of *t*-tests conducted to assess the significance of the difference in means between the highest (10^{th}) and the lowest (1^{st}) deciles. Panel B of Table 12 highlights Pearson correlations between *CO*, *TRA*, *DED*, and *PCTCOMP*. Interestingly, overall we find that while our prior results suggest that transient institutional ownership (*TRA*) is strongly positively related to competition orientation as measured by *CO*, transient institutional ownership *is not* related to product market competition as measured by *PCTCOMP*.

In addition, we estimate the following equations to perform long-run tests for the impact of lagged and contemporaneous levels and differences of transient and dedicated institutional ownership on future period competition orientation.

$$CO_{t+1} = \alpha_1 + \alpha_2 TRA_t(DED_t) + \alpha_3 AGE_t + \alpha_4 DTURN_t + \alpha_5 LEV_t + \alpha_6 MTB_t + \alpha_7 RET_t + \alpha_8 ROA_t + \alpha_9 SIZE_t + \alpha_{10} STDEV_t + \varepsilon_t, \quad (13)$$

$$CO_{t+1} = \alpha_1 + \alpha_2 \Delta TRA_t(\Delta DED_t) + \alpha_3 TRA_{t-1}(DED_{t-1}) + \alpha_4 AGE_t + \alpha_5 DTURN_t + \alpha_6 LEV_t + \alpha_7 MTB_t + \alpha_8 RET_t + \alpha_9 ROA_t + \alpha_{10} SIZE_t + \alpha_{11} STDEV_t + \varepsilon_t, \quad (14)$$

and

$$CO_{t+1} = \alpha_1 + \alpha_2 \Delta TRA_t(\Delta DED_t) + \alpha_3 \Delta TRA_{t-1}(\Delta DED_{t-1}) + \alpha_4 TRA_{t-2}(DED_{t-2}) + \alpha_5 AGE_t + \alpha_6 DTURN_t + \alpha_7 LEV_t + \alpha_8 MTB_t + \alpha_9 RET_t + \alpha_{10} ROA_t + \alpha_{11} SIZE_t + \alpha_{12} STDEV_t + \varepsilon_t. \quad (15)$$

Beyond this, we compare competition orientation with product market competition by re-estimating of Eq.'s (13), (14), and (15) where we replace *CO* with *PCTCOMP*. The GLS-RE estimates are shown in Table 13. The results suggest that transient (dedicated) institutional ownership is positively (negatively) related to competition orientation and intensifies (lessens) it even at periods greater than one year. Besides this, the fact that first (ΔTRA_{t-1} and ΔDED_{t-1}) and second time-differences (ΔTRA_{t-2} and ΔDED_{t-2}) in transient institutional ownership help to predict future competition orientation suggests that not only the current values also the change in transient institutional ownership increases a firm's competition orientation intensity. Further, our results suggest that *CO* measures

[8] Li et al. (2013) product market data are obtained from: http://webuser.bus.umich.edu/feng.

something that is distinctly different from *PCTCOMP* as our findings indicate that *CO* has a significant positive (negative) relationship with transient (dedicated) institutional ownership, while *PCTCOMP* does not have any relationship with institutional ownership structure whatsoever. In addition to the GLS-RE estimates presented in Table 13, we provide OLS estimates of these relations for completeness (included in the supplementary online appendix). These estimates continue to suggest a statistically significant relationship between *CO* and institutional ownership, while being unable to detect any significant relations for *PCTCOMP*.

Taken altogether, our findings imply that the relationship between *TRA* (*DED*) and our measure of competition orientation is not driven by managers' perception of firms' product market competition. Nevertheless, we acknowledge that Li et al. (2013)'s product market competition is empirically nested within our measure but, if our measure simply reflects the variation in product market competition then we would expect to detect a relation between Li et al. (2013)'s measure and *TRA* (*DED*). However, our findings cannot be explained under a product market competition viewpoint.

[Insert Table 13 here]

5 CONCLUSION

This paper studies the important role that firms' competition orientation plays for corporate policies and outcomes. More specifically, we investigate how a firm's competition orientation intensity is influenced by institutional investors, and subsequently test whether this is associated to adverse outcomes such as increased firm-specific crash risk. Using a text-based intensity measure of firms' competition orientation, we document robust casual evidence that dedicated institutional ownership diminishes a firm's competition orientation, while transient institutional ownership intensifies it. In addition, we find that firms with greater competition orientation are more prone to stock price crashes. These results suggest that dedicated institutional ownership helps to soothe managements' competition orientation, while transient institutional ownership reinforces it and hence works as a stimulus to engage in opportunistic behavior that negatively affects firm value.

Overall, our results primarily suggest that institutional investors with short-termism behavior have an exerting effect on a firm's competition orientation, which can increase stock prices in the short-term, which may benefit such institutional investors, who have a high portfolio turnover and engage in momentum trading. However, we document that firms with greater competition orientation are more likely to experience large firm-specific declines in their stock prices.

Our results have important implications of interest to academics and the wider business community. This is because the effect of institutional ownership on competition orientation has implications for the manner in which firms are governed and managed. Our main findings should be of

interest to boards of directors, who have a responsibility to eliminate any pressures on managers from outside investors to increase their competition orientation in order to achieve short-term financial objectives. At the same time, boards should be perceptive in designing strategies to attract institutional investors, since we observe that their investment horizons can have either a beneficial or detrimental impact on the firm. Further, the influence of competition orientation on stock price crash risk has repercussions for investor activity. In this vein, our results can be used by investors to screen firms, reducing the likelihood of experiencing stock price crashes, and by regulators forming policies regarding firms' governance systems.

APPENDIX

Bags of Words

This appendix reports the bags of words with synonyms that best describe the four orientations (compete, create, collaborate, and control) as theorized by Cameron et al.'s (2014) Competing Value Framework (CVF). All words are included within the Harvard IV-4 Psychosocial Dictionary. Words ending with "*" indicate that we utilize all suffixes for those words. In this way, we are able to count as many words as possible with a close meaning without reporting all of them.

Competition orientation:

achiev*, acqui*, aggress*, attack*, budget*, challeng*, charg*, client*, compet*, customer*, deliver*, direct*, driv*, excellen*, expand*, fast*, goal*, growth*, hard*, invest*, market*, mov*, outsourc*, performanc*, position*, pressur*, profit*, rapid*, reputation*, result*, sale*, satisf*, scan*, signal*, speed*, strong*, succes*, superior*, target*, win*

Creation orientation:

adapt*, begin*, chang*, creat*, discontin*, dream*, elabor*, entrepre*, envis*, experim*, fantas*, freedom*, futur*, idea*, init*, innovat*, intellec*, learn*, new*, origin*, pioneer*, predict*, radic*, risk*, start*, thought*, trend*, unafra*, ventur*, vision*

Collaboration orientation:

boss*, burocr*, cautio*, cohes*, certain*, chief*, collab*, conservat*, cooperat*, detail*, document*, efficien*, error*, fail*, help*, human*, inform*, logic*, method*, outcom*, partner*, people*, predictab*, relation*, qualit*, regular*, solv*, share*, standard*, team*, teamwork*, train*, uniform*, work*, group*

Control orientation:

capab*, collectiv*, commit*, competenc*, conflict*, consens*, control*, coordin*, cultur*, decentr*, employ*, empower*, engag*, expectat*, facilitator*, hir*, interpers*, involv*, life*, long-term*, loyal*, mentor*, monit*, mutual*, norm*, parent*, partic*, procedur*, productiv*, retain*, reten*, skill*, social*,tension*, value*

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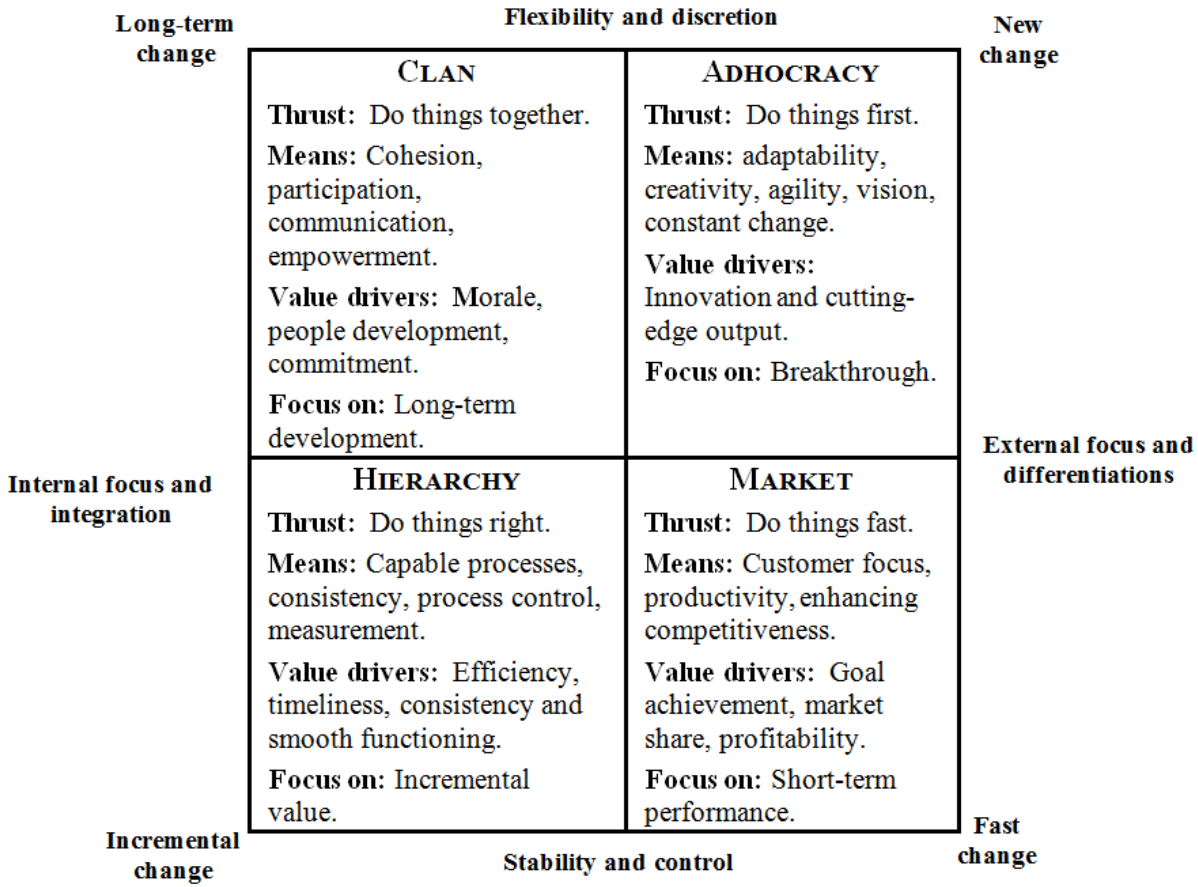
Figure 1
Types of Firm Orientations

Schematic Representation of the Four Orientations
Associated with the Competing Values Framework (CVF)



Source: Adopted from Cameron et al. (2014)

Figure 2
Lexical Items per 10-K Report for a Firm's Competition orientation

This figure presents the per 10-K report frequency of the lexical items used to identify the competition orientation.

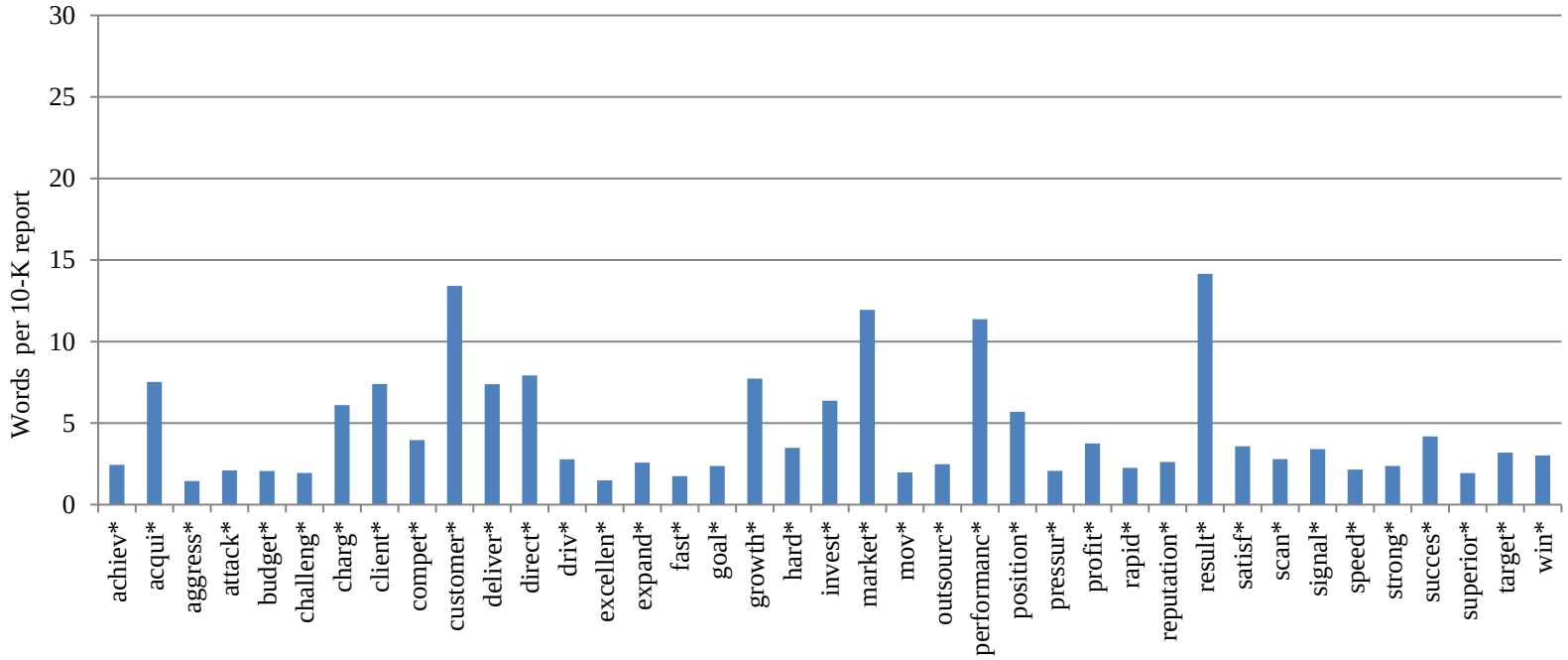


Figure 3
Classifications for Competition Orientation Words

This graph highlights the competition orientation lexical items classified into the main tonal classes identified in Loughran and McDonald (2011) and Bodnaruk et al. (2015) computed as a percentage of total competition orientation words. Loughran and McDonald (2011) develop a dictionary of words from all 10-Ks filed during 1994 to 2008. After carefully examining all words occurring in at least 5% of the documents they classify each word according to its most likely usage and sentiment in financial documents. As such, those words classified as "Negative" are indicative of some adverse implication. Conversely, "Positive" words are those that carry a favorable connotation in business. Those words classified as "Uncertainty" are indicative of imprecision and/or risk, while those that reflect the potential for legal contestation are denoted at "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 "Model". Adopting a similar methodology used by Loughran and McDonald (2011), Bodnaruk et al. (2015) classify "Constraining" words as those that suggest financial constraints.

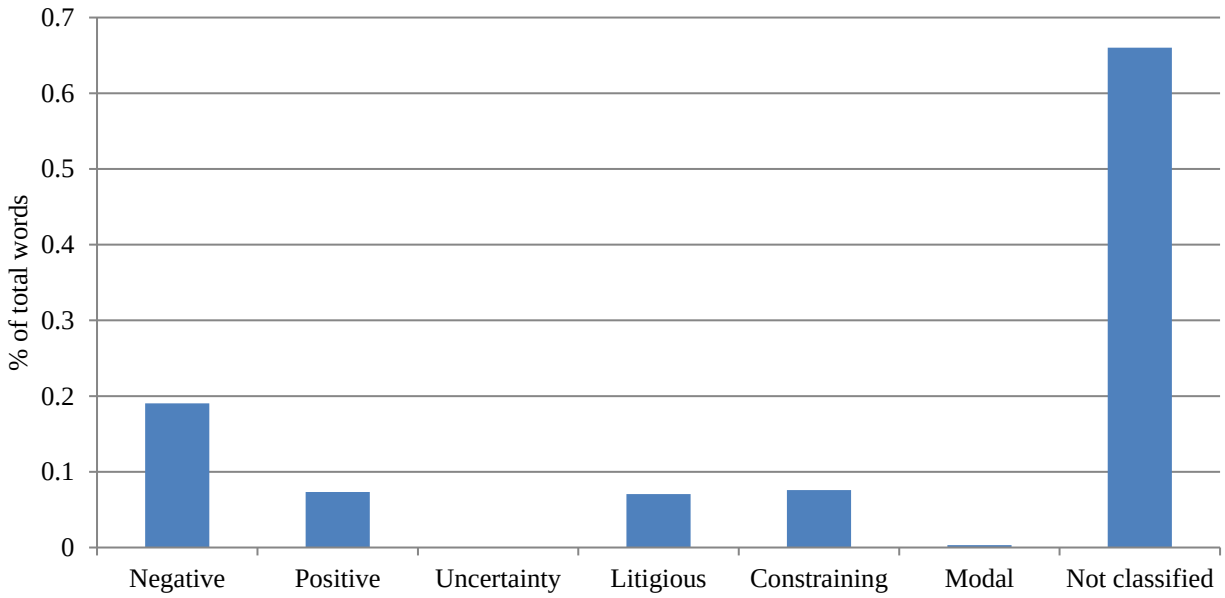


Table 1
Definition of Variables

	Symbol		Definitions
Competition orientation			
	CO	=	the intensity of a firm's competition orientation estimated for each fiscal year using the text-analysis approach;
Institutional ownership			
	TRA	=	the percentage of stock ownership in the firm by transient institutional investors relative to total shares outstanding;
	DED	=	the percentage of stock ownership in the firm by dedicated institutional investors relative to total shares outstanding;
Crash risk			
	DUVOL	=	for each firm over a fiscal year, all the weeks with firm-specific returns below the annual mean are separated from those firm-specific weekly returns which are above the annual mean; we categorize these weeks as "down weeks" and "up weeks", respectively. *DUVOL* is the log of the ratio of the standard deviations of the two subsamples, the one for the "down weeks" over the standard deviation of the "up weeks";
	ESIGMA	=	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;
	NCSKEW	=	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;
Other variables			
	AGE	=	number of years since the firm first appears in CRSP;
	DTURN	=	average monthly turnover for the current fiscal year, minus the average monthly share turnover for the previous year;
	DYIELD	=	annual dividend yield;
	FLOAT	=	the difference between rank implied by the observed market capitalization and the rank assigned by Russell in June;
	HHI	=	the Herfindahl-Hirschman concentration ratio computed using total assets for each firm by FF 48 index and state;
	LEV	=	long-term debt by total assets;
	MKTCAP	=	natural logarithm of market capitalization at May 31 for each calendar year;
	MTB	=	market to book value of equity at the end of the fiscal year;
	PCTCOMP	=	annual intensity of firm's product market competition measured using Li et al.'s (2013) textual analysis approach;
	RANK	=	rank order of the Russell index based on market capitalizations at May 31 of each calendar year;
	RET	=	average weekly returns over the fiscal year;
	ROA	=	return on assets defined as income before extraordinary items divided by total assets;
	R2000	=	equal to 1 if the firm is in the Russell 2000 index and is 0 if firm is a member of the Russell 1000 index;
	SGROWTH	=	sales for the fiscal year divided by sales for the prior fiscal year;
	SIZE	=	natural logarithm of market value of equity at the end of the fiscal year;
	SP500	=	equal to 1 if the firm is included in the S&P 500 index, and is 0 otherwise;
	STATE	=	equal to 1 if firms in the state have above median competition orientation, and is 0 otherwise; and
	STDEV	=	volatility of firm-specific weekly returns.

Table 2
Descriptive Statistics for the Variables used in the Empirical Analyses

This table presents the mean, median, 25th percentile, 75th percentile, and number of observations for the variables used in the study for the period 1994 to 2014.

Variable	Obs.	Mean	Std. Dev.	25th Pctl.	Median	75th Pctl.
CO	31,223	0.49	0.06	0.45	0.49	0.54
TRA	31,223	0.15	0.12	0.06	0.13	0.22
DED	31,223	0.06	0.09	0	0.01	0.09
DUVOL	31,223	–0.04	0.37	–0.29	–0.05	0.19
ESIGMA	31,223	2.61	0.76	2.08	2.44	2.97
NCSKEW	31,223	0.04	0.84	–0.41	–0.01	0.42
AGE	31,223	23.64	12.98	14	20	32
DTURN	31,223	1.19	23.18	–5.97	0.4	7.76
DYIELD	31,223	0.01	0.05	0	0	0.01
FLOAT	2,608	103.45	132.92	-485	3	78
HHI	31,223	0.43	0.29	0.2	0.35	0.6
LEV	31,223	0.47	0.29	0.28	0.46	0.62
MKTCAP	2,900	20.66	1.57	16.91	19.53	20.41
MTB	31,223	3.38	55.44	1.32	2.13	3.58
PCTCOMP	15,352	0.52	0.45	0	0.21	0.38
RANK	2,900	413.88	830.87	-999	-314	415
RET	31,223	–0.2	0.21	–0.25	–0.12	–0.06
ROA	31,223	0.01	0.26	0	0.05	0.08
R2000	2,900	0.65	0.48	0	0	1
SGROWTH	30,910	1.37	21.47	1	1.09	1.23
SIZE	31,223	6.29	1.78	5.02	6.2	7.43
SP500	31,223	0.21	0.41	0	0	0
STATE	30,478	0.51	0.5	0	1	1
STDEV	31,223	0.06	0.03	0.04	0.05	0.07

Table 3
Transition Matrices

This table presents average annual transition matrices between current and future period deciles of competition orientation [Panel A], transient institutional ownership [Panel B], and dedicated institutional ownership [Panel C]. The diagonals are presented in bold figures.

Panel A: Competition orientation

			CO_{t+1}									
			1	2	3	4	5	6	7	8	9	10
	Least	1	**0.6712**	0.1907	0.0617	0.0301	0.0183	0.0092	0.0078	0.0034	0.0050	0.0026
		2	0.2148	**0.4020**	0.2124	0.0841	0.0414	0.0191	0.0135	0.0080	0.0032	0.0016
		3	0.0642	0.2418	**0.2990**	0.2031	0.1057	0.0449	0.0229	0.0091	0.0057	0.0036
		4	0.0234	0.0917	0.2232	**0.2876**	0.1903	0.1030	0.0490	0.0198	0.0080	0.0041
		5	0.0132	0.0435	0.1002	0.2175	**0.2519**	0.2007	0.0992	0.0471	0.0181	0.0085
CO_t		6	0.0066	0.0198	0.0505	0.0956	0.2225	**0.2666**	0.1886	0.0991	0.0425	0.0082
		7	0.0060	0.0081	0.0213	0.0489	0.1033	0.2074	**0.2793**	0.2087	0.0932	0.0237
		8	0.0047	0.0076	0.0105	0.0230	0.0424	0.0924	0.2241	**0.3142**	0.2241	0.0568
		9	0.0029	0.0032	0.0037	0.0107	0.0184	0.0377	0.0944	0.2251	**0.3889**	0.2149
	Most	10	0.0043	0.0024	0.0016	0.0037	0.0062	0.0112	0.0268	0.0677	0.2121	**0.6640**

Panel B: Transient institutional ownership

			TRA_{t+1}									
			1	2	3	4	5	6	7	8	9	10
	Least	1	**0.4942**	0.2250	0.1081	0.0600	0.0395	0.0249	0.0184	0.0118	0.0096	0.0086
		2	0.2079	**0.3168**	0.1814	0.1055	0.0658	0.0416	0.0300	0.0212	0.0172	0.0127
		3	0.0969	0.1810	**0.2493**	0.1690	0.1037	0.0728	0.0467	0.0355	0.0262	0.0189
		4	0.0502	0.0974	0.1732	**0.2113**	0.1542	0.1201	0.0797	0.0545	0.0373	0.0223
		5	0.0334	0.0617	0.1077	0.1666	**0.1913**	0.1481	0.1173	0.0838	0.0555	0.0346
TRA_t		6	0.0208	0.0406	0.0715	0.1152	0.1622	**0.1822**	0.1540	0.1205	0.0852	0.0477
		7	0.0130	0.0254	0.0453	0.0756	0.1193	0.1675	**0.1918**	0.1647	0.1242	0.0731
		8	0.0089	0.0170	0.0273	0.0487	0.0794	0.1280	0.1789	**0.2055**	0.1892	0.1170
		9	0.0061	0.0101	0.0196	0.0312	0.0509	0.0757	0.1247	0.1973	**0.2645**	0.2200
	Most	10	0.0054	0.0087	0.0132	0.0178	0.0300	0.0442	0.0679	0.1158	0.2279	**0.4691**

Panel B: Transient institutional ownership

			DED_{t+1}									
			1	2	3	4	5	6	7	8	9	10
	Least	1	**0.4490**	0.1694	0.1078	0.0651	0.0589	0.0495	0.0317	0.0250	0.0255	0.0180
		2	0.1774	**0.3205**	0.1666	0.1107	0.0757	0.0458	0.0395	0.0285	0.0192	0.0161
		3	0.0881	0.1801	**0.2711**	0.1597	0.1087	0.0758	0.0490	0.0331	0.0208	0.0134
		4	0.0578	0.0991	0.1678	**0.2444**	0.1523	0.1056	0.0709	0.0490	0.0355	0.0177
		5	0.0406	0.0572	0.1028	0.1539	**0.2234**	0.1602	0.1085	0.0808	0.0476	0.0248
DED_t		6	0.0357	0.0361	0.0536	0.1028	0.1604	**0.2222**	0.1674	0.1134	0.0770	0.0314
		7	0.0262	0.0324	0.0414	0.0613	0.1046	0.1630	**0.2243**	0.1774	0.1138	0.0556
		8	0.0238	0.0233	0.0259	0.0422	0.0641	0.0953	0.1876	**0.2543**	0.1974	0.0862
		9	0.0210	0.0186	0.0169	0.0243	0.0335	0.0581	0.0992	0.1908	**0.3276**	0.2101
	Most	10	0.0150	0.0165	0.0150	0.0154	0.0213	0.0276	0.0410	0.0741	0.1905	**0.5836**

Table 4
Pearson Correlation Matrix

This table presents Pearson correlation coefficients for the variables used in the empirical analyses. The bold figures indicate significance at the 10 percent level and above.

	CO	*TRA*	*DED*	*DUVOL*	*ESIGMA*	*NCSKEW*	*AGE*	*DTURN*	*DYIELD*	*FLOAT*	*HHI*
TRA	**0.0958**										
DED	**-0.0621**	-0.0114									
DUVOL	**0.0179**	**0.1261**	0.0026								
ESIGMA	**0.0278**	**0.0832**	**-0.0188**	**0.7837**							
NCSKEW	**0.0250**	**0.1232**	0.0007	**0.9531**	**0.8308**						
AGE	**-0.1571**	**-0.1061**	**0.0644**	-0.0006	**-0.0343**	**-0.0241**					
DTURN	**-0.0259**	**0.1298**	-0.0062	**0.0465**	**0.0307**	**0.0469**	0.0112				
DYIELD	**-0.0286**	**-0.0468**	0.0052	0.0016	-0.0020	-0.0048	**0.0831**	0.0039			
FLOAT	0.0124	**0.1529**	**-0.0713**	0.0323	0.0054	0.0354	**-0.2818**	**0.1225**	**-0.0747**		
HHI	**-0.0776**	**-0.0928**	**-0.0228**	-0.0143	-0.0028	**-0.0235**	**0.1830**	0.0026	**0.0466**	-0.0369	
LEV	**-0.0876**	-0.0055	**0.0588**	**-0.0268**	**-0.0214**	**-0.0297**	**0.1012**	**0.0261**	**0.0409**	**-0.0665**	**0.0779**
MKTCAP	-0.0238	**-0.1210**	0.0323	-0.0069	-0.0164	-0.0119	**0.2523**	-0.0163	0.0152	**-0.1697**	**0.0826**
MTB	0.0019	0.0071	0.0039	0.0120	0.0132	0.0129	0.0032	0.0006	0.0011	-0.0177	-0.0040
PCTCOMP	**0.1389**	0.0012	**0.0651**	**-0.0251**	-0.0102	-0.0003	**-0.1616**	**-0.0315**	**-0.0575**	**0.0705**	**-0.0745**
RANK	**0.0532**	-0.0177	**-0.1236**	-0.0164	0.0013	0.0056	**-0.4013**	0.0181	0.0034	**0.5787**	**-0.0897**
RET	**-0.1054**	**-0.0803**	**0.0322**	**0.0610**	**0.0288**	**0.0148**	**0.2821**	**-0.1528**	**0.0776**	**-0.2513**	**0.1216**
ROA	**-0.0239**	**0.0465**	**0.0243**	**0.0827**	**0.0452**	**0.0539**	**0.1305**	**0.0498**	**0.0451**	**-0.0707**	**0.0702**
R2000	**0.0538**	**0.1221**	**-0.1499**	0.0075	0.0220	0.0217	**-0.3297**	**0.0778**	-0.0121	**0.4682**	**-0.0903**
SGROWTH	**0.0278**	-0.0028	-0.0046	0.0011	-0.0008	0.0032	-0.0109	0.0115	-0.0037	0.0040	-0.0075
SIZE	**-0.0512**	**0.2368**	**0.0241**	**0.1751**	**0.0876**	**0.1370**	**0.2867**	**0.0792**	**0.0151**	**-0.4069**	0.0122
SP500	**-0.1022**	**0.0626**	**0.0881**	**0.0365**	-0.0119	**0.0156**	**0.4053**	**0.0245**	**0.0330**	**-0.3701**	**0.0565**
STATE	**0.1467**	0.0141	**0.0393**	0.0103	**0.0219**	**0.0191**	**-0.1119**	**-0.0322**	**-0.0487**	0.0183	**-0.1998**
STDEV	**0.1141**	**0.1165**	**-0.0271**	**-0.0593**	**-0.0240**	-0.0090	-0.3387	**0.1427**	**-0.0965**	**0.2944**	**-0.1413**

	LEV	*MKTCAP*	*MTB*	*PCTCOMP*	*RET*	*ROA*	*R2000*	*SGROWTH*	*SIZE*	*SP500*	*STATE*
LEV											
MKTCAP	**0.0460**										
MTB	0.0035	0.0158									
PCTCOMP	**-0.2073**	**-0.0777**	-0.0005								
RANK	**-0.1815**	**-0.3372**	**-0.0445**	**0.1996**							
RET	**0.0512**	**0.1404**	-0.0085	**-0.2384**							
ROA	**-0.3109**	**0.0986**	-0.0032	**-0.0263**	**0.2943**						
R2000	**-0.1415**	**-0.2984**	**-0.0461**	**0.1634**	**-0.3223**	**-0.1942**					
SGROWTH	0.0004	-0.0025	0.0000	**0.0673**	-0.0045	-0.0057	-0.0230				
SIZE	**0.0994**	**0.4559**	**0.0205**	**-0.1996**	**0.3559**	**0.2017**	**-0.7712**	0.0068			
SP500	**0.1399**	**0.3268**	0.0046	**-0.1289**	**0.2191**	**0.1060**	**-0.6470**	0.0078	**0.6406**		
STATE	**-0.0973**	-0.0186	0.0136	**0.1464**	**-0.0735**	**-0.0606**	**0.0592**	-0.0056	**-0.0374**	**-0.0382**	
STDEV	**-0.0691**	**-0.1973**	0.0045	**0.2614**	**-0.9629**	**-0.2903**	**0.4077**	0.0055	**-0.4243**	**-0.2758**	**0.0883**

Table 5
Instrumental Variable Regressions of Institutional Ownership on Competition Orientation

This table presents instrumental variable (IV) regressions of the relationships between transient (*TRA*) and dedicated (*DED*) institutional ownership and competition orientation (*CO*) [Panel A], and the results of a Stock and Yogo (2005) weak instruments test [Panel B]. The regressions include year and industry fixed effects and the standard errors are clustered by firm.

Panel A. IV regression first and second stage results.

	1st stage: TRA_t	*CO_t*	*1st stage: DED_t*	*CO_t*
	(1)	(2)	(3)	(4)
TRA_t		0.039**		
		(2.41)		
DED_t				-0.064**
				(2.13)
$R2000_t$	0.263***		-0.161***	
	(6.91)		(3.78)	
$R2000_t \times RANK_t$	-0.350***	0.012**	-0.641**	-0.006
	(10.09)	(2.16)	(2.04)	(1.31)
$MRKCAP_t$	-0.068***	0.001	-0.007	-0.002
	(5.73)	(0.48)	(0.86)	(1.03)
$FLOAT_t$	0.957***	-0.005**	-0.039	-0.001
	(5.38)	(2.05)	(0.23)	(0.79)
R^2	0.18		0.08	
N	2,440	2,440	2,440	2,440

Panel B. Stock and Yogo (2005) Weak Instruments Test.

Instrumented variables	Instruments	First stage F – Statistic	Critical value
TRA_t	$R2000_t$	50.46	16.38
DED_t	$R2000_t$	60.21	16.38

*p<0.1; ** p<0.05; *** p<0.01

Table 6
2SLS Regressions of Institutional Ownership on Competition Orientation

This table presents first and second stage 2SLS estimates used to investigate the relationship between dedicated and transient institutional ownership and competition orientation. The regressions include year and industry fixed effects and the standard errors are clustered by firm.

	1st stage: TRA_t	CO_{t+1}	*1st stage: DED_t*	CO_{t+1}
	(1)	(2)	(3)	(4)
TRA_t		0.197***		
		(4.14)		
DED_t				–0.296*
				(1.79)
$DYIELD_t$	–0.106***		–0.029***	
	(12.57)		(3.78)	
$SGROWTH_t$	0.026***		–0.021***	
	(4.18)		(3.77)	
$SP500_t$	–0.252***		0.036	
	(7.27)		(1.24)	
RET_t	0.527***		0.152***	
	(21.12)		(6.64)	
AGE_t	–0.090***	–0.062***	–0.025**	–0.102***
	(7.94)	(3.77)	(2.31)	(6.45)
$DTURN_t$	0.090***	–0.031***	0.003	–0.013***
	(16.61)	(4.84)	(0.81)	(2.93)
LEV_t	0.016	–0.059***	0.035***	–0.047***
	(1.62)	(4.87)	(3.85)	(3.53)
MTB_t	0.002	–0.012	–0.026***	–0.020*
	(0.24)	(1.22)	(3.79)	(1.80)
ROA_t	0.041***	–0.019*	–0.007	–0.008
	(4.65)	(1.75)	(1.00)	(0.72)
$SIZE_t$	0.429***	–0.058***	0.105***	0.039*
	(29.24)	(2.59)	(9.23)	(1.78)
$STDEV_t$	0.599***	0.009	0.102***	0.012
	(22.03)	(0.74)	(3.85)	(0.76)
R^2	0.33		0.38	
N	30,910	30,910	30,910	30,910

Panel B. Stock and Yogo (2004) Weak Instruments Test

Instrumented variables	Instruments	First stage F – Statistic	Critical value
TRA_t	$DYIELD_t$; $SGROWTH_t$; $SP500_t$; RET_t	183.72	10.27
DED_t	$DYIELD_t$; $SGROWTH_t$; $SP500_t$; RET_t	18.33	10.27

*p<0.1; ** p<0.05; *** p<0.01

Table 7

Dynamic System GMM Regressions of Institutional Ownership on Competition Orientation

This table presents dynamic fixed effects GMM panel estimates of the relationship between transient (dedicated) institutional ownership and market orientation. *AR*(1) and *AR*(2) are tests for first-order and second-order serial correlation in the first-differenced residuals, under the null of no serial correlation. The Hansen test of over-identification is under the null that all instruments are valid. The Diff-in-Hansen test exogeneity is under the null that instruments used for the equations in levels are exogenous.

	CO_t	
	(1)	(2)
TRA_t	0.098**	
	(1.99)	
DED_t		–0.100*
		(1.68)
AGE_t	–0.031	–0.071**
	(1.62)	(2.53)
$DTURN_t$	–0.035	–0.014
	(0.96)	(0.42)
LEV_t	–0.096**	–0.064
	(2.18)	(0.96)
MTB_t	–0.038	0.025
	(0.93)	(0.51)
RET_t	–0.063	0.071
	(0.43)	(0.45)
ROA_t	–0.029	0.028
	(0.59)	(0.49)
$SIZE_t$	0.124**	0.063
	(2.54)	(0.79)
$STDEV_t$	–0.025	0.063
	(0.16)	(0.38)
CO_{t-1}	0.580***	0.428***
	(6.22)	(4.18)
CO_{t-2}	0.152**	0.121
	(1.98)	(1.61)
AR(1) test *p*–value	0.00	0.00
AR(2) test *p*–value	0.46	0.44
Hansen test for over–identification *p*–value	0.71	0.27
Diff–in–Hansen tests of exogeneity *p*–value	0.81	0.34
N	15,993	15,993

*p<0.1; ** p<0.05; *** p<0.01

Table 8
Random Effect Regressions of Competition Orientation on Stock Price Crash Risk

This table presents GLS-RE estimates used to investigate the relationship between competition orientation and crash risk. All regressions include year fixed effects and the standard errors are clustered at the firm level.

	$DUVOL_{t+1}$	$ESIGMA_{t+1}$	$NCSKEW_{t+1}$
	(1)	(2)	(3)
CO_t	0.018**	0.029***	0.024***
	(2.34)	(3.62)	(3.13)
AGE_t	–0.041***	–0.037***	–0.047***
	(4.85)	(4.29)	(5.63)
$DTURN_t$	0.024***	0.018**	0.021***
	(3.12)	(2.37)	(2.73)
LEV_t	–0.028***	–0.013*	–0.025***
	(3.54)	(1.70)	(3.13)
MTB_t	0.008	0.008	0.009
	(1.06)	(1.07)	(1.14)
RET_t	0.129***	0.079***	0.132***
	(4.75)	(2.89)	(4.88)
ROA_t	0.066***	0.041***	0.047***
	(7.90)	(4.57)	(5.33)
$SIZE_t$	0.188***	0.097***	0.178***
	(20.03)	(10.22)	(18.80)
$STDEV_t$	0.139***	0.089***	0.168***
	(4.62)	(2.93)	(5.56)
R^2	0.04	0.02	0.03
N	18,654	18,654	18,654

*p<0.1; ** p<0.05; *** p<0.01

Table 9
2SLS Regressions of Competition Orientation on Stock Price Crash Risk

This table presents first and second stage estimates from 2SLS regressions used to investigate the relationship between competition orientation and crash risk [Panel A], and the results of a Stock and Yogo (2005) weak instruments test [Panel B]. The regressions include year and industry fixed effects and the standard errors are clustered by firm.

Panel A. 2SLS regression second stage results.

	1st stage: CO_t	$DUVOL_{t+1}$	$ESIGMA_{t+1}$	$NCSKEW_{t+1}$
	(1)	(2)	(3)	(4)
CO_t		0.167**	0.228***	0.187***
		(2.35)	(3.11)	(2.62)
HHI_t	0.028			
	(1.62)			
$STATE_t$	0.217***			
	(8.42)			
$SP500_t$	–0.108**			
	(2.18)			
AGE_t	–0.095***	–0.019	–0.008	–0.021*
	(5.58)	(1.61)	(0.64)	(1.77)
$DTURN_t$	–0.025***	0.029***	0.027***	0.027***
	(4.44)	(3.66)	(3.36)	(3.33)
LEV_t	–0.040***	–0.015	0.013	–0.007
	(2.79)	(1.57)	(1.36)	(0.71)
MTB_t	–0.019**	0.005	0.001	0.005
	(1.64)	(0.68)	(0.14)	(0.58)
RET_t	–0.010	0.145***	0.091***	0.154***
	(0.26)	(5.16)	(3.20)	(5.50)
ROA_t	0.001	0.069***	0.055***	0.052***
	(0.11)	(7.57)	(5.61)	(5.57)
$SIZE_t$	0.051**	0.173***	0.089***	0.160***
	(2.38)	(16.74)	(8.39)	(15.35)
$STDEV_t$	–0.001	0.153***	0.099***	0.189***
	(0.03)	(4.85)	(3.09)	(5.98)
R^2	0.19			
N	18,654	18,654	18,654	18,654

Panel B. Stock and Yogo (2005) Weak Instruments Test.

Instrumented variables	Instruments	First stage F – Statistic	Critical value
CO_t	HHI_t; $STATE_t$; $SP500_t$	25.31	9.08

*p<0.1; ** p<0.05; *** p<0.01

Table 10
Subsample Analyses of Competition Orientation on Stock Price Crash Risk

This table presents GLS-RE estimates used to investigate the relationship between competition orientation and crash risk for subsamples of firms. All regressions include year and the standard errors are clustered at the firm level.

Panel A. The effect of competition orientation on crash risk for subsamples of high transient and low (or high) dedicated ownership firms.

	HIGH *TRA* & LOW *DED*			HIGH *TRA* & HIGH *DED*		
	$DUVOL_{t+1}$	$ESIGMA_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$ESIGMA_{t+1}$	$NCSKEW_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
CO_t	0.047***	0.061***	0.053***	0.006	0.013	0.013
	(2.83)	(3.48)	(3.15)	(0.34)	(0.69)	(0.70)
AGE_t	–0.029	–0.012	–0.036*	–0.048**	–0.036*	–0.053***
	(1.54)	(0.67)	(1.95)	(2.57)	(1.81)	(2.80)
$DTURN_t$	0.042***	0.034**	0.041***	0.040**	0.021	0.038**
	(2.77)	(2.16)	(2.66)	(2.38)	(1.24)	(2.31)
LEV_t	–0.036**	–0.038**	–0.037**	–0.031*	–0.001	–0.028
	(2.17)	(2.11)	(2.16)	(1.71)	(0.05)	(1.50)
MTB_t	0.009	0.016	0.011	0.035**	0.025	0.034**
	(0.46)	(0.81)	(0.56)	(2.49)	(1.58)	(2.23)
RET_t	0.057	–0.034	0.034	0.125*	0.104	0.118
	(0.87)	(0.49)	(0.52)	(1.67)	(1.33)	(1.60)
ROA_t	0.039**	0.032	0.027	0.043*	0.016	0.016
	(2.06)	(1.50)	(1.28)	(1.86)	(0.58)	(0.64)
$SIZE_t$	0.165***	0.093***	0.136***	0.141***	0.067**	0.122***
	(5.90)	(3.23)	(4.82)	(5.72)	(2.47)	(4.83)
$STDEV_t$	0.083	0.006	0.089	0.158**	0.140*	0.165**
	(1.16)	(0.08)	(1.27)	(2.06)	(1.71)	(2.16)
R^2	0.04	0.03	0.03	0.04	0.02	0.04
N	4,011	4,011	4,011	3,575	3,575	3,575

(continued on the next page)

Table 10 cont'd.

Panel B. The effect of competition orientation on crash risk for subsamples of low transient and low (or high) dedicated ownership firms.

	LOW *TRA* & LOW *DED*			LOW *TRA* & HIGH *DED*		
	$DUVOL_{t+1}$	$ESIGMA_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$ESIGMA_{t+1}$	$NCSKEW_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
CO_t	0.012	0.012	0.016	0.008	0.031*	0.01
	(0.80)	(0.81)	(1.07)	(0.46)	(1.73)	(0.58)
AGE_t	–0.014	–0.018	–0.018	–0.043**	–0.048**	–0.046**
	(0.86)	(1.12)	(1.10)	(2.24)	(2.49)	(2.43)
$DTURN_t$	–0.005	–0.011	–0.02	–0.037	–0.037	–0.044*
	(0.31)	(0.71)	(1.21)	(1.54)	(1.43)	(1.82)
LEV_t	–0.007	0.009	0.001	–0.02	–0.023	–0.02
	(0.45)	(0.63)	(0.09)	(1.04)	(1.23)	(1.03)
MTB_t	–0.001	0.002	0.002	0.018	0.016	0.01
	(0.06)	(0.11)	(0.10)	(0.99)	(0.86)	(0.53)
RET_t	0.053	0.056	0.059	0.134*	0.019	0.146**
	(1.06)	(1.15)	(1.20)	(1.82)	(0.26)	(2.06)
ROA_t	0.066***	0.039***	0.049***	0.073***	0.048**	0.051**
	(4.46)	(2.64)	(3.36)	(3.54)	(2.26)	(2.36)
$SIZE_t$	0.214***	0.130***	0.205***	0.119***	0.047**	0.117***
	(10.35)	(6.35)	(9.85)	(5.60)	(2.26)	(5.53)
$STDEV_t$	0.053	0.047	0.092*	0.103	–0.007	0.152**
	(0.94)	(0.86)	(1.65)	(1.33)	(0.10)	(2.01)
R^2	0.07	0.04	0.05	0.04	0.02	0.03
N	4,505	4,505	4,505	3,088	3,088	3,088

*p<0.1; ** p<0.05; *** p<0.01

Table 11

Random Effects Regressions of Competition Orientation on Sales Growth

This table presents GLS-RE estimates used to investigate the relations between institutional ownership, competition orientation and firms' sales growth. All regressions include year and industry fixed effects. The standard errors are clustered at the firm level.

	$SGROWTH_t$	
	(1)	(2)
CO_t	0.041***	0.040***
		(4.07)
AGE_t		-0.129***
		(11.91)
$DTURN_t$		0.071***
		(6.97)
LEV_t		0.059***
		(3.98)
MTB_t		0.072***
		(4.67)
RET_t		0.125***
		(2.59)
ROA_t		0.123***
		(6.12)
$SIZE_t$		0.097***
		(6.57)
$STDEV_t$		0.180***
		(4.05)
R^2	0.06	0.10
N	30,910	30,910

*p<0.1; ** p<0.05; *** p<0.01

Table 12
Univariate Analyses of the Relationships Between Institutional Ownership, Competition orientation, and Product Market Competition

This table presents univariate analyses of the relationships between transient and dedicated institutional ownership, competition orientation, and product market competition. Panel A shows the results by deciles of competition orientation, and product market competition. The significance of the difference between means in deciles 10 and 1 are indicated in the last row where, "*", "**", and "***" indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively. Panel B highlights Pearson's correlation results between the institutional ownership, competition orientation, and product market competition. The bold figures indicate significance that the 10 percent level and above.

Panel A. Deciles analysis.

		CO		*PCTCOMP*	
		TRA	*DED*	*TRA*	*DED*
Lowest	1	0.1287	0.0501	0.1422	0.0402
	2	0.1306	0.0392	0.1396	0.048
	3	0.1333	0.038	0.1458	0.0502
	4	0.1329	0.0366	0.1453	0.0525
	5	0.1409	0.0354	0.1405	0.0535
	6	0.1451	0.0373	0.1447	0.0559
	7	0.1463	0.0367	0.137	0.0652
	8	0.1449	0.0357	0.1385	0.0616
	9	0.149	0.034	0.1368	0.0592
Highest	10	0.145	0.0406	0.1448	0.0643
Diff (10) - (1)		0.0164	-0.0095	0.0026	0.0241
t–stat		6.18***	-5.69***	0.77	11.14***

Panel B. Pearson's correlations.

	PCTCOMP
CO	**0.1389**
TRA	0.0012
DED	**0.0651**

Table 13
Random Effects Regressions of Institutional Ownership on Competition Orientation and Product Market Competition

This table presents GLS-RE estimates used to investigate the relations between institutional ownership, competition orientation, and Li et al.'s [2013] product market competition. All regressions include controls [see Eq.'s (13) to (15) of the paper], year and industry fixed effects. The standard errors are clustered at the firm level.

Panel A. The effect of transient institutional ownership on market orientation and product market competition.

	CO_{t+1}			$PCTCOMP_{t+1}$		
	(1)	(2)	(3)	(4)	(5)	(6)
TRA_t	0.031***			0.005		
	(3.27)			(0.51)		
ΔTRA_t		0.019***	0.018***		0.005	0.006
		(2.70)	(2.58)		(0.63)	(0.72)
TRA_{t-1}		0.044***			–0.001	
		(3.48)			(0.10)	
ΔTRA_{t-1}			0.031***			–0.002
			(3.14)			(0.21)
TRA_{t-2}			0.047***			0.004
			(3.22)			(0.28)
R^2	0.07	0.07	0.07	0.28	0.28	0.28
N	15,242	15,242	15,242	15,242	15,242	15,242

Panel B. The effect of dedicated institutional ownership on market orientation and product market competition.

	CO_{t+1}			$PCTCOMP_{t+1}$		
	(1)	(2)	(3)	(4)	(5)	(6)
DED_t	–0.021*			–0.012		
	(1.84)			(1.09)		
ΔDED_t		–0.021**	–0.022**		–0.012	–0.012
		(2.44)	(2.55)		(1.30)	(1.26)
DED_{t-1}		–0.016			–0.008	
		(1.12)			(0.63)	
ΔDED_{t-1}			–0.013			–0.004
			(1.19)			(0.33)
DED_{t-2}			–0.02			–0.011
			(1.20)			(0.70)
R^2	0.07	0.07	0.07	0.28	0.28	0.28
N	15,242	15,242	15,242	15,242	15,242	15,242

*p<0.1; ** p<0.05; *** p<0.01